

Human Translation versus Machine Translation and Full Post-Editing of Raw Machine Translation Output

Lorena Guerra Martínez

Licenciada en Filología Inglesa

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requirements for the degree of MA in Translation Studies.**

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‘I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of MA in Translation Studies is entirely my own work and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work.’

Signed: Lorena Guerra

Student Number: 52152570

Date: 18th August 2003.

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Abstract

Human Translation versus Machine Translation and Full Post-Editing of Raw Machine Translation Output. Lorena Guerra Martínez. Licenciada en Filología Inglesa.

By automatically generating raw output, machine translation has instituted a new approach to translation where assimilation of the information is the primary goal. However, in situations where higher quality is demanded and time and/or costs are primary concerns, it is critical to analyse the advantages and disadvantages of human translation versus human-assisted machine translation. Although several approaches to optimise the efficiency and output quality of a machine translation system exist, this study is focused on the back-end of the machine translation process. Accordingly, various comparative tests are presented, with the aim of offering statistics on human translation speed as a benchmark for carrying out machine translation post-editing measurements. Although the area tested, “marketing brochures”, seems inappropriate for machine translation systems, the challenge is to prove the potential of this technology for materials other than highly repetitive technical and/or scientific manuals. This dissertation is built upon and follows the methodology of machine translation specialist Jeffrey Allen. It is based on several tests conducted by him in 2001 and, more recently, in 2003(b) and it extrapolates his proposed techniques to a different language pair, direction and corpus of texts. The version of the software used, *@prompt Professional* (English <-> Spanish) released in March 2003, was kindly donated by PROject MT Ltd., for the purpose of this dissertation. Considering the pressing need to know more about machine translation post-editing, this work is aimed at offering innovative findings on a new approach that caters for growing translation demands.

Abbreviations

FAMT.....	Fully Automatic Machine Translation
FPE.....	Full Post-Editing
HAMT.....	Human-Assisted Machine Translation
(T) HT.....	(Traditional) Human Translation
MAHT.....	Machine-Assisted Human Translation
MPE.....	Minimal Post-Editing
MT PE.....	Machine Translation Post-Editing
MT.....	Machine Translation
PE.....	Post-Editing
RPE.....	Rapid Post-Editing
SL.....	Source Language
ST(s).....	Source Text(s)
TL.....	Target Language
TM.....	Translation Memory
TT(s).....	Target Text(s)

Measurement abbreviations

hr.....	hour(s)
min.....	minute(s)
sec.....	second(s)

Note: The present dissertation follows the Harvard Reference System (Allen, Julie. 2003). The only modification made to this “Name and Date” system is the reference to a page in a document, where “2003: 9” is used instead of “2003 p9”. Information about page number(s) will be given wherever possible.

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0. INTRODUCTION

0.1 Aims of the dissertation

One of the most unexploited areas of very practical and necessary research in the translation industry is that of *machine translation post-editing* (MT PE) *versus* (*traditional*) *human translation* ((T) HT). Hardly anyone has taken time to benchmark carefully the speed of HT as opposed to MT PE on any language pair. When such measurements have been made, the information is almost never publicly available. According to Allen (2003a: 298), the only tests that have been identified are those that have been conducted during pilot and production phases at Caterpillar Inc. (1995 onward), during a pilot study at General Motors (summer 1999), and ABLE International (2000). Most organisations do not have post-editing (PE) rules, and when they do, they are very short, vague, ambiguous or unavailable. This is the case with General Motors, Pan-American Health Organisation (PAHO), Caterpillar Inc., and the European Commission, (Allen 2003a: 307-312).

By conducting this study, I am primarily interested in answering the question:

***“Is machine translation and full post-editing of raw machine translation output
FASTER than human translation from scratch?”***

Measuring *time* will be the main purpose of this dissertation, although I will also gather information on the number and types of changes made. *Money* (or cost savings) as a further variable will not be addressed in detail, as this would imply a wider scope of research. Nevertheless, since *time* and *money* are directly related in this field, to focus the study on the first factor will imply to cover indirectly the second one, as will be appreciated in the research process. Other related aims are:

- to explain some misconceptions about automated translation,
- to understand PE, defined as the “unknown task” by Schäfer (2003: 134, 136),
- to study machine translation (MT) limitations in a non-specific domain, and
- to analyse how much current MT systems can improve HT efficiency.

0.2 A challenging area

It has been generally stated that MT systems are more appropriate for technical or scientific documentation where the terminology is significantly and sufficiently repetitive, the style requires consistency and the domain is, to some extent, controlled. As a general rule, these types of texts deal with factual relationships that do not present social or cultural implications, therefore reducing ambiguity and improving machine translatability. This general impression is confirmed by contributors of the European Association for Machine Translation (EAMT) forum together with, for example, Bennett and Gerber (2003: 176) who state that “Historically, MT has been most often, and most successfully, applied to relatively formal or technical/scientific writing”.

However, I do not entirely agree with this general statement that limits the use of MT to technical or scientific documentation. Apart from the use of MT systems “to understand” (*see 2.2, Machine translation for different levels of post-editing*), it seems that this technology can also be successfully used to produce high-quality published documents such as marketing brochures. Nevertheless, this is a statement not entirely embraced by all specialists; for example, Bennett and Gerber (*ibid*: 186) mention that:

Marketing materials are clearly beyond the pale when it comes to MT; there is far too much extra-linguistic content (e.g., culturally defined references) to be acceptable using a literal medium such as MT.

Nonetheless, my assertion relies on a study (Allen 2001, 2003b) in which the author conducts a number of experiments with French-English MT PE. In the first article (2001), Allen proves that it is possible to post-edit fully marketing brochures in less time that it takes an average typist to type in the amount of text of the translated document. In the second article (Allen 2003b), he demonstrates that the MT PE cycle of a magazine article took one third of the time than the stated statistics for human translators to complete a human translated document. The author also confirms (Jeffrey Allen, personal communication) that the amount of translation revision effort beyond the initial minimal MT PE cycle is between 8 to 10% of corrections across the entire text; 8% based on word changes and 10% based on character changes. These statistics are based upon results extracted from the COVERT tool, announced by PROject MT Ltd., in June 2003. This translation quality evaluation tool performs comparison of

machine-translated texts with manually edited translated text. It colour codes all changes, and statistics can be produced at the character or word level. (For further information see <<http://www.promt.ru/news-e/news.phtml?id=242>>).

Since this is a challenging area and with the permission of the author of these articles, I will apply, test and build upon Allen's methodology for a different language pair, direction and corpus of texts. Since other methods could have been considered, I have included next section to explain, in more detail, further reasons for this choice of methodology.

0.3 Choice of methodology

This dissertation is based on Allen's methodology (2001) and personal communication findings in relation to his forthcoming article (2003b) because no other MT PE rules or techniques, as clearly stated in published writings, exist today. As pointed out by Allen:

The majority of existing experienced post-editors are mainly in-house staff translators (e.g., Caterpillar Inc., Pan-American Health Organisation (PAHO), EC Translation Service) and now a growing number of HT professionals who have been recruited as PE free-lancers through the EC and translation/localization companies such as ABLE International and the Detroit Translation Bureau (2003a: 299)

Nevertheless, these organisations or the multilingual corporations do not necessarily make available any details or results of MT PE, the guidelines used or the training followed. To my knowledge and after an exhaustive literature review, as presented in *Part I: Chapters two and three*, the only publicly available methodologies are those developed by Spalink et al. (1997), Schäfer (2003), and Allen (2001, 2003b). In relation to the first study, this is no longer implemented and was obtained in the archives of one of the authors. A two-month delay in receiving the information meant that the methodology could not be considered, as this dissertation was heavily time-constricted. On the other hand, Schäfer's study (2003) describes a project currently under way at SAP AG dealing with the task of PE raw MT output. As a concrete result of this investigation, a guide has been created aiming to train and support translators in their daily work with MT. Nonetheless, since this project is not yet complete, and the methodology is still under revision, it could not be followed or applied to the current

dissertation. Finally, the methodology used by Allen (2001, 2003b) has already been implemented in international organisations and corporate environments at institutions such as Renault, Mycom International, Bosch, the European Aeronautic Defence and Space Company (EADS) and Life Agape International amongst others. His method is also currently being considered by other organisations such as SAP AG and the World Bank. The corporate implementation of the tool and its user-focussed process demonstrates the real-life validity of Allen's approach. As this fact can be much more of a true measurement than a theoretical critique, I have decided to base this dissertation on his strategy, which is further explained in section 3.1, *Multi-step process in machine translation post-editing (MT PE)*.

0.4 Structure

This dissertation is divided into three parts starting with a theoretical one. In this section, Chapter one is an introduction to and critical review of MT. "Post-editing", as a key concept in the research, is considered in more detail in Chapter two. Aspects such as steps in and levels of PE, who should be doing PE, ideal skills, pricing PE, the importance of building and updating dictionaries or PE versus human translation and revision are discussed from a critical perspective where necessary.

In the second section, Chapter three explains the methodology and procedures to be applied. This is followed, in Chapter four, by a review of the MT system *@prompt Professional* (English <-> Spanish), the software used in this research.

The third and practical section is based on various comparative tests aimed at offering timed statistics on the different tasks performed: HT and MT PE. This chapter also contains a discussion based on the findings of the experiments. A few suggestions on how to code entries into an MT dictionary, together with some guidelines to perform full post-editing (FPE) of marketing brochures, are also provided. A conclusion of the entire study is presented in Chapter six, followed by Appendix "A", a glossary including the most relevant terminology mentioned in the dissertation together with some resources for further information. Appendices "B" and "C" include all documents tested in the practical section together with the corresponding human and machine-assisted translations.

PART I: THEORETICAL BACKGROUND

1. Machine translation

1.1 Different types of translation

Using an appropriate terminology, there are four basic types of translation. *See Fig. 1, Human and machine translation* (adapted from Hutchins and Somers 1992: 148),

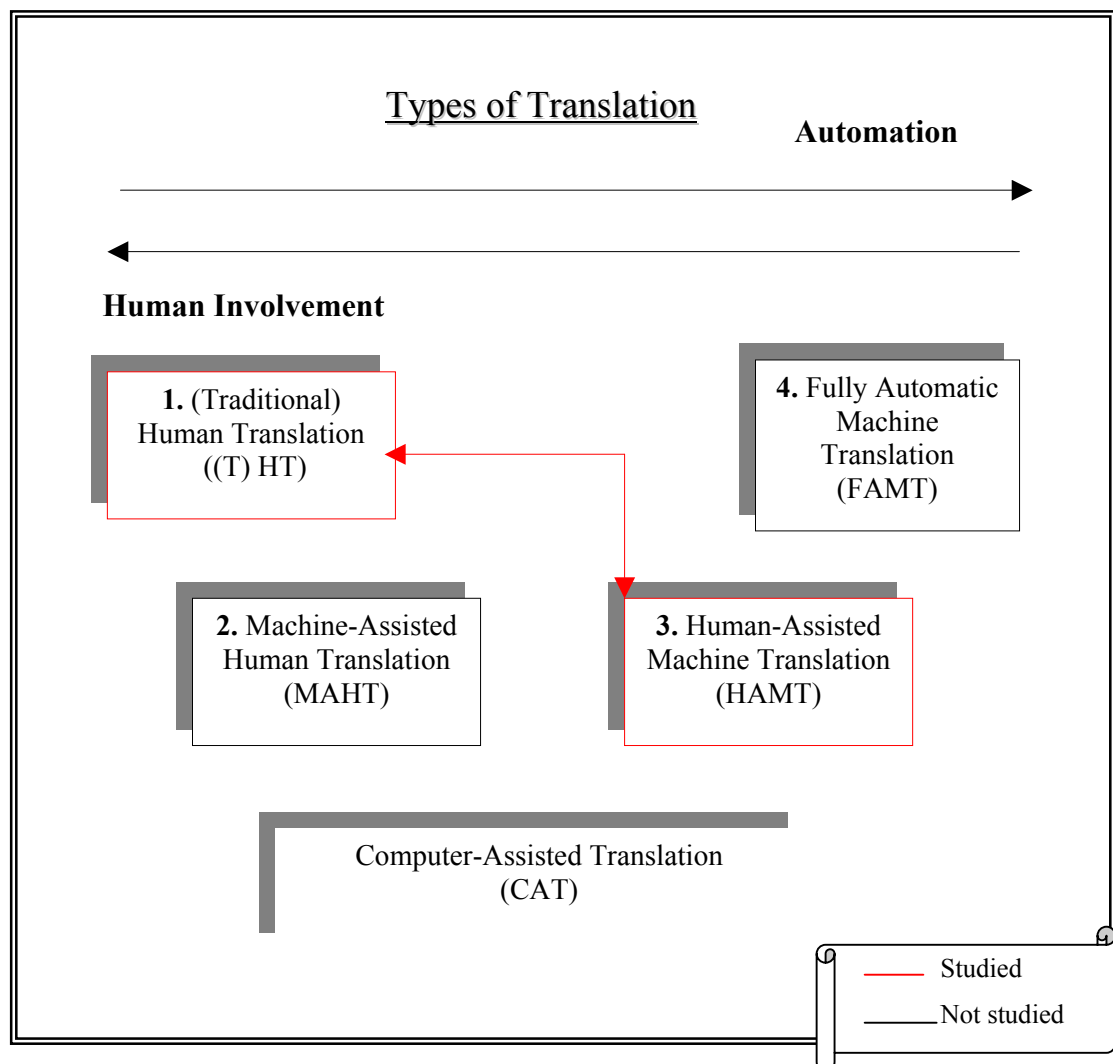


Fig. 1 Human and machine translation (adapted from Hutchins and Somers 1992: 148)

In this project, (1) HT will be compared to (3) HAMT, since FPE will be included in the overall process. (2) MAHT, as a different computational approach, will not be addressed to avoid the introduction of further variables. (4) FAMT, understood as the computer process of translating a source text (ST) into a target text (TT) without any human intervention, will be addressed although very briefly.

As my intended purpose in this project is to post-edit machine-translated texts to achieve high-quality target texts, FAMT (as a different type of translation) will be addressed only to clarify some (general) misconceptions. It is obvious that most misunderstandings of MT are related to FAMT, as this is the type of MT that people think of when they hear the term “machine translation”. However, this automatic translation can be a reality only under very strictly defined conditions where the language and style of the input is restricted as a consequence of dealing with very specific domains, e.g., Météo (for more information and descriptions of Météo *see* Appendix “A” number 20, Hutchins and Somers 1992: 207-238, Newton 1992: 33-45, Somers 2003b: 289-294, for example) or when MT output, although (very) low in quality, is accepted (*see* 2.2, *Machine translation for different levels of post-editing* “translation to understand”). One cannot just take FAMT as a general rule, especially when fully automatic high-quality machine translation (FAHQMT) is sometimes expected or when PE of raw MT output, for example (*see* 1.6, *Optimising machine translation efficiency*), is not included as a possible option to improve MT effectiveness.

1.2 Defining machine translation

Machine translation is an automatic translation system that makes use of an advanced computational linguistic analysis to process source documents and automatically create target texts with (HAMT) or without (FAMT) user intervention.

For more than five decades people have tried to program computers to translate from one natural language to another. However, since the earliest days of computing, automatic MT of natural languages has always been a(n) (im)possible dream, a controversial topic, a source of illusions, jokes and even serious disputes. As pointed out by Hutchins (2003, pages not numbered), “Machine translation is still better known for its failures than for its successes”. Furthermore, the Automated Language Processing Advisory Committee (ALPAC), the (in)famous report as pointed out by Hutchins (1996, pages not numbered) was very negative about MT. It concluded that “MT was slower, less accurate and twice as expensive as human translation” (Somers 2003a: 4).

1.3 Automatic translation systems

These days there are more low-cost, high-quality MT systems on the market covering more language combinations than ever before. According to the sixth Compendium of Translation Software, dating from March 2003, there are a hundred and fifty-two separate MT systems (including MT portals) just for English as source language (SL). In addition, English is translated into thirty-seven different target languages (John Hutchins, personal communication).

When referring to MT systems, it is important to bear in mind that there are many different approaches to the processing of texts for translation. For example, rule-based machine translation (RBMT) and knowledge-based machine translation systems (KBMT) use rules describing SL linguistic structures and how they map onto target language (TL) linguistic structures, and knowledge of restricted specialised domains respectively. However, corpus-based methods including statistical MT and example-based machine translation systems (EBMT) extract translation equivalents from existing source texts (STs) and their target texts (TTs), and hybrid approaches combine different methods in multi-engine machine translation (MEMT).

1.4 Translation and technology

These days, technology is not only a reality but also a necessity in translation. As pointed out by Mike Anobile, the founder and Director of the Localisation Industry Standards Association (LISA), “technology and process automation will drive the business, there's no other way for the demand to be met” (Esselink 2001: 14, cited in Cronin, 2003: 111). Companies are facing increased pressure to maintain multilingual content. “The world is badly in need of translators” (Kay 1997: 3).

The exponential increase in information and its centrality to the informational society have created a situation not where there is no work for translators but rather where there is in fact too much (Cronin 2003: 112).

Consequently, computers are an aid (not a replacement) to professional human translators. The ways in which MT engines are employed in large multilingual organisations and international companies open up new work avenues for translators.

This technology is an added and challenging component of today's global multilingual documentation production. Lou Cremers, Translation Services Manager at Océ Technologies, has claimed in an interview that:

MT should be regarded as enabling technology which speeds up routine work, leaving the translator to apply special domain and language skills (Euromap 2002, pages not numbered).

1.5 Advantages and disadvantages of an imperfect technology

Whereas researchers and translators are often disappointed with the output of MT systems, more and more users accept the imperfection and embrace the technology.

While academics debate linguistic and statistical approaches to MT, organisations in the public and private sector are putting it to work [...]. The breakthrough is market-driven rather than technical: MT is not perfect, but it has become an economic necessity. We must learn how to use it and how to optimise its benefits in practical business environments (Van der Meer 2003).

According to Lionbridge Technologies, Inc. (2001: 3), "understanding where MT is useful, and why, will help ensure successful deployments". A profitable implementation and understanding of this technology means looking at both its reasonable potential and current limitations. According to the EAMT (<<http://www.eamt.org>>):

MT has proved to be an elusive goal, but today a number of systems are available which produce output which, if not perfect, is of sufficient quality to be useful in a number of specific domains.

1.6 Optimising machine translation efficiency

Different approaches can be taken to optimise MT efficiency:

- Human interaction either before (pre-editing), during, or after (post-editing) MT,
- Controlled Language (CL),
- MT combined with Translation Memory (TM) systems,
- Dictionary building and updating.

In this project, the importance of PE as well as dictionary building and updating will be the aspects considered when optimising the back-end of the MT process. Pre-editing, which itself is an additional variable, and TM systems, which could further improve translation quality, will not be addressed in any detail due to limitations on the scope of the research. Nevertheless, a very brief explanation of the four remaining possibilities will be outlined in this section to present a general overview.

- *Pre-editing* is understood as the process of identifying problems and, where necessary, editing the ST before translating it so that any strings of text that an MT system will have problems with are highlighted and removed or modified in advance. The final aim is to achieve better human *readability* and clarity of the SL text, as well as better computational processing or *translatability*, especially by translation systems. In those situations where readability and translatability do not work as synonyms (*see* Reuther 2003), in the case of automated translation, translatability will be given priority. Pre-editing may be used to ensure that a ST conforms to a given Controlled Language.
- *A Controlled Language (CL)*, by definition, is a subset of a natural language whose grammar and dictionaries have been restricted to reduce or eliminate ambiguity and complexity in texts written in that CL, whether they are processed by machine or read by humans only.
- *Human-machine interaction* during the translation process is especially important in those cases where the system suspends its processing to ask the user for clarification of an ambiguity in the ST or for a decision regarding a possible choice for the TT. This uncertainty is commonly associated with difficulties that occur at lexical or syntactic levels.
- *Combining MT with TM systems* in environments where HT is also implemented. Recent studies (*see*, for example, Heyn 1996, Lange and Bennett 2000, Terence 2001, Shuttleworth 2002) are trying to join “the best of two worlds” as, it seems that, they are complementary:

Integrating MT into TM means that there is a translation proposal for each sentence in the source document. With properly internationalised and structured documents, linguists will primarily perform minor to modest post-editing instead of translating from scratch (Mügge 2001: 29).

Many companies are successfully combining these two technologies for most of the translation projects. Océ Technologies, SAP AG, Compendium GmbH or the European Commission are some examples.

2. Post-editing of machine-translated texts

2.1 Definition

“Post-editing” (sometimes written non-hyphenated: “postediting”), as a step or set of steps in an overall translation process, is the term used for editing, modifying and/or correcting machine-translated texts. Senez (1998, pages not numbered) refers to it as “a term used for the correction of machine translation output by human linguists/editors” and Wagner (1985, cited in Allen 2001: 26) says that it is “the correction of a pre-translated text rather than translation from scratch”.

In general, MT PE is a type of translation service that is offered as an optional parallel process to HT. TM tools can further be added to either the HT or the MT process. The implementation of MT is increasing over time for certain types of translated documents, and for certain organisations. However, this term has occasionally been used in a different manner to describe the process of cleaning up scanned optical character recognition (OCR) texts (*see* Knight and Chander 1994) or even for the practice of reviewing texts compiled through TM processes. My use of the term “post-editing” in this study is limited only to the task of editing, modifying and/or correcting raw MT output. Regarding the second interpretation mentioned above, I would be very careful when generalising this term to include the idea of reviewing parallel texts by TM tools, because TM processes can be added into any translation cycle with or without MT and MT PE. The only similarity, if any, is that both processes require significant cognitive effort for “polishing” a text. Nevertheless, this similarity is limited since MT PE requires more cognitive effort than TM editing, which relies on existing well-translated texts.

2.2 Machine translation for different levels of post-editing

MT is not equivalent to HT, but it adds a range of options that should not be underestimated. MT software can be particularly useful depending on the intended purpose(s) of the translation(s). See Fig. 2, *MT for different purposes*,

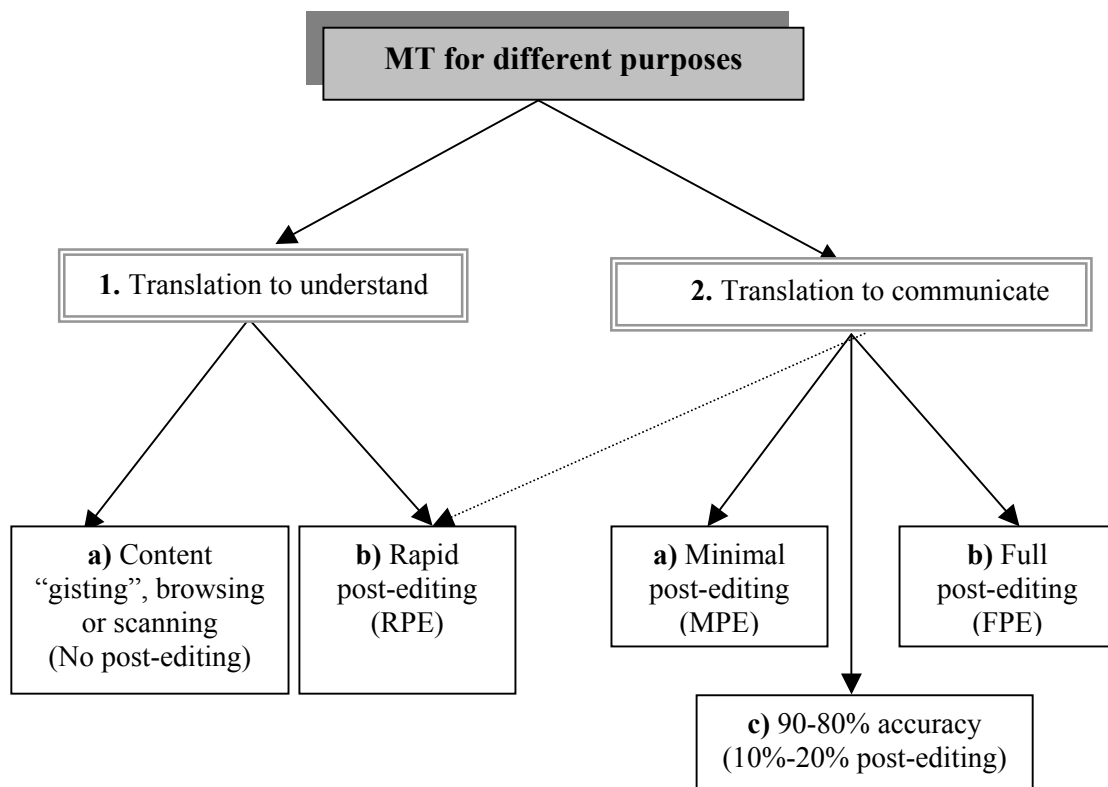


Fig. 2 *MT for different purposes*

1. MT can sometimes be used to present rough translations for information only. This practice is known as “inbound translation” (term borrowed from Allen (2003a: 301)), MT for acquisition, indicative translation, MT for assimilation and translation to understand. In this case, grammatical errors or a neutral style are accepted, provided the message of the TT is readable and comprehensible. Within this translation approach, there are two different uses of MT systems:

a) MT without any PE: the translation obtained is known as content “gisting”, browsing or scanning:

Every day, portals like Altavista and Google process nearly ten million requests for automatic translation. [...] Companies are investing in customized MT systems for their specific domains to allow for real-time, automatic cross-lingual communication with their customers, employees and suppliers (Van der Meer 2003).

This type of translation is one of the main reasons for the current success of Translation Portals on the Internet (*see* Allen 2000).

b) On the other hand, MT can be followed by rapid post-editing (RPE) to correct the most serious errors so as to give reasonable comprehensibility and accuracy, but without any guarantee of quality. To save time and to convey faithfully the information content of the ST is the main objective of this type of PE, which does not consider modifications in style. The specificity of RPE is that it is usually focused on texts with a short life span. Therefore, the “perishability” of a document is the factor that determines how much information needs to be corrected. This level of correction is commonly used in the European Commission where the EC-SYSTRAN system is the MT system implemented since 1976. Dorothy Senez, the former head of the RPE Service of this institution, maintains that:

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 (1998, pages not numbered).

In *Fig. 2, MT for different purposes*, I have outlined the possibility that RPE can also be used to communicate (*see* discontinuous arrow). Translations intended for internal use only, can sometimes be disseminated.

2. In other cases, MT systems can be used for translation for publication processes, known as “outbound translation” (term borrowed from Allen, (2003a: 303)), translation for dissemination and translation to communicate, by creating a preliminary draft of a text. This draft can be edited further by minimal post-editing (MPE) or even by full post-editing (FPE) when high-quality translation is requested.

a) *Minimal post-editing* (MPE) also known as *partial post-editing*, is the term used in industries such as the automotive and heavy-machinery industries, and it is used for

texts that have a long life span. Due to the nature of these texts, (mainly technical documents used for machine operation and servicing, and usually read in a non-linear fashion), cohesion is only important for those sections that need to be read and followed at a given moment. Since the reader needs to follow a set of instructions, it is possible to limit the number and types of PE changes to those that will make a procedural text the most comprehensible possible in the least amount of time.

b) *Full post-editing (FPE)* is the most complete of all levels of PE and it seems to be the most controversial as well. This is due to the fact that, in terms of quality, final MT output must be indistinguishable from HT. It is very common to read that FPE takes as long as, or longer than, (T) HT (Wagner, 1985, pages not numbered, 1987: 74). This interesting and challenging claim will be of particular significance in the current dissertation.

c) Another possibility is the use of MT for outbound translation where automatic translations from specific sub-domains and/or text types offer an accuracy of 90% or 80%. In these specific cases, 10% or 20% of the documentation will be post-edited to achieve the expected 100% accuracy in the TT. Only in very specific cases, as explained in section 1.1, *Different types of translation* when referring to Météo, will the automatic precision achieved not require PE, as raw MT output is accurate enough.

Although there are different types of PE serving different purposes, as already explained, the distinctions between these levels and the changes to be made are not entirely clear. The criteria for the actual PE task are not properly defined and PE guidelines are urgently needed. This lack of clarity is the reason why sometimes FPE is performed despite the fact that, at times, only rapid or minimal PE is required.

2.3 Who should be doing post-editing?

The question arises as to whether PE should be performed by (junior/senior) translators, revisers, non-linguists, or trained specialists.

- Translators

Involving translators in the task of PE is not always the most effective way to use MT, “translators often fear that association with MT will make their reputation suffer” (comment made by Eric Nyberg, Carnegie Mellon University, at the Joint Conference of the European Association for Machine Translation and the Controlled Language Applications Workshop (EAMT/CLAW 2003) held in Dublin City University, Ireland, in May 2003). PE is completely different from translating and requires a different attitude to text production as well as certain “ideal” abilities (*see 2.3.1, Ideal skills*). Sometimes, when MT software offers low quality, translators can become resentful of the fact that they could have produced a better translation from scratch. In most cases, translators find machine-translated texts irritating and rarely enjoy correcting bad translations.

It is very hard to find suitable post-editors. One would think finding post-editors would be trivial considering the huge databases of translators we possess, but that is not so. Being a competent translator does not mean you are a competent post-editor. In fact, I would say that probably only 10% or less of the bulk of competent translators are suitable post-editors (Licensed Agent for Information Mapping, personal communication).

Nevertheless, in institutions such as Pan-American Health Organisation (PAHO) or in companies such as Caterpillar Inc., General Motors or Océ Technologies, amongst others, this activity is performed by professional translators (Lou Cremers and Jeffrey Allen, personal communication). McElhaney and Vasconcellos (1997: 142) maintain that experienced translators are best able to recognise MT errors. They have a fund of knowledge about the cross-language transfer of concepts as well as technical resources at their disposal, which they know how to use in the event of doubts. This idea is also shared by Krings (2001), who asked competent human translators to post-edit the raw MT output of the experiments presented in his book.

- Revisers

At an intermediate level, revisers are called upon to revise either human translations or MT outputs. The correction element of PE is less of a novelty for them. They have acquired the skills needed to improve another person's or a machine's work with

minimal intervention. However, there is a crucial difference between correcting machines and correcting humans. Apart from facing a different error typology, it is always harder to criticise human mistakes (*see* Sampson 1992: 89, cited in Krings 2001: 10, 16). On the other hand, when dealing with the correction of machine-translated texts, revisers are not as shocked or irritated as (professional) translators. Nevertheless, the question arises as to whether their linguistic skills are sufficient for MT PE and whether their abilities are transferable to this new mode of work.

- *Non-linguists*

An example of non-linguists working with MT systems is furnished by Xerox, a photocopier manufacturer (<<http://www.xerox.com>>), where PE of pre-translated manuals is done by technical experts.

- *Trained specialists*

Some employees, in response to growing translation demands, need to learn how to do PE of machine-translated texts. A current example is the training of some Human Resources specialists together with technical authors from a software technical documentation department (Allen 2003e).

Referring back to the introductory question of “who should be doing PE?” I will say that, based on some of the answers provided by different experts in the field of translation, this new role where efficiency is a priority, could be successfully fulfilled by “anyone” with ((very) good) bilingual and linguistic skills, involved in the field of communication of information. For example: marketing and product specialists (*see* Allen 2001), students (*see* Somers 2003c: 322, 331) or trained specialists (Allen 2003f, and Falko Schäfer, personal confirmation). With regard to translation specialists, junior translators are preferred to experienced translators, as they are easier, less time-consuming and, as a result, cheaper to train. Their lack of experience in the translation industry represents an advantage when approaching MT systems. Usually, they are easier to convince that MT PE is a different approach to translation rather than a rearrangement of a HT process cycle. The same rule applies to translation revisers/editors.

To conclude, I will add that the type of post-editor will also depend on the type of PE required.

2.3.1 Ideal skills

Vasconcellos (1987: 145) underlines that, “post-editing skills are developed gradually. The level of comfort is greatly increased at the end of 100,000 words, the equivalent of a month of full-time post-editing”. However, O'Brien (2002: 102-103) offers a further detailed summary of different skills outlined by experts and MT practitioners who state that a post-editor should be:

- a near native of the SL and a native speaker of the TL, with knowledge of the subject area, related terminology, and text type,
- qualified in the IT sector with good word processing skills,
- able to use macros and to code dictionaries,
- a tolerant professional with a positive predisposition towards MT,
- confident in his/her translation ability and technical expertise.

Some knowledge of MT systems, terminology management, controlled language writing skills, programming and texts linguistic skills could also be additional and valuable abilities according to O'Brien (ibid). Communication skills and good judgment with regard to scheduling and costing are also valuable during client negotiation, as stated by Spalink et al., (1997, pages not numbered).

2.4 Pricing post-editing

How does one price PE of raw MT output? Whereas HT is mainly based on the unit “word” as a cost base, in the case of PE, as outlined by Spalink et al. (1997, pages not numbered) the cost base “word” is much harder to justify. Depending on the translation level required, only a fraction of words are handled at one time and there is no software program that will count only those words that have been handled by the post-editor, particularly, when there is no keyboard input at all. Although time seems to be the best solution to assess a post-edited translation, companies sometimes pay per source word. This was the case, for example, with ABLE International Inc., in 1999, which offered

post-editors five cents per source word; see <<http://www.linguistlist.org/issues/10/10-1242.html#1>>.

After confirmations from various companies implementing MT (e.g., Océ Technologies, SAP AG and Medtronic, Inc.), post-editors, in general, are paid by hour. Nevertheless, prices vary per agency, per language pair, quality of the ST, raw MT output or post-editor's abilities, amongst other factors. Moreover, it is interesting to note that MT PE is paid at lower rates than HT. It is estimated that this task is remunerated at about 60% of the normal (HT) price, a percentage subject to negotiation (Daniel Grasmick, Development Manager for MultiLingual Technology at SAP AG, personal communication), or at around 35% less than HT, as confirmed by Falko Schäfer. Thus, if MT PE is effective, cost reductions are also possible. Spalink et al. (1997, pages not numbered) explains an example where a client saves almost 50% over the cost of HT.

2.5 Post-editing versus human translation and revision

PE of a machine-translated text is a task different from traditional HT and revision. Loffler-Laurian (1984: 237) maintains that “post-editing is not revision, nor correction, nor rewriting. It is a new way of considering a text, a new way of working on it, for a new aim”. Thus, the following distinctions can be outlined:

- *post-editing versus human translation*

Whereas the translator is accustomed to a certain freedom in selecting the words when translating, the post-editor's choice is restricted to the words provided by the MT system, many of which are wrong and misleading. Therefore, creation (HT as an art) is opposed to correction (PE as a mechanism).

While, in most cases, translators try to achieve high-quality translations, post-editors are conditioned by the standards required. Thus if, for example, RPE is requested, speed will be preferred to quality, this being a hard task to perform, especially by novice post-editors tempted to rewrite the whole text.

O'Brien (2002: 101) maintains that PE and HT also differ on the practical level. HT usually involves one ST and the creation of one TT, whereas PE normally involves two STs: the text authored in the SL and the raw MT output, which a translator uses to help produce a final version. Moreover, Krings (2001) refers to the cognitive level as another difference to consider when approaching these mental processes that also differ from a psycholinguistic point of view.

- post-editing versus human revision

While PE is an ongoing exercise of adjusting relatively predictable inaccuracies, revision is a discovery process. Vasconcellos (1987b: 410) states that:

The purpose of traditional human revision is to catch and correct any errors that the first-stage translator may have made and, as required, to “polish” the text so that it is appropriate to the settings in which it is to be used.

Only minimal human errors are generally expected and they are basically attributed either to translator's unintentional lapses or lack of experience in a particular area, although some other inaccuracies may also arise. *Fig. 3, Types of corrections in human revision*, based on information gathered from Vasconcellos (1987b) and McElhaney (1987), outlines the different errors that need to be revised when improving the quality of human translated texts. With regard to PE of machine-translated texts, *see* Chapter five where different corrections are considered and explained in more detail. As this project is mainly concerned with a combination of MT and FPE of raw MT output versus HT, both processes will be quite similar in terms of quality. Their aim will be to produce a text for publication in which case, the devices of discourse organisation should be mastered.

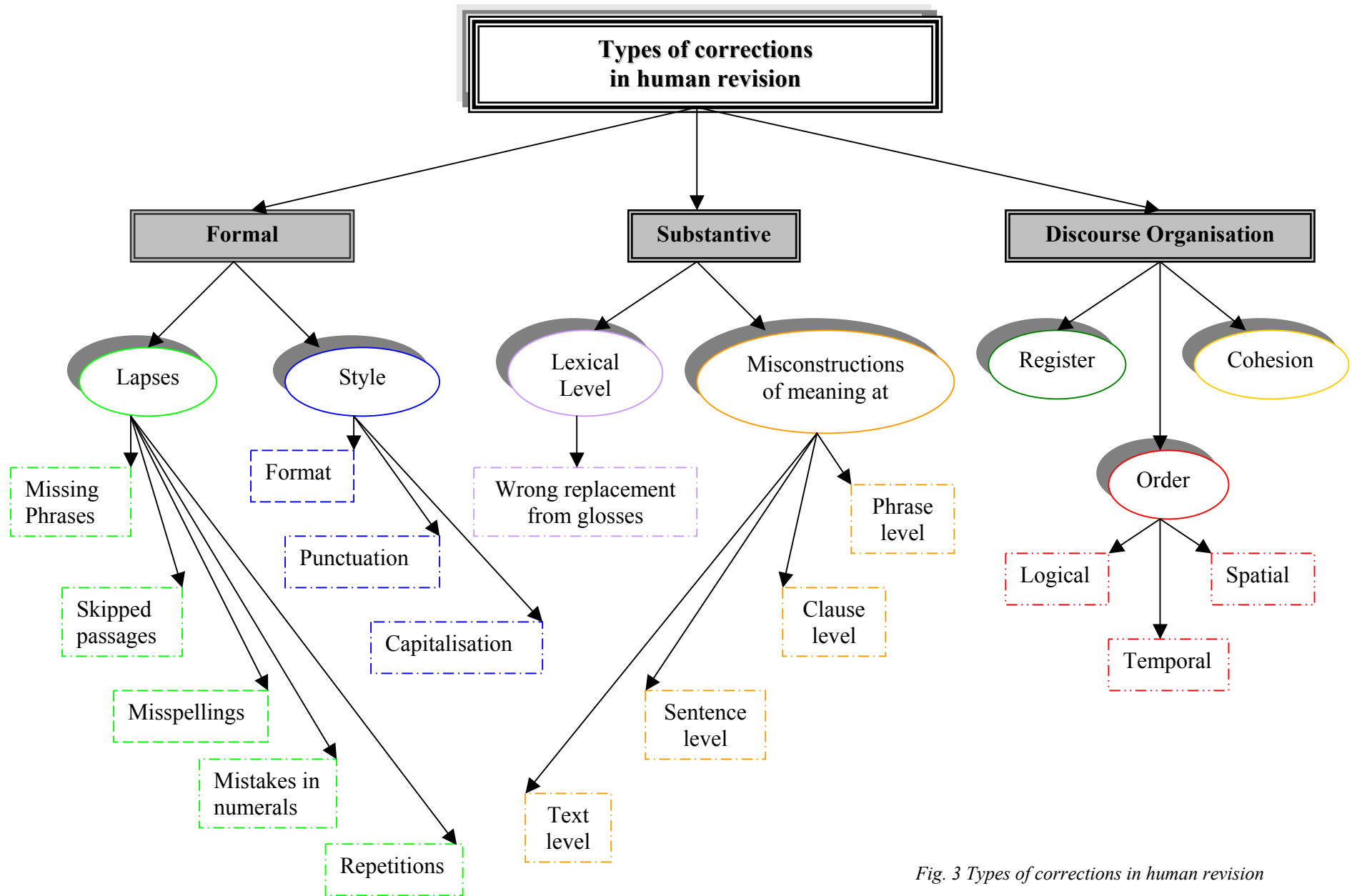


Fig. 3 Types of corrections in human revision
 (Adapted from Vasconcellos (1987b) and McElhaney (1987))

2.6 The importance of building and updating dictionaries

As previously mentioned in section 1.6, *Optimising machine translation efficiency*, building and updating a dictionary or dictionaries is one of the possible options to increase MT efficiency. It not only allows for improvement(s) in the accuracy and time competence of an MT system but it also facilitates the task of PE. However, this is not always a simple task. To build or update an entry can sometimes affect the automatic translation of a ST in undesirable ways. In these cases, a post-editor is neither saving time nor improving translation quality.

Santangelo (1988:136) classifies updates into two basic kinds: those based on production texts where the post-editor makes use of different types of entries in addition to the basic single word, and those concerned on entering lists of approved terminology or vocabulary that is preferred by a given end-user. Nevertheless, this area is further explained in section 4.2, *Dictionaries*, and Chapter five.

PART II: METHODOLOGY AND SOFTWARE REVIEW

3. Methodology

3.1 Multi-step process in machine translation post-editing (MT PE)

*Fig. 4, Multi-step process in machine translation post-editing (MT PE), outlines the methodology that will be applied to the PE of machine-translated texts. The procedure followed in HT is further explained in section 3.3, *Human translation (HT) cycle versus MT PE cycle* and section 3.4, *(Professional) HT and MT PE*.*

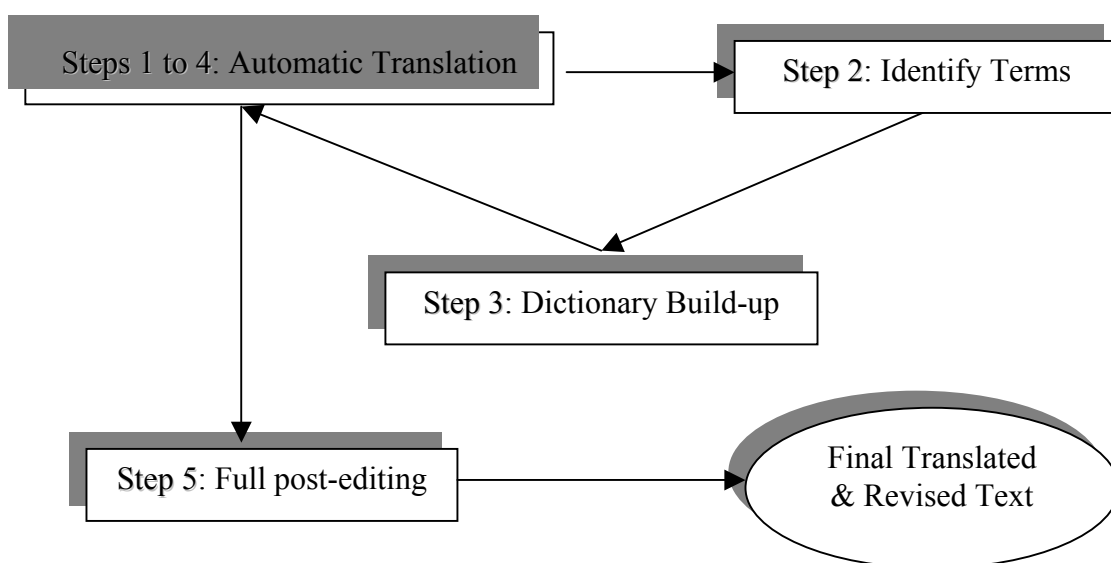


Fig. 4 Multi-step process in MT PE (Allen 2001)

- Steps 1 to 4 will be repeated as many times as necessary to identify all unknown terms, multiword terms and expressions as well as non-translatable or mistranslated words and phrases.
- Step 3 will be of crucial importance to examine how the dictionary build-up process speeds up PE compared with HT conducted under normal working conditions (e.g., using a Word Processor and all available dictionaries).
- In step 5, FPE will be performed to achieve the high-quality required for the type of documents chosen. Thus, the final edited, modified and/or corrected machine-translated text should be (in terms of quality) a product indistinguishable from HT.

3.2 Text Corpora

Marketing brochures, either on Internet sites or in other electronic/paper forms, have been selected for this project based on several reasons:

- it was deemed wise to create a corpus similar to that used by Allen (2001). The purpose of such selection is to offer an entire set of English-Spanish statistics for comparative studies,
- this is an interesting domain for MT systems, as explained in section 0.2, *A challenging area*,
- these brochures can be obtained from companies very easily since they are basic product information,
- some companies already produce such information in multiple languages, and so existing Spanish brochures can be used as translation evaluation metric for the English to Spanish translated text used in this project,
- these are high-quality texts which represent the bulk of translation needs across industry today,
- each company often produces a series of related brochures with repetitive terminology and expressions. This fact can indicate the re-usability of dictionary build-up presented by this project,
- all Spanish texts translated during this project can be provided to the respective companies so that the research conducted offers something very concrete and useful back to the translation community.

3.2.1 Multilingual communication providers

The following translation and localisation companies were requested to provide marketing brochures either in English or already translated into Spanish. These

particular corporations were chosen based on a list drawn from different contacts made at the Joint Conference of the European Association for Machine Translation and the Controlled Language Applications Workshop (EAMT/CLAW 2003).

- *Softissimo* <www.softissimo.com>
- *PROMT* <www.e-prompt.com>, <<http://www.translate.ru>>
- *SYSTRAN* <<http://www.systransoft.com>>
- *SDL International* <<http://www.sdlintl.com>>
- *LingueTec* <<http://www.lingueTec-es.de>>
- *Compendium* <<http://www.compendium.de>>
- *Worldlingo* <<http://worldlingo.com>>
- *Translation Experts* <<http://www.tranexp.com>>
- *Smart Communications* <<http://www.smartny.com>>
- *Ewgate* <<http://www.ewgate.com>>
- *Hitachi* <<http://www.hitachi.com>>
- *Toshiba* <<http://www.toshiba-europe.com>>
- *Fujitsu* <<http://www.fujitsu.com>>
- *Sun Microsystems* <<http://ie.sun.com>>
- *Able Innovations Inc* <<http://www.ableinnovations.com>>
- *Simultrans, L.L.C* <<http://www.simultrans.com>>
- *Bowne Global Solutions* <<http://www.bowneglobal.com>>
- *Omnilingua, Inc* <<http://www.omnilingua.com>>

3.3 Human Translation (HT) cycle versus MT PE cycle

The information presented in this section has been gathered from a number of different companies, on the basis of an analysis of various workflows. The identity of the contributors has not been included for reasons of confidentiality.

The HT and MT PE cycles introduce two different perspectives in translation. They emphasise the fact that there is more than one way to translate, that different options should be available for different categories of documents, user's expectations and/or needs.

- HT cycle

A normal HT cycle in any industry-based translation department or at a translation agency, which focuses on quality processes, is composed of many steps:

1. Initial translation project management.
2. Translation.
3. Translation terminology research.
4. Terminology discussions, debates and reviews.
5. Entering parallel terminology into tools and dictionaries.
6. Translation review.
7. Translation correction process (entering the corrections made by the reviser).
8. Second translation review.
9. Translation correction process (entering the corrections made by the reviser).
10. Final translation review.
11. Terminology review and corrections.
12. Translated text formatting and document compilation for delivery to the client.
13. Final translation project management.

Up until now, the MT PE cycle has only been seen as follows:

1. MT batch processing of texts.
2. MT PE (usually minimal).
3. Send to customer.

However, this is an extremely simplistic and not very appropriate way of presenting MT PE. PE of a machine-translated text should be considered in the same way as HT, as the level of complexity is similar in both cycles. Even, in the case of MT PE, two possible procedures (*see* cycle 1 and cycle 2), can be followed to achieve a high-quality publishable text:

- MT PE cycle(s)

Cycle 1) Minimal post-editing (MPE) followed by review

1. Initial translation project management (needs analysis and organisation).
2. MT processing.
3. Terminology checking and dictionary build-up of single unknown terms, multiword terms and expressions as well as non-translatable or mistranslated words and phrases.
4. Second pass of MT processing.
5. Additional level of terminology checking and dictionary build-up.
6. Third pass of MT processing.
7. **MT PE (MPE).**
8. Translation review by another person to achieve full publishable quality translation (many stylistic and grammatical changes to make in this step).
9. Terminology discussions, debates, and review.
10. Final translation review.
11. Additional dictionary (terms and expressions) build-up effort.
12. Translated text formatting and document compilation for delivery to the client.
13. Final translation project management.

If cycle “1” is pursued then, it is possible to apply the MPE guidelines that are described in various sources. In this type of cycle, it is necessary to put an expert translator in the initial MT PE role (steps 1 to 7), and to follow MPE guidelines. However, the review process (step 8), which will involve many changes in style and grammar, can be done by a junior translator. The final review (step 10) should be conducted by a senior translator or editor. Nevertheless, MPE would not be necessary if using PE-friendly MT systems. Therefore, these would be the steps to pursue in the second type of cycle:

Cycle 2) Full post-editing (FPE) followed by review

1. Initial translation project management (needs analysis and organisation).
2. MT processing.
3. Terminology checking and dictionary build-up of single unknown terms, multiword terms and expressions as well as non-translatable or mistranslated words and phrases.

4. Second pass of MT processing.
5. Additional level of terminology checking and dictionary build-up.
6. Third pass of MT processing.
7. **MT PE (FPE).**
8. Terminology discussions, debates, and review.
9. Translation review (corrections are done online).
10. Final translation review.
11. Additional dictionary (terms and expressions) build-up effort.
12. Translated text formatting and document compilation for delivery to the client.
13. Final translation project management.

In this project, the second cycle (“FPE followed by review”) will be the one considered to see to what extent an MT system can facilitate the process of PE and therefore, the reduction of time in comparison to a (T) HT cycle. Due to time limitations this study does not include all factors and elements involved in the entire translation workflow. However, my intention is to focus on the part of the process that compares the task(s) of an MT post-editor to the parallel task(s) of a (professional) human translator.

3.4 (Professional) HT and MT PE

A professional translator will be engaged to translate two marketing brochures of 841 and 994 words respectively, a total of 1,835 words (more details about these brochures will be explained in Chapter five). This will be done in order to get independent information on how long HT takes given a translator who has not already become familiar with the ST through, for example, the MT PE process; and vice versa, to perform MT PE without being familiar with the ST through, for example, the HT process. The translator chosen for this activity is Enrique Torrejón (for information on his qualifications *see Appendix B: Marketing Brochures 1 & 2: 1*).

However, I will also conduct (human) translations to compare with MT performance followed by FPE of raw MT output. The reason for this second choice is based on the fact that in industrial environments, where MT is implemented, companies do not usually employ novice translators to do MT PE. They mainly rely on experienced translators who are familiar with the area they are working in. The idea of people doing

PE without any familiarity with the text is not representative of the contexts where MT systems are implemented today and where post-editors are doing real PE work. Thus, in this case, HT will be performed first, followed by MT and FPE of raw MT output.

3.5 Translation tools

The automatic translation software used for the project is *@prompt Professional* also known as PROMT XT (English <-> Spanish). A detailed explanation of this new product, released in March 2003, is given in Chapter four. The original intention in this project was to use an earlier version of this software, known as *Reverso Pro 4*, a copy of which was kindly lent to Dublin City University for this purpose by Jeffrey Allen. Once the later version became available, it was deemed fair to base evaluation of MT PE on this improved product, which was kindly donated by PROject MT Ltd., to the researcher. The prior experience of using *Reverso Pro 4*, based on the PROMT 98 engine and interface, was not wasted however, as it made learning about *@prompt Professional* much quicker than would have been the case otherwise. A comparison between the two systems will better enable the researcher to evaluate *@prompt Professional* in three forthcoming reviews, planned for publication in the Irish Translators' and Interpreters' Association (ITIA) Bulletin, Multilingual Computing and Technology Magazine, and the International Journal of Translation.

A digital stopwatch will also be used to measure the time taken in each iteration of the experiment(s) and all necessary bilingual and monolingual dictionaries will be included as an aid for terminology research. All the changes made, as well as alternative translation choices offered by the software, and selected by myself, will be recorded systematically.

4. Review of @Prompt Professional (English <-> Spanish)

4.1 Introduction

PROject MT Ltd., (PROMT), located in Saint Petersburg (Russia), was founded in 1991 as a provider of translation software for the Russian language. Nowadays, PROMT offers translation solutions for the Internet, corporate Intranets, personal computers, handheld devices and Wireless Application Protocols (WAP). These translation products also integrate with TM systems (Trados Translator's Workbench) and proprietary terminology extraction systems. Under the trade mark @prompt™, the company provides different professional and translation solutions based on the new translation technology “PROMT XT” (eXcellent Translation, XT), *see Fig. 5, PROMT family products*. A review of @prompt Standard, @prompt Professional and @prompt Expert is in preparation for submission to Multilingual Computing and Technology Magazine (Allen, 2003d). For further information on PROMT’s MT systems, their (comparative) features or prices, *see* <<http://www.e-prompt.com>>.

<u>Professional solutions</u>	<u>Translation Solutions</u>	
	<u>Desktop</u>	<u>Server</u>
	@prompt Express	@prompt NET Professional
	@prompt Internet	@prompt Intranet Server
	@prompt Standard	@prompt Internet Translation Server
PROMT for Trados	<u><i>@prompt Professional</i></u>	@promptDevelopment Kit
PROMT Terminology Manager		

Fig. 5 PROMT family products (professional and translation— desktop, server—solutions)

@prompt Professional, the MT system used in this project, includes two language pairs and directions (English <-> Spanish), although only the first one (English, Spanish) will be tested, because as a Spanish native speaker I feel more confident PE into my mother tongue. The current software is based on the core PROMT XT (eXcellent Translation) technology, as already stated, which differs from the system architecture explained in

Sokolova (2002) in the introduction of further user features (*see 4.2.1, Dictionary editor, for example*).

4.2 Dictionaries

PROMT translation systems offer three different types of dictionaries:

- a single large general-purpose dictionary per language direction is provided by the software company. It is integrated into the translation engine during the initial installation. This general dictionary contains, as a rule, about 100,000 entries and it is used as the main terminological reference during the translation process. Since this dictionary is locked, its entries cannot be modified or deleted. However, they can be overridden manually by creating entries in user dictionaries and attaching them.
- domain-specific dictionaries are not supplied by the company, but they can be purchased separately, although they are not addressed in this project. They contain terminology related to specific domains as well as some general-purpose words that have some specific meaning in that particular area. Specialised dictionaries cannot be edited. However, the user can open an entry, modify it and then save it in the user dictionary. The volume of a domain-specific dictionary varies from 5,000 to 50,000 stems.
- user or customised dictionaries basically represent one of the most interesting parts of this research. As the user creates these dictionaries, they mainly focus on the terminological weaknesses of the texts under PE. They are also crucial in speeding up the process of PE. In the case of *@prompt Professional*, the new multi-dimensional dictionary architecture allows for more precise and advanced options such as a dictionary editor, explained in next section, or the optional installation of electronic dictionaries developed by different companies and covering different topics. These electronic resources (e.g., Lingvo, Context or MultiLex) allow users to obtain several translation variants for any word. As in the case of domain-specific dictionaries, they must be purchased separately.

4.3 Dictionary editor



Dictionary Editor.Ink

Dictionary editor is an application intended for creating and editing user dictionaries. It is available from any of the applications of the MT system, and it can even be accessed by opening the “start” menu, and then “@prompt family”. With a customised dictionary, users can adapt the translation software to their specific needs, gaining control and speed over the translation of words and expressions in certain documents. *@prompt Professional* incorporates new functions that allow users:

- to achieve greater precision when coding linguistic information, as indicated in *Fig. 6, Coding an entry*. The software can adapt dictionaries to user's skills by choosing a “beginner” or “expert” mode depending on the user's linguistic knowledge,

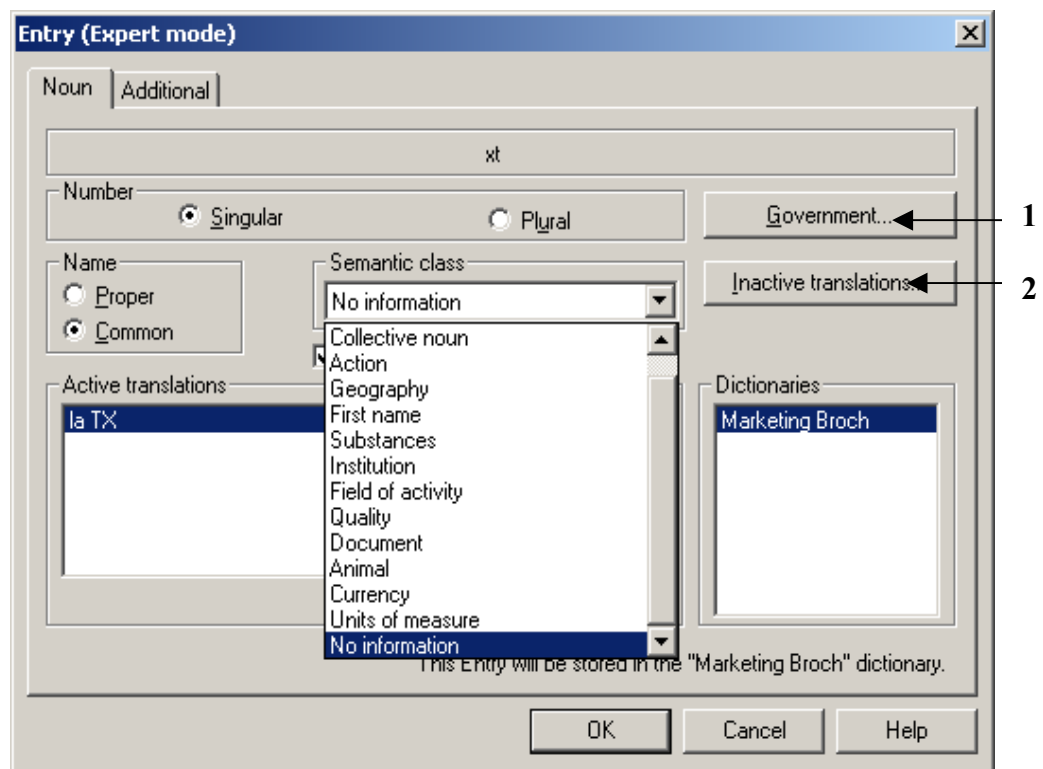


Fig. 6 Coding an entry (Expert mode)

- to improve the accuracy of the MT system by specifying some information on verb, noun and adjective syntax structure. This is possible by selecting the option “Government” only available in the expert mode. See Fig (ibid), number “1”, and *Fig. 7, Government*,

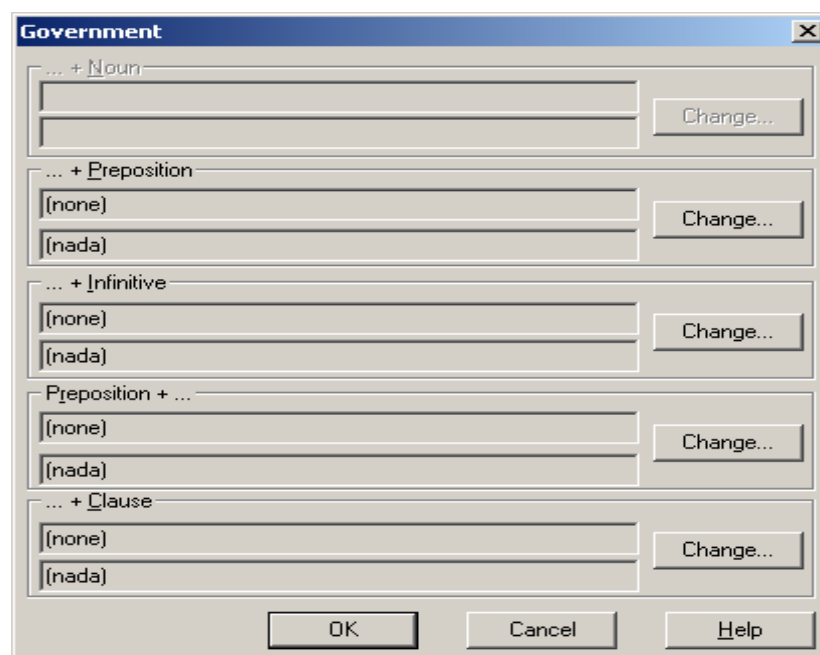


Fig. 7 Government

- to select “inactive translations” implying that some alternatives can be used as references rather than choices in the process of translation. See Fig. 6, Coding an entry, number “2”. They can be activated at any moment simply by clicking the mouse. Then, they appear in the text as translation variants in between brackets.
- to find any word in the dictionary, view the information about this entry in all the dictionaries of the system and, if necessary, to change the grammatical information. See Fig. 8, Entry references (a)

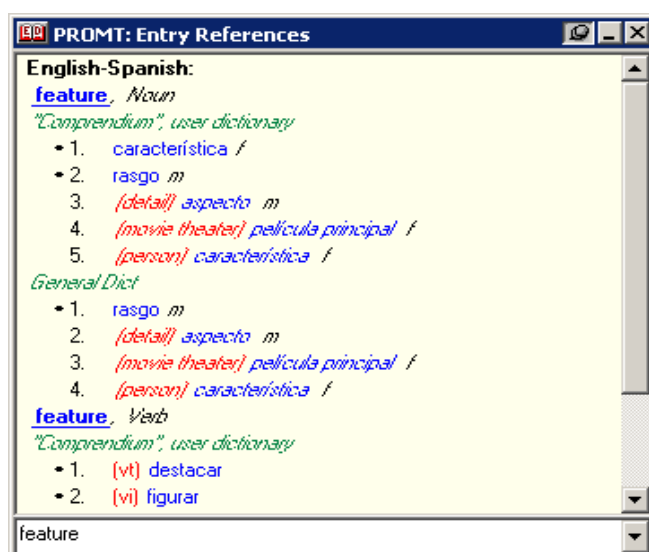


Fig. 8 Entry references (a)

- it is even possible to access information related to prepositions or conjunctions, which are not open for editing. See Fig. 9, Entry references (b),

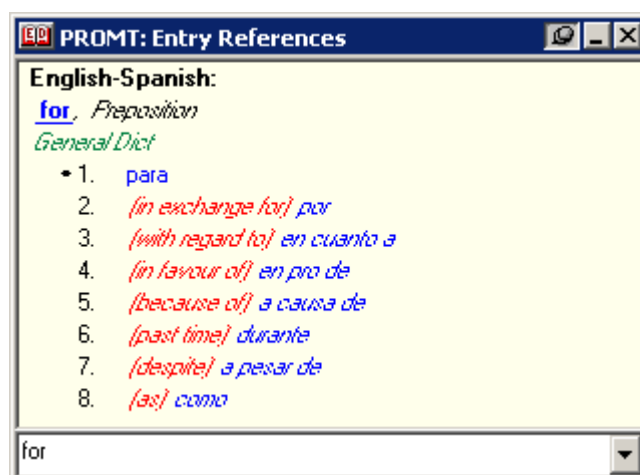


Fig. 9 Entry references (b)

- to set priorities, where the user establishes whether a word is more commonly translated as a verb or as a noun, as a noun or as an adjective. See Fig. 10, Avoiding ambiguities,

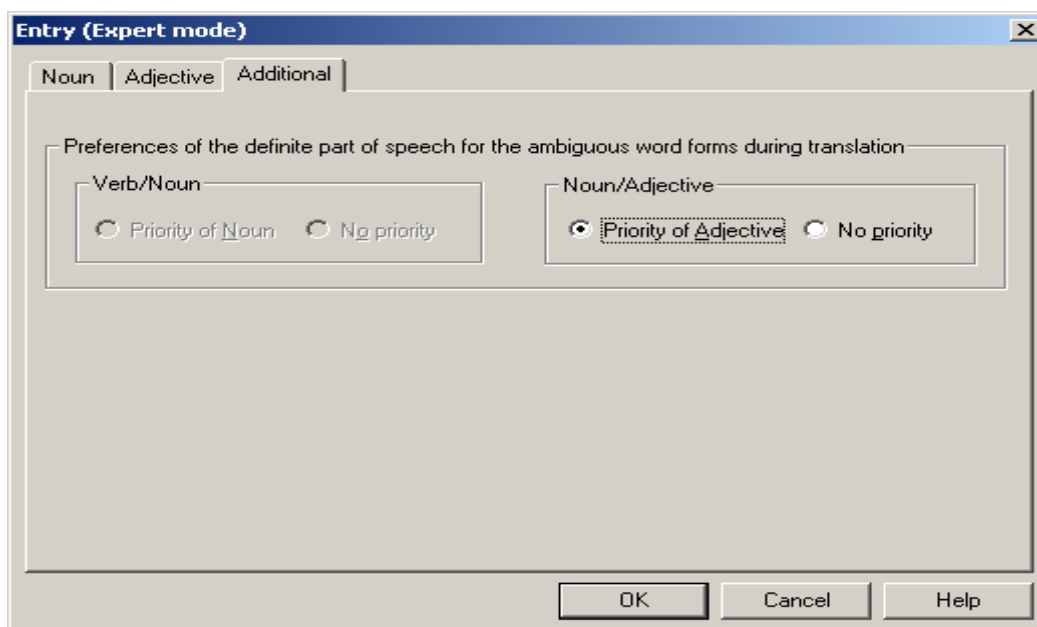


Fig. 10 Avoiding ambiguities

- to open and view the alphabetical list of headwords (stems, word forms and initial forms) in the dictionary,

- to display the alphabetic list of the dictionary as the ordered list of initial words or stems with the possibility of switching between these modes.
- to restore a deleted entry by selecting the “Restore” command from the “Entry” menu. *See Fig. 11, Restoring entries,*



Fig. 11 Restoring entries

- to adjust the system to the topic of the text to be translated,
- to save the list of entries of an open dictionary in a text or RTF-file, or even in CSV (Comma Separated Values, a text-only format used to store data separated by commas),
- to use the search capability in the dictionary and build an alphabetic list of entries that satisfy specific criteria.
- to save the source and final translated text as aligned bilingual texts (as presented in Appendices “B” and “C”), an advantage for combining with TM components.

These and other functions are outlined in *Fig. 12, Commands in dictionary editor*. Their position in the toolbar is indicated in *Fig. 13, @prompt Profesional: dictionary editor*.

All dictionaries “1”
To display information about the opened dictionary “2”
To display the alphabetic list of the dictionary as the ordered list of stems “3”
To display the alphabetic list of the dictionary as the ordered list of initial forms “4”
To add new words or collocations into the dictionary which were prepared earlier in a text file “5”
To enter a new word or collocation into a dictionary, or modify an existing entry “6”
To open the selected dictionary entry for editing “7”
To delete the selected entry from the dictionary “8”
To form filter for searching in the dictionary “9”
To modify filter for searching in the dictionary “10”
To save the search results in a separate dictionary “11”
To display information about dictionary editor “12”

Fig. 12 Commands in dictionary editor

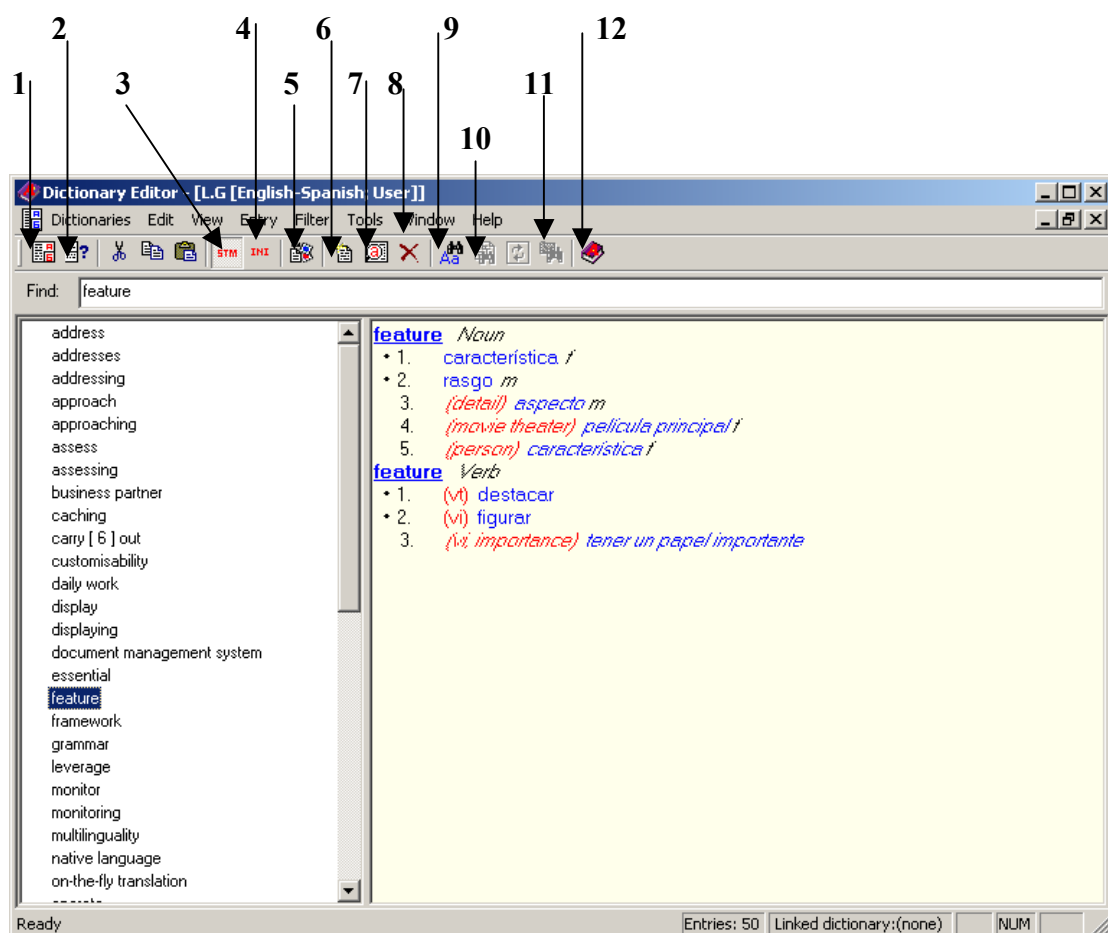


Fig. 13 @prompt Professional: dictionary editor

4.4 Specialised translation applications and general features

The following is a brief review of the specialised translation applications and general features available from the “start” menu, “@prompt family”. For information about *@prompt Professional translation environment*, see next section where a more detailed explanation is given.



- Installation of specialized dictionaries and topic templates.Ink TDS_{Setup} is a program that allows the installation or removal of specialised dictionaries, even facilitating users in incorporating or removing different topic templates (lists of dictionaries, preserved words and pre-processors). These additional installations are not supplied by the company and must be purchased separately.



- Customize PromptE.Ink Customise Plug-In for Microsoft Internet Explorer is a tab that allows users to modify the main options of the translation system. Thus, it is possible to change the direction of translation or the topic template, to edit the list of topic templates for the selected direction of translation and even to select an automatic or semi-automatic topic template. See Fig. 14, *Customise PromptE*,

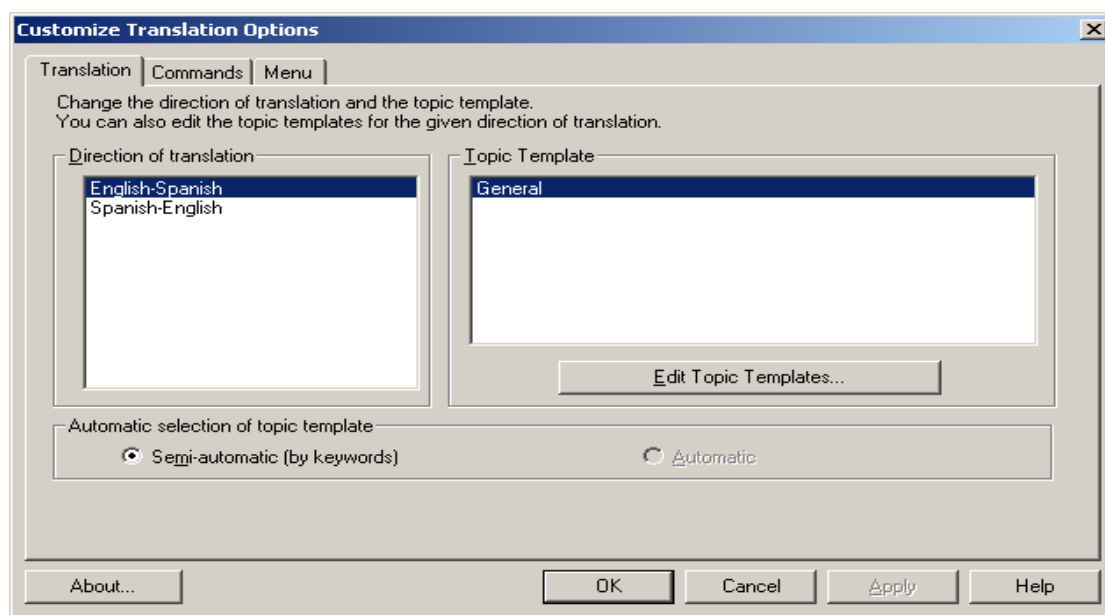


Fig. 14 Customise PromptE



- **SmarTool Tuning.Ink** *@prompt Professional* can integrate translation capabilities into Microsoft Word, Excel, FrontPage, PowerPoint and Outlook 2000/XP simply by specifying the Microsoft Office 2000/XP applications in the SmarTool Tuning displayed after opening “start” menu and “@prompt family”. See Fig. 15, *SmarTool Tuning*,

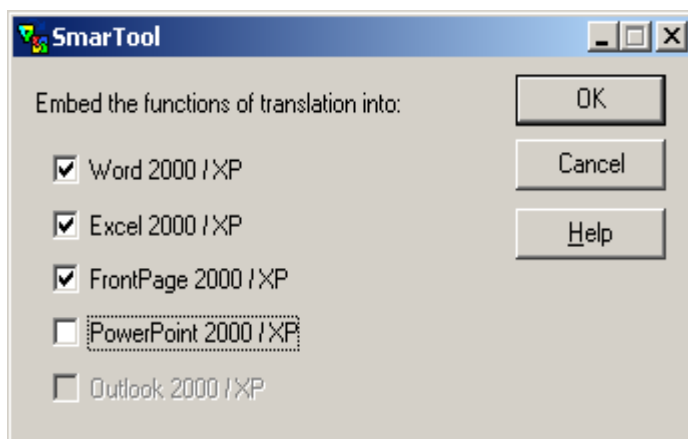


Fig. 15 *SmarTool Tuning*



- **PROMT Backup.Ink** PROMT Backup is an auxiliary program for saving and restoring data and settings of applications included in the MT system. Thus, it is possible to save common objects of the translation system (topic templates, user dictionaries, associated memory databases or electronic dictionary bases) as well as user information.



- **PromptX.Ink** PromptX is a simplified editor-translator that can automatically translate any text in Windows Clipboard or typed on the keyboard in any Windows application window. This module also permits users to work with .RTF documents, to open and translate documents in .doc and HTML formats, to read and translate texts from an Optical Character Recognition (OCR) program or to use the Microsoft Agent technology to speak the selected text. See Fig. 16, *PromptX*,

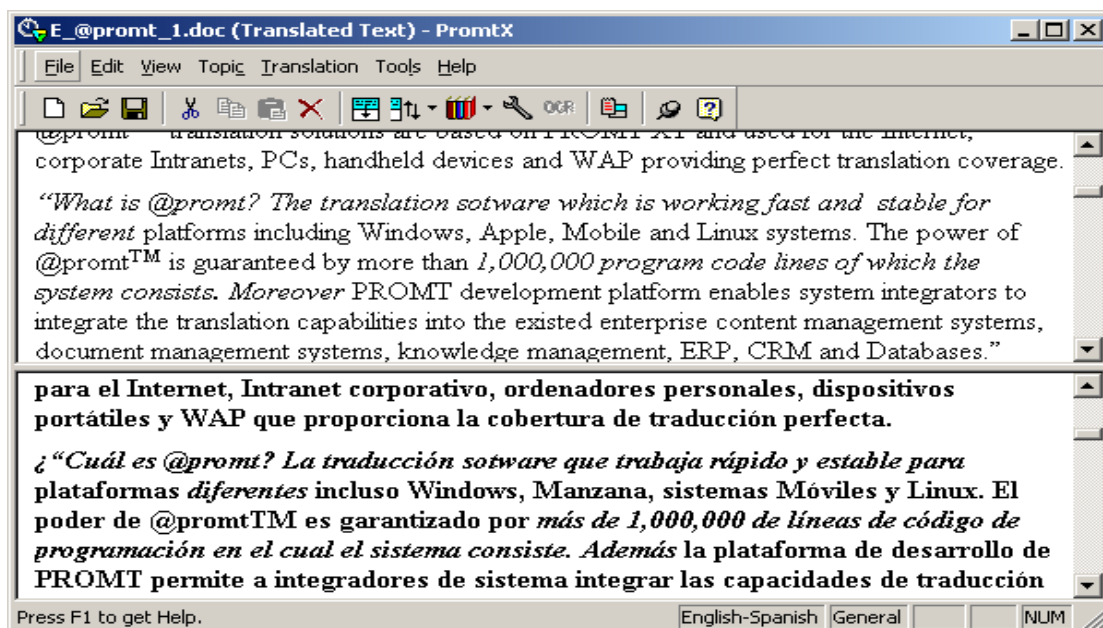


Fig. 16 PromtX



- Customize PROMT Plug-In for Acrobat.Ink This module extends Adobe Acrobat 4.x-5.x and Adobe Acrobat Reader 4.x-5.x with the functions of text translation. It is designed for translation of the preliminary selected text, omitting its formatting. The translated text is then displayed in a separate translation window as indicated in Fig. 17 (a), *Translation of .PDF files*. Moreover, Fig. 17 (b), *PROMT Plug-In for Acrobat*, indicates how Adobe Acrobat Reader 5.x can be embedded if required by the user.

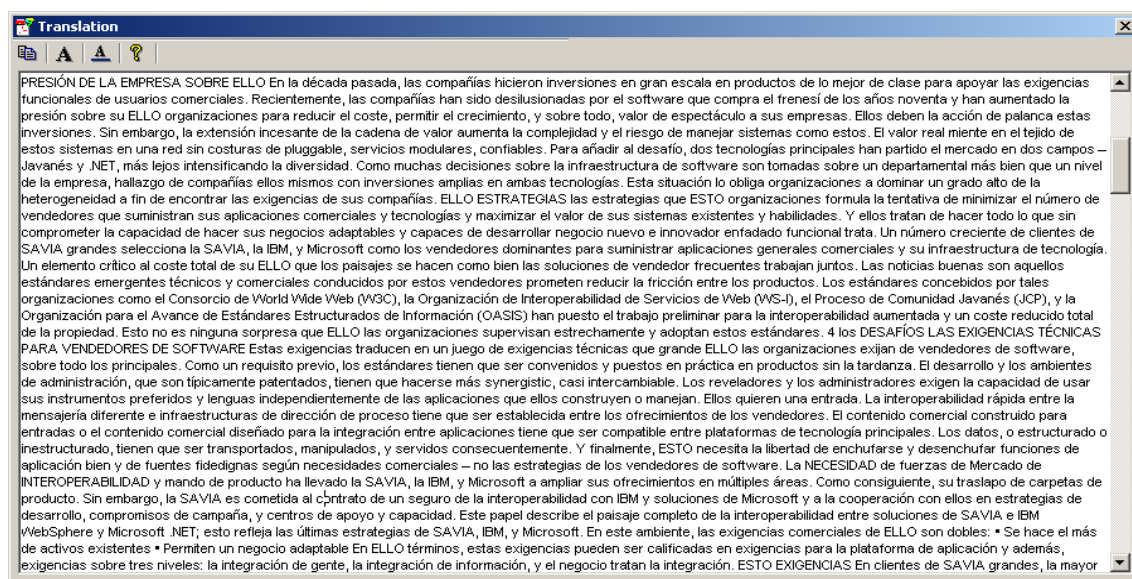


Fig. 17 (a) Translation of .PDF files

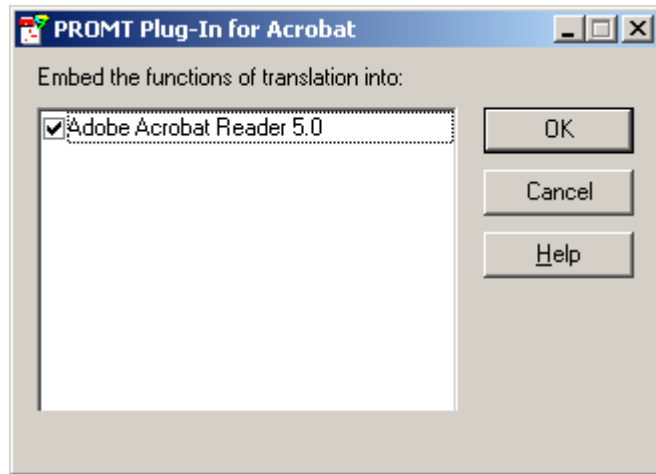


Fig.17 (b) PROMT Plug-In for Acrobat



- **Associated Memory Manager.Ink** This program is designed to work with Associated Memory (AM) databases. It permits the creation, deletion and manual editing of AM databases in any translation direction. Thus, in the process of translation, the system searches for identical fragments from previously machine-translated texts. If any matching is found, the system automatically takes the information from the database.
- Finally, the software permits the translation of the file types outlined in Fig. 18, *Opening a file*,

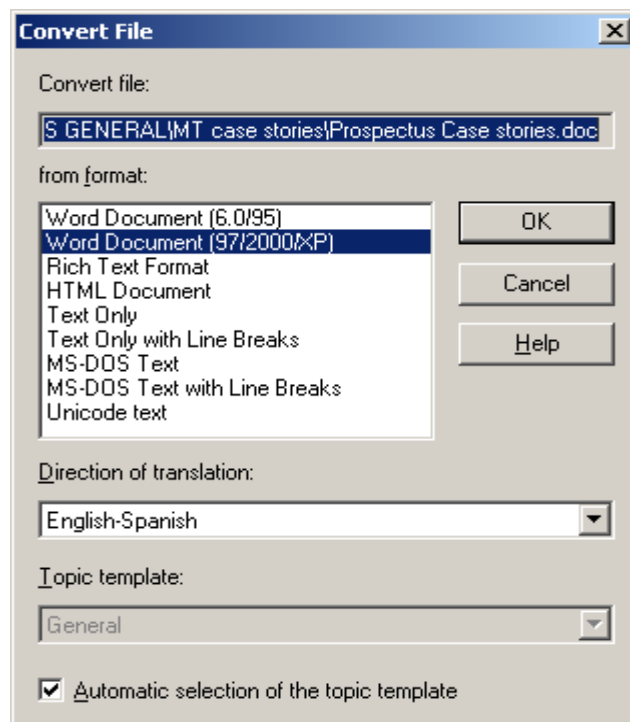


Fig. 18 Opening a file

4.5 Editing features



Promt.Ink

- *@prompt Professional* translation environment is based on a linguistic editor with a set of facilities which allow users not only to translate a text but also to edit the translation and update the dictionaries of all accessible directions of translation. This program allows the translation of simple (quick) and complex (professional) texts, together with a linguistic analysis of translation results, which may be used later to improve the translation quality of other texts of similar topics. As this is the module used for the comparative tests conducted in Chapter five, further comments will be added in that section.

The following is a list of the most significant editing features offered by this software. Many of these functions have been introduced as improvements to the user interface over the last two to three years. For a better understanding see *Fig. 19, Program interface*.

- Translation alternatives are given in curly brackets and underlined in blue (e.g., el trabajo de escribir{el papeleo}). Nevertheless, when new terms are coded into a user dictionary, these new variants of translation are underlined in purple (e.g., adaptabilidad{apoyo}) and presented in the order of priority specified by the user. If needed, users can choose to show or hide translation variants by pressing a button from the translation toolbar.
- Paragraph alignment is indicated by a mark whose (white, blue, black and green) colour depends on the status of the paragraph. Thus,
 - White sign: the paragraph has not been translated yet;
 - Blue sign: the paragraph has been translated;
 - Black sign: the paragraph was modified since it had been translated;
 - Green sign: the paragraph has been marked as not requiring translation.
- If a word or phrase is selected in the TT, the source word or phrase is highlighted with the colour of the current paragraph in the ST, allowing users to locate easily the

selected item. Besides, the corresponding information on the selected construction is displayed in the “Properties tab” of the “Info Pane”, as presented in *Fig. 19 ibid*.

- Colour coding is provided for identification of unknown and preserved words, underlined in red and green respectively. Nevertheless, all words in red change to pink when they are coded into an MT dictionary.
- It is possible to modify the colour of the selected text or even the background colour. Other options such as changing the font or the (lower/upper) case are also available from the “Format” menu.
- Hyperlinks are identified in the ST (e.g., <www.e-prompt.com <[http:// www.e-prompt.com](http://www.e-prompt.com)>) and it is even possible to access the Internet document or folder opened by the default browser.

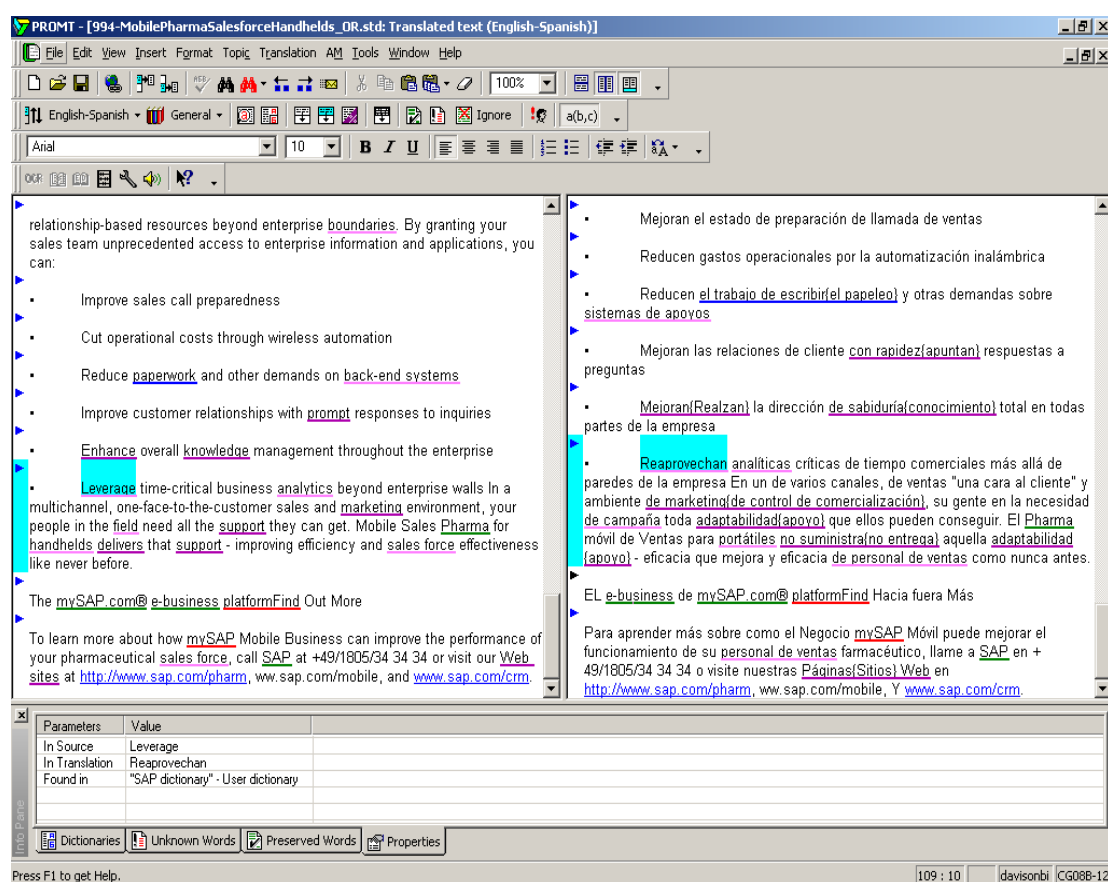


Fig. 19 Program interface

PART III: PRACTICAL SECTION

5. Comparative tests and discussion of results

5.1 Selecting the information

Thanks to the collaboration of different companies I have received a total of 145,987 words of marketing information on different business lines (TM systems, MT packages or mobile phones, amongst others) without considering all brochures provided in hard copy or those directly accessible from the home pages of the companies. Of these, 47,715 words have already been translated into Spanish, therefore reducing the corpus to 98,272 words. As it would be beyond the scope of this dissertation to conduct the comparative test on such a large amount of data, I have decided:

- first of all, to use the Spanish translations as an evaluation metric for the English to Spanish translated text, as stated in section 3.2, *Text Corpora*.
- to reduce the text material based on the following criterion: in those cases where a company had supplied either a detailed description of a product or a summary of it, the second one will be preferred since the first document is usually quite significant in length. With this selection, the tests conducted will take into consideration time and length constraints as well as accuracy in analysis.

My study and further analysis of the results are, first and foremost, user-oriented. I will conduct them in such a way that potential users will understand to what extent they can benefit from an imperfect technology such as MT.

5.2 Machine translation error categorisation

In most cases, machine-translated texts are linguistically different from those translated by a human translator. Computers are non-context-sensitive and consequently, the nature of error types as well as their distribution varies significantly. This is one of the reasons why it is very common to find statements, which indicate that PE implies a positive and open-minded attitude towards MT technology (Schäfer 2003: 135). Since “familiarity with the pattern of errors produced by a particular MT system is an

important factor in reducing post-editing time” (Schäfer 2003: 136), this project includes an initial stage of numerous practical sessions on PE before conducting the comparative tests that are included in the following sections.

Knowing the errors produced by an MT system can both speed up the PE process due to the post-editor's familiarity with commonly repeated MT mistakes, as well as allowing for a better knowledge of this technology and its weaknesses. In an ideal scenario, post-editors would report these inaccuracies to the MT system's developers to ensure on-going improvement of these still imperfect tools.

5.3 Professional HT versus combination of MT and FPE of raw MT output

Marketing brochures 1 and 2, included in *Appendix “B”*, had been translated by Enrique Torrejón on the one hand, and machine-translated and fully post-edited by the current researcher, on the other, as explained in section 3.4, (*Professional*) *HT and MT PE*.

5.3.1 Marketing Brochure 1

The first marketing brochure provided by the company Comprendium Gmbh, in Munich, Germany (<<http://www.comprendium.de>>) was originally written in English. It contains 841 words, per word count provided by the statistics menu in Microsoft Word. The reason why I have intentionally not chosen to use the statistics dialog box displayed by the MT system is to avoid inconsistency in the results. Thus, the same ST had 841 words in Microsoft Word and 836 in *@prompt Professional*.

Fig. 20, HT of Marketing Brochure 1, and Fig. 21, MT and FPE of Marketing Brochure 1, outline the results obtained:

Human Translation

<u>Steps</u>	<u>Time</u>
1. Reading ST to familiarise oneself with content and to identify unknown terms	4min 53sec
2. Searching for meaning of unknown terms (Using several dictionaries as well as on-line resources)	15min 32sec
3. Translating ST, paragraph by paragraph	1hr 10min 12sec
4. Revising (target) text to improve style and coherence, where necessary	12min 42sec
Steps 1 to 4	1hr 43min 19sec
Number of words in TT	1,034 words

Fig. 20 HT of Marketing Brochure 1

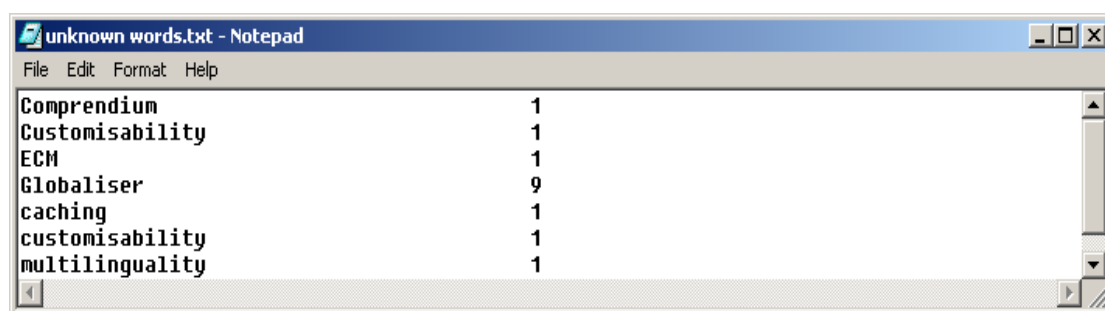
MT and FPE of raw MT output

<u>Steps</u>	<u>Time</u>
0. Reading ST to familiarise oneself with content	3min 30sec
1. Automatic translation of ST <i>* Attached dictionaries: 0</i>	12sec (929 words)
2. Identifying (unknown and mistranslated) terms 2.1 Searching for meaning of identified terms (Using on-line dictionaries as main resource)	6min 20sec 12min 26sec
3. Coding entries in a user dictionary	13min 16sec
4. Re-process with automatic translation <i>* Attached dictionaries: 1, "Compendium"</i>	13sec
5. FPE	18min 45sec
6. Review	6min
Steps 0 to 6	1hr 42sec
Number of words in TT	925 words

Fig. 21 MT and FPE of Marketing Brochure 1

Before the automatic translation and FPE of raw MT output took place, it was necessary to read the ST. However, this reading was (1min 23sec) faster than that of the human translator who was already looking for unknown terms. This step was numbered as “0” since it was not explicitly mentioned in Allen's methodology (2001). However, whereas Torrejón spent only 4min 53sec reading the ST to familiarise himself with the content and to identify unknown terms, in the second process, 6min 20sec were necessary to identify all terms that were unknown or mistranslated by the system. In addition, the automatic translation of the ST (step 1) took 12sec and, as a result, HT was 5min 9sec faster than MT PE.

In relation to the automated process (*Fig. 21, ibid*), step 2 was crucial as a preparation for the dictionary build-up stage. The number of different unknown words (underlined in red in *Appendix B: 1.2 Raw MT output: 9-13*) was a total of seven. The system allowed for them to be saved on a paper Notepad, which facilitated quick identification. It was even possible to obtain the exact number of these words when saving the document either in bilingual or monolingual format. *See Fig. 22, Recording unknown words (Notepad)*, where it was interesting to notice that “Customisability” and “customisability” were counted twice. This was due to the fact that this MT system considers both terms as completely different entries. Such distinction is based on discrepancies in (lower/upper) case.



Compendium	1
Customisability	1
ECM	1
Globaliser	9
caching	1
customisability	1
multilinguality	1

Fig. 22 Recording unknown words (Notepad)

Concerning mistranslations, all words whose meaning was completely inaccurate for a marketing context (e.g., “work forces” translated as “fuerzas obreras”), together with all words whose meaning was not entirely appropriate, were coded into the user dictionary “Compendium”, and prioritised with regard to the default translation. Word order, gender and number agreement or style were not addressed at this stage. No

mistranslated short expressions were recorded though improvements at the phrase level were conducted in step 5.

To indicate all the changes made I created a “manual” record in Microsoft Word (*see Appendix B: *ibid**, words highlighted in grey). Although I was aware of the release in June 2003 of a translation quality evaluation tool named CORVET, as already mentioned in section 0.2, *A challenging area*, the incorporation of this new product was not feasible due to time limitations.

In step 3, referred to as “Dictionary Build-up”, a total of 38 new entries were coded into the MT dictionary “Compendium”. A total of 54 terms were created, including the 38 entries and 16 additional words that were created when an entry was coded. Moreover, “ECM”, “Compendium Globaliser”, “Content Store”, and “Compendium Translator” were coded as preserved words. *See Fig. 23, Coding a preserved word,*

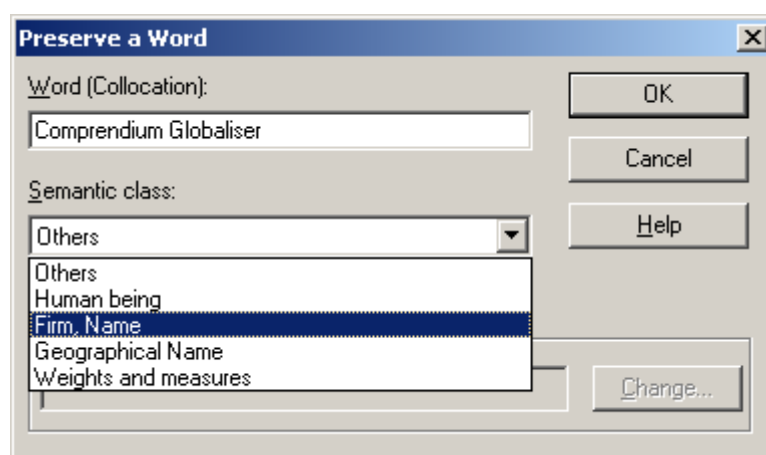


Fig. 23 Coding a preserved word

In step 4, no further entries were added, although, as pointed out in Allen's methodology, steps 1 to 4 could be repeated as many times as necessary in order to improve MT quality. Although in this brochure further improvements were unnecessary, they could have been added if required by the post-editor and/or text type.

The next step, FPE, was the most difficult of the entire process, because removing grammatical errors or looking for coherence and style implied changing many words, word order and even, deleting information that was too literal to keep in a marketing brochure. At this stage, I started taking careful notes to develop guidelines to conduct

FPE of marketing information. I realised that, in many cases, the changes to be made were very repetitive, and to locate them in advance could lead to faster performance. In *Part 1.2, of Appendix B*, I have highlighted in green the main changes made at grammatical and stylistic levels. Changes in word order, step 6, are revealed in the final translated and revised text (*see Part 1.3, of Appendix B*).

5.3.2 Marketing Brochure 2

The second marketing brochure provided by the company SAP AG, in Walldorf, Germany, (<<http://www.sap.com>>) was, as in the first case, originally written in English. It contains 994 words. The procedure and colour identification followed is as explained in 5.3.1, *Marketing Brochure 1*. The results obtained are as indicated in *Fig. 24, HT of Marketing Brochure 2*, and *Fig. 25, MT and FPE of Marketing Brochure 2*:

Human Translation

<u>Steps</u>	<u>Time</u>
1. Time reading ST to familiarise oneself with content and to identify unknown terms	9min 33sec
2. Time searching for meaning of unknown terms (Using several dictionaries as well as on-line resources)	28min 32sec
3. Time translating ST, paragraph by paragraph	2hr 35min 2sec
4. Time revising (target) text to improve style and coherence, where necessary	13min 14sec
TOTAL TIME	3hr 26min 21sec
Number of words in TT	1,353 words

Fig 24 HT of Marketing Brochure 2

MT and FPE of raw MT output

<u>Steps</u>	<u>Time</u>
0. Reading ST to familiarise oneself with content	5min 25sec
1. Automatic translation of the ST <i>*Attached dictionaries: 0</i>	9sec (1,254 words)

2. Identifying (unknown and mistranslated) terms	9min 40sec
2.1 Searching for meaning of identified terms (Using on-line dictionaries as main resource)	18min 18sec
3. Coding entries in a user dictionary	13min 50sec
4. Re-process with automatic translation <i>*Attached dictionaries: 1, "SAP"</i>	5sec 0sec
5. FPE	31min 58sec
6. Review	9min 51sec
Steps 0 to 6	1hr 29min 16sec
Number of words in TT	1,294 words

Fig. 25 MT and FPE of Marketing Brochure 2

In this second brochure, the MT system recognised 8 unknown words. Of these, 4 were then coded as preserved words ("Pharma", "mySAP", "mySAP.com®" and "mySAPTM") together with "SAP", the name of the company and "e-business". The remaining unknown words ("PDAs", "ROI", "analytics" and "handhelds") were coded as normal entries. It was interesting to notice the uppercase letter error when coding "ROI" ("RENDIMIENTO DE LA INVERSION") and "PDAs" ("APDS"), a problem further explained in section 5.7, *Building an MT dictionary*.

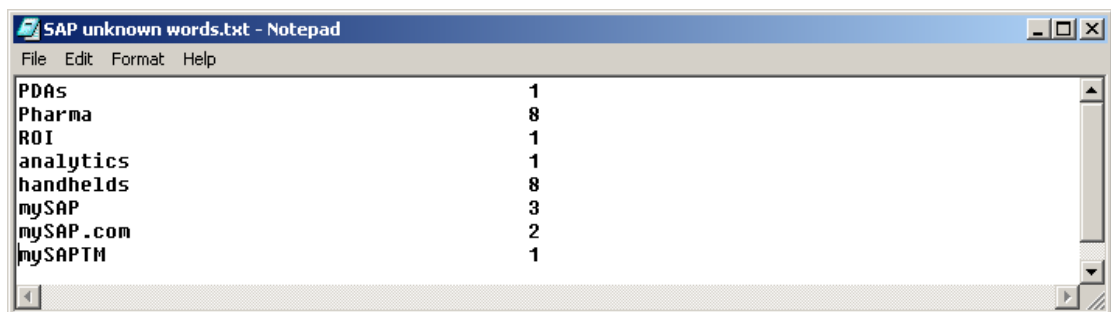


Fig. 26 Unknown words in Marketing Brochure 2

After identifying all mistranslated terms and searching for a more accurate meaning, a total of 37 new entries were coded into a new user dictionary named "SAP". These terms together with 13 additional words created while coding an entry, totalled 50 terms. After running the text again through the translation system (5sec), I moved to step 5, the FPE of the entire document. This took 31min 58sec followed by almost 10min for reviewing the style, coherence and some misspellings.

5.4 HT versus combination of MT and FPE of raw MT output

The marketing brochure mentioned in this section and included in *Appendix “C”*, was first translated, then, machine-translated and next, fully post-edited by the current researcher. In the case of HT, the methodology followed was as outlined in *Fig. 20, HT of Marketing Brochure 1* and *Fig. 24, HT of Marketing Brochure 2*.

5.4.1 Marketing Brochure 3

The third ST chosen was again provided by the company Compendium GmbH, and contains 635 words. The SL was originally written in English. The reason why this marketing brochure has been taken from a company whose documentation has already been translated and post-edited, is to use the dictionary “Compendium”, created in section 5.3.1, *Marketing Brochure 1*. The main concern is to examine how the dictionary build-up process speeds up MT PE compared with HT that is conducted under normal working conditions for a translator. Furthermore, by working in an area where the terminology and text type is already familiar, I will be simulating the role of an experienced translator and consequently, both processes will be performed under similar work environment conditions.

Human Translation

<u>Steps</u>	<u>Time</u>
1. Reading ST to familiarise oneself with content and to identify unknown terms	4min 8sec
2. Searching for meaning of unknown terms (Using dictionaries as well as on-line resources)	10min 7sec
3. Translating ST, paragraph by paragraph <i>*3.1 Searching for new unknown terms, if necessary</i>	1hr 5min 39sec 5min 12sec
4. Revising (target) text to improve style and coherence, where necessary	10min 25sec
Steps 1 to 4	1hr 35min 31sec
Number of words in TT	791 words

Fig. 27 HT of Marketing Brochure 3

As indicated in *Fig. 27, HT of Marketing Brochure 3*, I took 4min 8sec to read and identify unknown terms. Next, 10min 7sec were spent to search for the meaning of 16 unknown words. However, when moving to step 3, translating the ST, I realised that some terms were still unknown and further dictionary research was necessary (5min 12sec). As a result, and after a revision that lasted 10min 25sec, the ST (635 words) was translated in 1hr 35min 31sec (791words).

MT and FPE of raw MT output

<u>Steps</u>	<u>Time</u>
0. Reading ST to familiarise oneself with content	2min 3sec
1. Automatic translation of ST <i>Attached dictionaries: 1, “Compendium”</i>	11sec (750 words)
2. Identifying (unknown and mistranslated) terms	5min 34sec
2.1 Searching for meaning of identified terms (Using dictionaries as well as on-line resources)	3min
3. Coding entries in a user dictionary	9min 13sec
4. Re-process with automatic translation 4.1 Coding new entries	7sec
5. FPE	14min 6sec
6. Review	6min 35sec
Steps 0 to 6	40min 49sec
Number of words in TT	812 words

Fig. 28 MT and FPE of Marketing Brochure 3

In this case, it is important to note that step “0” can be avoided because I am dealing with a pre-translated text and I am already familiar with its content. However, this point will be further explained in the next section on comparing the results obtained.

Fig. 29, Unknown words in Marketing Brochure 3, presents all those words unknown to the software, of which the term “Compendium” is preserved, together with expressions like “Content Stores” and “FINANCIAL Edition”.

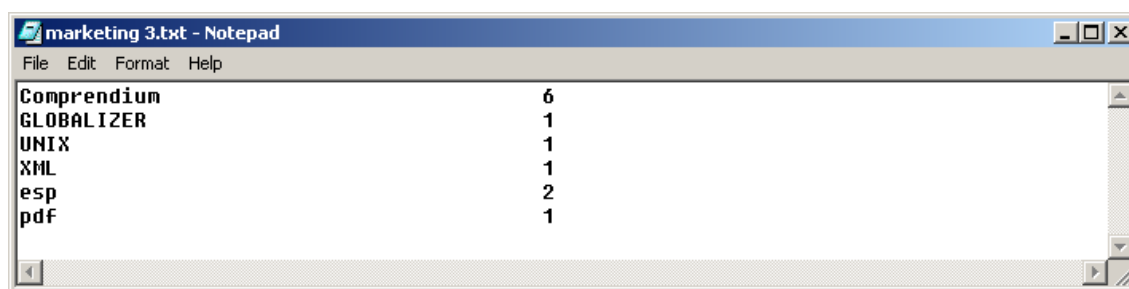


Fig. 29 Unknown words in Marketing Brochure 3

As indicated in *Appendix C: 1.2, Raw MT output: 7-10*, I have highlighted in purple (as this is the colour originally provided by the system) all those translation alternatives given by the user dictionary: “Compendium”. Thus, whereas the general dictionary offered only one variant of translation (solamente{justo}), the customised dictionary provided all the alternatives presented in *Fig. 30, Variants of translation*, together with some related terms (the numbers preceding these related terms actually, indicate the number of occurrences of the term in question).

<u>Variants of translation</u>	<u>Number of occurrences</u>	<u>Related terms</u>
summary	1	
native language	1	
support (noun)	6	(2) <u>supports</u> , (2) <u>supported</u> , (1) <u>supporting</u> , (1) support (verb)
features	2	
monitoring (noun)	2	(1) monitoring (participle)
full	3	
way	1	
approaches	1	
workflow	2	
Total	19	7
TOTAL	<u>26</u>	

Fig. 30 Variants of translation

Finally, a total of 18 terms were coded into the customised dictionary. These, together with all the related expressions and the terms already coded in the first marketing brochure, accounted for 79 entries. The total time spent in the performance of the MT

system, @prompt Professional, followed by FPE of raw MT output was 40min 49sec (812 words).

5.5 Comparing results

Although marketing brochures have been stated by some to be inappropriate for MT systems, it can be noted that 43min (42min 37sec) in the first case, almost 2hr (1hr 57min 5sec) in the second example, and 54min 42sec in the third brochure, had been saved though the overall process, see *Fig. 31, Comparing results*,

COMPARING RESULTS	<u>Professional Human Translation</u>	<u>MT and FPE of raw MT output</u>
Enrique Torrejón & Lorena Guerra		
Marketing Brochure 1 841 words	1hr 43min 19sec (1,034 words)	42min 37sec → 1hr 42sec (925 words)
Marketing Brochure 2 994 words	3hr 26min 21sec (1,353 words)	1hr 57min 5sec → 1hr 29min 16sec (1,294 words)
Lorena Guerra		
Marketing Brochure 3 (HT and MTPE) 635words	1hr 35min 31sec (805 words)	54min 42sec → 40min 49sec (812 words)

Fig. 31 Comparing results

The reason why the professional translator spent less time on the first ST was due to his familiarity with the terminology as well as content that was related to his area of expertise (Computational Linguistics, TM and MT systems). 841 words were translated and revised in 1hr 43min 19sec. Nevertheless, in this brochure, where the comparison is between an experienced and a non-experienced translator, as was the case of the current researcher, the time saving is still very significant, 42min 37sec. This difference is even clearer by looking at the third brochure. In this case the author (Guerra) took almost the same time as Torrejón in translating a text that was 206 words shorter and whose terminology and text structure were already familiar territory as a consequence of having previously dealt with brochures from the same company.

In the second case, where the experienced translator needed more time to search for the meaning of unknown terms as well as for translating the text, the value, efficiency and

accuracy of the software were clearly revealed. Thus, his professional human abilities could not compete with the automated system. 994 words were translated and revised in *3hr 26min 21sec*, whereas MT PE took *1hr 29min 16sec* only; a total time saving of **1hr 57min 5sec**. This reduction of time clearly indicates that a post-editing friendly MT system as *@prompt Professional*, if properly used, can be faster and more effective even in a non-specific or “controlled” area.

In the third brochure, where HT and MT PE were performed by the same person (Guerra), the marketing brochure, 635 words, was (human) translated and revised in *1hr 35min 31sec*. On the other hand, MT and FPE took *40min 49sec* only, saving **54min 42sec**. Although, the reason for first conducting HT and then, conducting MT PE has been explained in section 3.4, *(Professional) HT and MT PE*, in the HT process I have even considered not counting the time spent on reading the ST or dictionary research (a total of 19min 27sec). This is because MT PE could have been performed faster if dealing with a previously translated text. Nevertheless, there is a time saving of **35min 15sec**. In this final result, I am not even discounting the corresponding time spent in step “0”, *Reading ST* (2min 3sec) or step 2.1, *Searching for meaning of identified terms* (3min) leaving this 5min 3sec for a possible faster performance in FPE, due to certain familiarity with terminology and text type, as already mentioned.

In general, competing with an experienced translator or having previous familiarity with the text, using MT in combination with FPE implies time savings of 42min every 841 words or 35min every 635 words. Therefore, the post-editor obtains an overall saving of 5 to 6min every 100 words. Considering translation speed statistics (*see Allen 2003b*), where an average translator translates between 2,000 and 3,000 words per day, the time saved when conducting MT and FPE will range from almost 2 to 3hr: **1hr 50min** to **2hr 45min** (for the same words). Based on these statistics and depending on specific needs and translation demands, companies can easily calculate their benefits. The documentation translated every day together with the number of professional translators involved in the translation/localisation process or the techniques used, amongst other factors, will allow corporations to determine the advantages of this still imperfect technology. As a result, the following question arises:

“ If a similar high-quality published document can be achieved in less time, why not opt for a faster process? ”

As stated in section 2.5, *Pricing post-editing*, this new mode of translation is remunerated at about 60% of the normal HT price. This means that companies implementing MT systems are paying around 40% less for the actual work done, plus saving time (which, in turn, saves them more money). Therefore, human-assisted machine translation (HAMT), as presented in this project, represents not only double but triple savings. It is even more interesting to notice, though, that the statistics on MT efficiency for the translation of marketing brochures can be increased with both further experience on the software and dictionary preparation, and by advanced and improved document analysis.

5.6 Quality control

To evaluate quality is like measuring art, especially when style and coherence are subjective. The Society of Automotive Engineers (SAE) has developed the SAE J2450 Translation Quality Metric (*see* Appendix “A” number 36). However, this metric cannot be applicable in this study, as FPE goes beyond wrong terms, syntactic errors, omissions, word structure or word order. Some companies are now focussing on a Quality Management System (QMS) that is compliant with the requirements of ISO 9000:2001 certification, mainly to prove to their customers that they do follow a procedure (*see* Appendix “A” number 30). Nonetheless, as the final purpose of this project is to obtain high-quality FPE translation, there is the assumed expectation that high-quality will be the main goal. Even though, Appendices “B” and “C” include both the HT and MT PE of the respective marketing brochures.

5.7 Building an MT dictionary

The following is a list of suggestions to consider while doing MT PE, especially to avoid miscoding and to use the tool faster. They are based on my experience while PE the marketing brochures explained in this chapter, although Allen (2003c) also outlines these and some other points to bear in mind.

- When coding a new entry, it is very important to remember that, by default, the dictionary always selects the “Noun” tab. *See* example in *Fig. 32, New Entry*; “ofrece” is a verb,

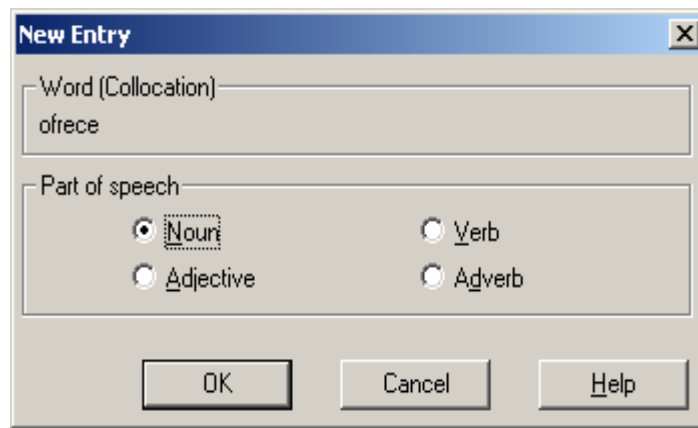


Fig. 32 New Entry

- If the user is coding an entry that already exists in the general dictionary but whose meaning is inaccurate for the current translation, it is possible to add and prioritise the “user” entry by moving it up. By creating and prioritising an entry, the user deletes the general dictionary mirror image entry from the custom dictionary.
- When coding an expression, the user must specify only the grammatical category of the headword. Then, the conjugation (or inflected forms) for each of the variable components must be added.
- When coding an entry that has been wrongly translated by the MT as a consequence of an inaccurate analysis (e.g., a noun is translated as a verb), the user must code the entry (the noun), in the verb form, in order for it to be identified and replaced by the system.
- Coding an entry in lowercase letters means that this word will be recognised in all typographical forms (e.g., lowercase and uppercase forms). However if an entry is coded with an initial uppercase letter, the system will recognise only the word form as it is displayed. This reduces MT efficiency and therefore, capital letters are used only when specific words or expressions need to be distinguished. For example, “WHO” (World Health Organisation) versus “who”.
- If the ST has a word written in uppercase letters, e.g., “ROI” (stands for “return on investment”), and the TL does not have such an abbreviation, coding the corresponding meaning “rendimiento del capital invertido” implies that all these words in the TT appear in capital letters (inappropriate in this case). Allen (2003c) claims that the only

solution for this problem is to code the entry with definite and indefinite articles as adverbial fixed expressions.

- To enter words with punctuation marks such as hyphens, commas or apostrophes, it is necessary to leave a space before the variable component and the punctuation mark. This is the only way in which the MT system will recognise these entries as being related and variable words.
- Sometimes words are not recognised by the software because in the ST they are spelt differently from what has been coded in the dictionary. Thus, an efficient way of improving MT efficiency is by coding all possible spelling variants when entering a word. A faster way to do this is by pressing “F8” and then, moving the up and down arrows in both the source word and the TL entry dialog boxes. Thus, the original word can be selected and edited or even deleted, if necessary.
- Accented characters are sometimes problematic. However, as this is a problem encountered when translating from Spanish into English and this is not the language pair under investigation, this point will not be elaborated upon here.

5.8 Post-editing guidelines

The following is a list of suggestions to follow or, at least, to consider when doing FPE of marketing brochures. These guidelines are based on the various tests carried out and the difficulties encountered in this project.

First of all, it is necessary to identify and to code into a user dictionary those terms unknown by the MT system, together with all mistranslations. This must be followed by an identification of every word and short expression that do not require translation and consequently, that need to be preserved (acronyms, abbreviations, company or product names, individual vocabulary words, etc.). Punctuation or misspellings should also be rectified to avoid further MT inaccuracies.

By coding new entries into a user dictionary, the quality of the preliminary raw MT output has improved only lexical issues. Therefore, more changes need to be made in

order to produce a final TT indistinguishable from HT. All features that, at a syntactic or grammatical level had caused difficulties for the MT system either in ST analysis, in transfer to the TL or in both, must be removed. The following are some suggestions:

➤ **Delete:**

- words or expressions that are too literal to keep in a marketing brochure,
- unnecessary definite or indefinite articles, especially in lists,
- subjects that are superfluous, (in Spanish, verb forms often make subject pronouns unnecessary),
- repetitive words or phrases. Ideally, code them into a user dictionary as translation alternatives.

➤ **Correct:**

- number and gender disagreements,
- syntactical errors mainly due to word order,
- wrong or inaccurate meaning of prepositions,
- nouns followed and/or preceded by one or two adjectives, where the system cannot determine which is the head of the noun phrase,
- anaphoric forms if the antecedent is wrongly assigned (personal and demonstrative references; nominal, verbal or clausal substitutions; nominal, verbal or lexical ellipsis) .

➤ Wherever possible, **try:**

- to look for synonyms, and to code them as variants of translation. This will avoid the repetitive style caused by MT consistency,
- to be explicit, to simulate the performance of a human translator. This will avoid the literal output provided by the software.

➤ **Don't**

- follow general rules of word order and, in most cases, place adjectives before nouns or noun phrases to state specifically the attribute quality of the noun group,

- rewrite the entire sentence, paragraph or text. Use raw MT output as a base for further (stylistic) modifications.

*** (These guidelines can be further developed with practice and a better knowledge of the software and the area or areas tested)***

CONCLUSION

By conducting this research I have learnt that a number of conditions and constraints must be considered to make the PE of raw MT output worthwhile and effective. These are described in the following paragraphs.

PE features. It is necessary to have MT software with built-in PE features. These features are not necessarily available in all MT systems or for all language pairs and directions. Until recently, there has been a lack of PE-friendly MT systems. Consequently, most industrial and translation agency users who needed to use MT for publication were forced to devise their own minimal PE strategies, often using manual operation methods. Nonetheless, today, more recent MT systems containing PE-friendly features (e.g., *@prompt Professional*), make it possible to perform not just minimal PE in record time, but even FPE in less time than it takes a human translator to translate a text from scratch.

PE translation environment. PE is not recommended to be conducted in or exported to any text editor such as Microsoft Word or Arbortext SGML (Allen 2003g), as they were not designed for such a task (except for cases where these applications have been modified to the user to simulate PE features). As already explained in section 4.5, *Editing features*, *@prompt Professional* provides a friendly and quite productive environment for users editing raw MT output. These important editing features are not present in other desktop publishing environments.

Using the appropriate MT approach. A further consideration is to avoid using systems more suitable for one translation approach (inbound/assimilation/content gist) to fulfil the needs of a different approach (outbound/dissemination/translation for publication). In concrete terms, using an Internet on-line MT system to perform MT PE is ineffective.

Complete MT PE process. It is also important to follow the entire MT PE process in order for the strategy to be efficient. If all the steps explained in section 3.1, *Multi-step process in machine translation post-editing (MT PE)*, are not performed consecutively and according to the order indicated, then the maximum time savings will not necessarily be achieved.

Dictionary preparation time. This is a requirement for the effective implementation of any MT system. The time spent analysing the data and creating user dictionaries at the beginning and during the entire process will reap long-term rewards.

If these factors are observed, the efficiency of an automated translation system can be better understood and implemented even for translating marketing brochures. Although some specialists considered the marketing domain as inappropriate to demonstrate fully such translation effectiveness, the present dissertation demonstrates the efficiency and faster performance of MT systems for such texts that are other than highly repetitive technical manuals and/or scientific documents. Despite the fact that the low percentage of repetition present in these text types posed great challenges when testing the potential for using MT only, (as opposed to MT in combination with FPE) the results obtained show the superiority of this new mode of translation as opposed to (T) HT techniques. As presented in section 5.5, *Comparing results*, there are still considerable time savings to be obtained from an MT system working in a non-specific subject-field type of language. Therefore, this dissertation demonstrates that MT in combination with human intervention at the back-end of the automated process is definitely faster than (T) HT from scratch.

This work has aimed at offering an indepth set of statistical information that has not yet been provided to the MT user community during the past 50 years of developing and implementing MT systems, nor the past 30 years of investigating PE. It appears that some of the lack of interest in MT among multi-national corporations, translation agencies and freelance translators is mainly due to a lack of information about how to conduct MT PE. This work is built upon the effort of other professional experts who have developed the original methodology, and is thus another stepping stone to providing fundamental comparative statistics for further research and implementation case studies. PE is a possible solution that caters for growing translation demands. We should/must not underestimate it since we are all looking for solutions to deal with the pressure of increased volume of translation jobs along with shorter translation turn-around cycles in order to maintain multilingual content publication channels.

Finally, there is a need for greater awareness of PE and to educate various audiences about this “unknown” task. It is necessary to teach (*see* O'Brien 2002), and develop this

new mode of work that caters for growing translation demands. Further research is required for a better implementation of MT systems in translation for publication environments and to prepare improved training materials and courses for translators, to mention but a few.

REFERENCES

[Internet and electronic resources last accessed August 2003]

Allen, J. 2003a. Post-editing. *IN*: Somers, H. L. (ed.), 2003a, 297-317.

Allen, J. 2003b (forthcoming). *Measuring Machine Translation Post-editing Efficiency*. Current document version: v0.04.

Allen, J. 2003c (forthcoming). *Guidelines for MT Dictionary Building and MT Post-editing*. Current document version: v0.03 dated 08 July 2003.

Allen, J. 2003d (forthcoming). Review of @prompt Standard, @prompt Professional and @prompt Expert. To be submitted to *Multilingual Computing and Technology Magazine*.

Allen, J. 2003e. *Translation Software Training Course: MT Dictionary and Building and Post-editing with Reverso Pro 5 and Reverso Expert (PROMT 5)*. Course presented at Mycom France: Paris, France. 08 July 2003. Version 1.00.

Allen, J. 08 July 2003f. Re: Who should be doing MT post-editing? EAMT: *MT-List* [Online Discussion List]. Available from : <<http://www.mail-archive.com/mt-list%40eamt.org/msg00578.html>>.

Allen, J. 2003g. Controlled Translation: the Integration of Controlled Language (CL) and Machine Translation (MT) (Panel session): Panel talk presented at the European Association for Machine Translation and Controlled Language Applications Workshop (EAMT/CLAW2003). 16 May 2003.

Available at: <<http://www.ctts.dcu.ie/presentations.html>>

Allen, J. 2001. Post-editing: an integrated part of a translation software program. *IN: Language International Magazine*, April, 2001, 13, (2), 26-29.

Allen, J. 2000. The Value of Internet Translation Portals. *IN: International Journal for Language and Documentation (IJLD)*, August 2000, (6), 45-46.

Allen, Julie. 2003. *Citing and Referencing: A Guide for Students*. Dublin City University Library, 9-20.

Bennett, S. and Gerber, L. 2003. Inside commercial machine translation. *IN: Somers, H. L. (ed.), 2003a*, 175-190.

Cronin, M. 2003. *Translation and Globalization*. New York; London: Routledge.

EAMT/CLAW 2003. Controlled Language Translation—. Joint Conference Combining the 8th International Workshop of the European Association for Machine Translation and the 4th Controlled Language Applications Workshop (EAMT-CLAW 2003). 15-17 May 2003. Dublin City University, Ireland.

Esselink, B. 2001. Leningrad Meets Amsterdam Meets Aquarius. *IN: Language International*, April, 14-15.

Euromap Language Technologies 2002. How HLT applications can lead to higher quality translations at lower costs—. The experience of Océ Technologies [Online]. Available from : <<http://www.hltcentral.org/page-1026.shtml>>.

European Association for Machine Translation. (Homepage). [Online]. Available from : <<http://www.eamt.org/>>.

Grebenyova, L. 24 August 1999. Re: Posteditors of Machine Trans: Frech/Italian/German/Spanish/Portugese. *LINGUIST List 10.1242* [Online]. Available from : <<http://www.linguistlist.org/issues/10/10-1242.html#1>>.

Heyn, M. 1996. Integrating Machine Translation into Translation Memory Systems. *IN: Proceedings of the European Association for Machine Translation Workshop TKE'96—*. 29-30 August 1996. Vienna, Austria [Online].

Available from : <<http://www.eamt.org/archive/vienna.pdf>>

Hutchins, J. and Somers, H. L. 1992. *An Introduction to Machine Translation*. London: Academic Press, Ltd.

Hutchins, J. 1996. ALPAC: The (in)famous report. *IN: MT News International 14, June 1996*, 9-12. Reprinted *IN: Readings in machine translation*, (ed.) S. Nirenburg, H. L. Somers, and Y. Wilks (eds.). Cambridge, Mass.: The MIT Press, 2003), 131-135 [Online].

Available from: <<http://ourworld.compuserve.com/homepages/WJHutchins/Alpac.htm>>

Hutchins, J. 2003. Computer-based translation systems and tools [Online]. Available from : <http://www.eamt.org/archive/hutchins_intro.html>.

Kay, M. 1997. The Proper Place of Men and Machines in Language Translation. *IN: Machine Translation*, 12, 3-23.

Knight, K. and Chander, I. 1994. Automated Postediting of Documents. *IN: Proceedings of the National Conference on Artificial Intelligence (AAAI)*, 1994 [Online].

Available from : <<http://www.isi.edu/naturallanguage/people/knight.html>>.

Krings, H. edited by Geoffrey K. 2001. *Repairing Texts: Empirical Investigations of Machine Translation Post-Editing Processes*. Translated from German to English by Koby, G., Shreve, G., Mischerikow, K. and Litzer, S. Translation Studies Series. Ohio: Kent State University Press [Online].

Abstract available from : <<http://bookmasters.com/ksu-press/ksu071.htm>>.

Lange, C. A. and Bennett, W. S. 2000. Combining Machine Translation with Translation Memory at Baan. *IN: Sprung, R.C (ed.) Translating into Success: Cutting-*

edge strategies for going multilingual in a global age. Amsterdam: John Benjamins, 203-218.

Lionbridge Technologies, Inc. 2001. When to use Machine Translation and what business goals can be achieved [Online]. 1-19.

Available from : <<http://www.lisa.org/2002/pdfs/WhentoUseMachineTranslation.pdf>>

Loffler-Laurian, A. M. 1984. Machine Translation: What Type of Post-Editing on What type of Documents for What Type of Users. *IN: Proceedings du Congrès COLING 84*, Stanford, Californie, 1984, 236-238 [Online].

Available from : <<http://acl.ldc.upenn.edu/P/P84/P84-1051.pdf>>.

McElhaney, T. and Vasconcellos, M. 1987. The Translator and the Postediting Experience. *IN: Technology as Translation Strategy*, 2. M. Vasconcellos (ed.) State University of New York at Binghamton (SUNY) American Translators Association Scholarly Monograph Series.

Mügge, U. 2001. The Best of Two Worlds: Integrating Machine Translation into Translation Memory Systems- A universal approach based on the TMX standard. *IN: Language International*. John Benjamins, 26-29.

Newton, J. 1992. *Computers in Translation— A practical appraisal*. London; New York: Routledge.

O'Brien, S. 2002. Teaching Post-editing: A Proposal for Course Content. *IN: Teaching Machine Translation- 6th International Workshop of the European Association for Machine Translation—*. November 14-15. Centre for Computational Linguistics, UMIST, Manchester, England, 99-106.

PROject MT, Ltd. 2003. (Homepage). Translation quality evaluation tool, CORVET [Online]. Available from : <<http://www.promt.ru/news-e/news.phtml?id=242>>.

Reuther, U. 2003. Two in One- Can it Work? Readability and Translatability by means of Controlled Language. *IN: EAMT/CLAW 2003*, 124-132.

Sampson, G. 1992. Machine Translation. *IN: Computing in linguistics and phonetics: introductory reading*. P. Roach (ed.). London, San Diego: Academia Press, 85-96.

Santangelo, S. 1988. Making an MT System Work: Perspective of a Translator. *IN: Vasconcellos, M. (ed) 1988. Technology as Translation Strategy*. State University of New York, 133-139.

Schäfer, F. 2003. MT post-editing: How to shed light on the “unknown task”. Experiences made at SAP. *IN: EAMT/CLAW 2003*, 133-140. Also [Online]. Available from : <http://www.e-promt.com/service/Post-Editing_Paper.pdf>.

Senez, D. 1998. Post-Editing Service for Machine Translation Users at the European Commission. *IN: Translating and the Computer* (20). London.

Shuttleworth, M. 2002. Combining MT and CAT on a technology-oriented translation Masters. *IN: Teaching Machine Translation— 6th International Workshop of the European Association for Machine Translation-*. November 14-15. Centre for Computational Linguistics, UMIST, Manchester, England, 123-129.

Somers, H. L. (ed.). 2003a. *Computers and Translation: A Translator's Guide*. Amsterdam: John Benjamins Translation Library, 35.

Somers, H. L. 2003b. Sublanguage. *IN: Somers, H. L. (ed.)*, 283-295.

Somers, H. L. 2003c. Machine Translation in the Classroom. *IN: Somers, H. L. (ed.)*, 341-349.

Sokolova, S. 2002. An Overview of PROMT Translation Software. *IN: Multilingual Computing and Technology Magazine*, 13, (3). April/May 2002, 43-46.

Spalink, K., Levy, R. and Merrill, C. 1997. The Level Edit, Post-editing Process, A tutorial for Post-Editors of Machine Translation Output. *IN: Internationalisation and Translation Services, Inc.* (HTML, 95 KB. Access to this document was kindly provided by Jeffrey Allen)

Terence, L. 2001. Combining Tools to Improve Automatic Translation. *IN: EAMT, MT Summit VII*, 18-22 September 2001. Santiago de Compostela, Spain [Online]. Available from : <<http://www.eamt.org/summitVIII/papers/lewis.pdf>>.

Van der Meer, J. 2003. The Business Case for Machine Translation— The Breakthrough Is for Real. *IN: The LISA Newsletter*. Vol.12 (2.6) [Online]. Also available from : <http://www.tekom-rhein-main.de/Folien/03_04_BusinessCase.pdf>.

Vasconcellos, M. 1987a. Post-Editing On-screen: Machine Translation from Spanish into English. *IN: Translating and the Computer 8, A Profession on the Move*. C. Pickens (ed.). 13-14 November 1986. CBI Conference Centre, Centre Point, London, 133-146.

Vasconcellos, M. 1987b. A Comparison of MT Post-editing and Tradition Revision. *IN: Proceedings of the 28th Annual Conference of the American Translators Association*. (Albuquerque, New Mexico, October 1987) Kummer, K. (ed.) Medford, New Jersey: Learned Information, Inc., 409-416.

Wagner, E. 1987. Post-editing: practical considerations. *IN: The Business of Translation and Interpreting*. Proceedings of the 1st annual conference of the Institute of Translation and Interpreting. C. Picken (ed.) 1-2 May, 1987. London: Aslib, 71-78.

Wagner, E, 1985. Post-Editing Systran- A Challenge for Commission Translators. *IN: Terminologie et Traduction*, 3. OPOCE, European Commission.

Dictionaries used by Enrique Torrejón (Professional Translator):

- Longman dictionary [Online].
Available from : <<http://www.longmanwebdict.com>>.
- Routledge Spanish Technical Dictionary, 1997. London [England]; New York: Routledge.
- Vox English-Spanish [Online].
Available from : <<http://www.diccionarios.com>>.

Dictionaries used by the current researcher:

- Collins English <-> Spanish Dictionary (sixth edition).
- Diccionarios el mundo.es [Online].
Available from : <<http://www.elmundo.es/diccionarios/>>.
- Eurodicautum [Online].
Available from : <<http://europa.eu.int/eurodicautom/Controller>>.
- Merriam-Websters OnLine English dictionary [Online].
Available from : <<http://www.m-w.com/>>.
- Online English to Spanish Dictionary by University of Phoenix [Online].
Available from : <<http://www.freedict.com/onldict/spa.html>>.

Machine translation systems used:

- *@prompt Professional* (English <-> Spanish) lent by PROject MT
- *Reverso Pro 4* or PROMT 98, (English <-> Spanish) lent by Jeffrey Allen.
- *Personal Translator 2002* (English <-> German) lent by Kurt Eberle, Linguattec Entwicklung & Services (Germany). This software was used to translate some documents originally written in German, a language unfamiliar to the researcher.

BIBLIOGRAPHY

[Internet and electronic resources last accessed August 2003]

Allen, J. 2002a. Review of Reverso Pro 5 and Reverso Expert. *IN: Multilingual Computing and Technology*, 13, (6), 18-23. [Online]. Abstract available from : <<http://www.multilingual.com/allen50.htm>>.

Allen, J. 2002b. Review of Repairing Texts: Empirical Investigation of Machine Translation Post-editing Process. *IN: Multilingual Computing and Technology magazine*. Vol. 13 (46), 27-29. [Online]. Available from : <<http://www.multilingual.com/allen46.htm>>.

Allen, J. 2001. Post-editing or no post-editing? *IN: International Journal for Language and Documentation*. (8), December 2000/January 2001, 41-42.

Allen, J. and Hogan. C, 2000. Toward the development of a post-editing module for Machine Translation raw output: a new productivity tool for processing controlled language. *IN: Third International Controlled Language Applications Workshop (CLAW2000)*. 29-30 April 2000. Seattle, Washington.

Allen, J. 2000. Taking on the Critics: Giving the Machine Equal Time—An MT expert takes on one of machine translation's most vocal critics. *IN: Language International magazine*, 12, (3), 24-25, 44-45.

Austermühl, F, 2001. *Electronic tools for translators*. Manchester; Northampton, MA: St. Jerome.

Eckersley, H. 2002. Systems for Evaluating Translation Quality. *IN: Multilingual Computing and Technology magazine*, 13 (3), 2002, 39-42.

Lawson, V. 1982. *Practical Experience of Machine Translation—Proceedings of a Conference*. London, 5-6 November 1981-. Amsterdam, New York, Oxford. North-Holland Publishing Company.

Loffler-Laurian, A. M. 1996. *La traduction automatique*. Lille, France: Presses Universitaires du Septentrion.

Loffler-Laurian, A. M. 1986. Post-édition rapide et post-édition conventionnelle: Deux modalités d'une activité spécifique I. *IN: Multilingua*, 5 (2), 81-88.

Loffler-Laurian, A. M. 1986. Post-édition rapide et post-édition conventionnelle: Deux modalités d'une activité spécifique II. *IN: Multilingua*, 5 (4), 225-229. (This article is a continuation of a previous one published *IN: Multilingua*, 5 (2)).

Loffler-Laurian, A. M. 1983. Pour une typologie des erreurs dans la traduction automatique. *IN: Multilingua*, 2 (2), 65-78.

Nagao, M. 1989. *Machine Translation. How Far Can It Go?* Oxford, New York, Tokyo: Oxford University Press.

Olohan, M. 1991. *An introspection-based analysis of the post-editing process*. MA. Dublin City University (Ireland).

Schäfer, F. 2002. *Die maschinelle Übersetzung von Wirtschaftstexten. Eine Evaluierung anhand des MÜ-Systems der EU-Kommission, SYSTRAN, im Sprachenpaar Französisch-Deutsch*. PhD Thesis. Universität des Saarlandes (Germany).

Senez, D, 1998. The Machine Translation Help Desk and the Post-editing Service: the growth of machine translation. *IN: Terminology et Traduction*, (1), 289-295. OPOCE, European Commission. [Online]. Available from : <http://europa.eu.int/comm/translation/reading/articles/pdf/1998_01_tt_senez.pdf>.

Somers, H. L. 1997. A Practical Approach to Using Machine Translation Software-“Post-editing” the Source Text. *IN: The Translator*, 3 (2), 193-212.

Somers, H. L. 1998a. Machine Translation, applications. *IN: Baker (ed.), Encyclopedia of Translation Studies*. London; New York: Routledge, 136-139.

Somers, H. L. 1998b. Machine Translation, history. *IN: Baker (ed.), Encyclopedia of Translation Studies*. London; New York: Routledge, 140-143.

Somers, H. L. 1998c. Machine Translation, methodology. *IN: Baker (ed.), Encyclopedia of Translation Studies*. London; New York: Routledge, 143-149.

Torrejón, E. 1998. *Postediting Guidelines for Spanish AMT*. Technical Report for Caterpillar KANT project. Pittsburgh, Pennsylvania: Center for Machine Translation, Carnegie Mellon University, 7 pp. (Not publicly available).

Torrejón, E. and Rico, C. 2002. Controlled translation: A new teaching scenario tailor-made for the translation industry *IN: Teaching Machine Translation— 6th International Workshop of the European Association for Machine Translation-*. November 14-15. Centre for Computational Linguistics, UMIST, Manchester, England.

Van der Meer, J. 2003. At Last Translation Automation Becomes a Reality: an Anthology of the Translation Market. *IN: EAMT/CLAW 2003*, 180-184.

Vasconcellos, M. 1986. Functional Considerations in the Post-editing of Machine Translation Output: Dealing with V(S)O versus SVO. *IN: Computers and Translation*, 1, 21-38.

Vasconcellos, M. 1989. Cohesion and Coherence in the Presentation of Machine Translation Products. *IN: Language Teaching, Testing, and Technology: Lessons from the Past with a View Toward the Future*; J. Alatis (ed.) Georgetown University Round Table (GURT) on Language and Linguistics. Washington, D.C.: Georgetown University Press.

Vasconcellos, M. 1993. Users of Systems. The Current State of MT Usage. Or: How do I use Thee? Let Me Count the Ways [Online]. Available from : <http://www.eamt.org/archive/summit93.html>.

Vasconcellos, M. 1994. The issues of Machine Translation. *IN: Professional Issues for Translators and Interpreters*. D. Hammond (ed.). Amsterdam/Philadelphia: John Benjamins Publishing Company, 109-125.

Vasconcellos, M., Miller, C. and Colin, B. 1995. MT Users and Usage: Europe and the Americas. *IN: 5th Machine Translation Summit in Luxembourg*. July 1995 [Online]. Available from : <<http://www.eamt.org/archive/summit95.html>>.

Wagner, E. Svend, B. J. and Martinez, J. M. 2001. *Translating for the European Union Institutions* – Manchester, UK; Northampton, MA : St. Jerome.

Woyde, R. April 2001. Introduction to the SAE J2450 Translation Quality Metric. *Language International*. John Benjamins, 37-39.

Woyde, R. 2002. Translation needs in auto manufacturing. *IN: Multilingual Computing and Technology magazine*, 13 (2), 39-42.

Appendices: "A" "B" "C"

Human Translation versus Machine Translation and Full Post-Editing of Raw Machine Translation Output

APPENDIX A: MONOLINGUAL GLOSSARY & FURTHER RESOURCES

Part (a): All terms included in the monolingual glossary have been defined by the current researcher. In those cases where the content is taken with minor modifications from any source, the reference will be specified between brackets []. *See pages 2 to 7.*

Part (b): In relation to all centres, associations, committees or companies that have been mentioned in the project, a different section has been included within the glossary. This part is intended to offer some references to electronic resources that might be useful for readers interested in further information about machine translation. This is, by no means, an exhaustive listing. *See pages 8 to 10.*

Abbreviations

MT.....	Machine Translation
PE.....	Post-Editing
SL.....	Source Language
ST(s).....	Source Text(s)
TL.....	Target Language
TT(s).....	Target Text(s)

Part (a): Monolingual Glossary

- 1) Artificial intelligence (AI).** An attempt to emulate human patterns of thinking and behaviour using computer models, especially when applied to robotics, pattern recognition, or machine translation, amongst others.
- 2) Automatic post-editing (APE) module.** A module for machine translation output, which allows users to extract post-editing changes from existing parallel tri-text (source text, machine translation output and post-edited texts) corpora in order to devise post-editing principles from these analyses.
- 3) Compendium of translation software.** A comprehensive and detailed reference guide whose main purpose is to compile all current commercial machine translation systems and computer-based translation support tools that are available for purchase on the market and/or via the Internet. A list of companies as well as languages and translation support tools is also included.
- 4) Computer-aided (-assisted) translation (CAT).** A general term covering all types of computerised translation, either human-assisted machine translation (HAMT) or machine-assisted human translation (MAHT).
- 5) Controlled language (CL).** A subset of a natural language whose grammar and dictionaries have been restricted to reduce or eliminate ambiguity and complexity in texts written in that CL, whether they are processed by machine or read by humans only.
- 6) Editor.** Person whose job is to find problems in a text or draft translation, and then correcting or improving it, with particular attention to making the text suitable for its future readers and for the use to which they will put it (Mossop 2001: iii).
- 7) Full post-editing.** The attempt to convert raw machine translation output into a product indistinguishable from human translation.

- 8) Fully automatic (automated) machine translation (FAMT).** The computer process of translating a source text into raw machine translation output without any human intervention. *Syn:* simple inbound translation.
- 9) Fully automatic (automated) high quality machine translation (FAHQMT).** The ideal when developing machine translation systems (batch systems) aiming to produce high-quality translations of natural languages, without any human intervention.
- 10) Gisting.** A term used to denote a) instant “for your information” machine translation and b) monolingual text summarisation (LISA, 2002: 34).
- 11) Human translation (HT).** Translation in which a human translator performs all steps in the translation process. A computer will only be used as a word processor, spelling and grammar checker, to access electronic resources or the Internet, if at all. (“Traditional” or “conventional” are common adjectives associated with this practice that has existed for centuries).
- 12) Inbound translation.** A translation for information only, without any human intervention. *Syn:* content “gisting”, “browsing”, “scanning”, machine translation for assimilation, machine translation for acquisition, indicative translation, translation to understand.
- 13) Interaction.** Human involvement before, during or after the actual process of automatic translation. *Syn:* involvement, assistance.
- 14) Interactive machine translation.** Human assistance required by a machine translation system during the translation process. Thus, problems of ambiguity and translational equivalents, amongst others, are solved by means of interactive communication between human and machine.
- 15) Interactive post-editing.** Corrections of raw machine translation output made in a machine translation interface without exporting the document to any text editor. All machine translation editing features are available allowing for a friendly and more productive environment.

- 16) Machine-assisted (-aided) human translation (MAHT).** Translation in which a human translator is responsible for doing the translation. S/he makes use of a variety of computerised tools that can range from automatic look-up programs to systems, which require the translator to approve each sentence. The purpose of this technology is to improve and/or speed up the human translation process. *Syn:* machine-assisted translation (MAT), computer-aided (-assisted) translation (CAT).
- 17) Machine translation (MT).** An automatic translation system that makes use of an advanced computational linguistic analysis to process source documents and automatically create target texts with (HAMT) or without (FAMT) user intervention.
- 18) Machine translation portal.** Service on the Internet providing access to a number of machine translation services and/or to information about machine translation systems. Most machine translation portals are set up with a timeout feature that is either based on connection time of use or on file size. This timeout prevents the outright abuse of this free service whose main objective is to expand the market for automatic translation.
- 19) Machine translation service.** Translation service via the Internet or mobile phone, using machine translation systems with or without post-editing and charging according to length and/or subject of texts. On-line Internet services are free.
- 20) Météo.** An (fully) automatic system developed in 1976 by the TAUM group in Montreal. It is used for translating weather bulletins from English into French and its success is based on the completeness and accuracy (90-95%) of its output, which is achieved due to the restriction of input texts to the sub-language of meteorological forecasts.
- 21) Minimal post-editing (MPE).** Term used in industries such as the automotive and heavy-machinery industries. It means editing, modifying and/or correcting pre-translated machine-translated texts that have a long life span, aimed at offering a translation for dissemination. *Syn:* quick-fix.

- 22) Natural Language Processing (NLP).** A main focus of computational linguistics. Its aim is to devise techniques to analyse automatically large quantities of spoken (transcribed) or written text in ways that parallel what happens when humans perform this task (*Multilingual Computing and Technology*, 2002: 34).
- 23) Optical Character Recognition (OCR).** Software designed to convert optically scanned bitmaps of printed or written text characters into character codes. This is an efficient way to turn hard-copy materials into data files that can be edited and otherwise manipulated on a computer.
- 24) Outbound translation.** A translation for publication where human assistance is needed to achieve a final product with certain degree of refinement. *Syn*: translation for dissemination, translation to communicate.
- 25) Passive post-editing.** A non-productive type of post-editing conducted in a desktop publishing environment such as Microsoft Word or Arbortext SGML editor. This type of post-editing is mainly conducted by external post-editors (agencies and individuals).
- 26) Pre-editing.** All editing changes made at a lexical, formatting, phrase and sentence level to improve human readability, comprehensibility, clarity, consistency and, where possible, machine translatability of certain texts.
- 27) Post-editing** sometimes written non-hyphenated “postediting”, (PE). One of the possible approaches to improve the quality of raw machine translation output based on editing, modifying and/or correcting machine-translated texts. Whether this activity is conducted, and to what extent, largely depends on the quality required by the user, amongst other factors. *Syn*: editing (raw machine translation output).
- 28) Post-editor.** Person whose job consists of modifying and/or correcting pre-translated texts that have been processed by a machine translation system from a source language into a target language. The level of correction will depend on the agreed standard. *Syn*: Machine translation post-editor.

- 29) Reverso Pro 4.** A 32-bit professional machine translation system based on the PROMT 98 engine and interface (1998-1999). It includes professional translation environment “PROjectMT 98”, browser/translator “WebView”, batch translator “File Translator” and express translator “Qtrans”. It translates from/into several languages in one system.
- 30) Quality Management System (QMS) ISO 9000.** A series of voluntary international standards serving as a method for establishing and maintaining a quality management system for organisations involved in manufacturing products or providing services. The ISO 9000 series were developed by the International Organisation for Standardisation (ISO) in 1987.
- 31) Quasi-text.** An incomplete translation where a minimal or rapid post-editing has been applied and where there is a lack of high-quality or (human) perfection. *Syn:* half-text, semi-finished text.
- 32) Rapid post-editing.** The correction of the most serious errors in a text to give reasonable comprehensibility and accuracy, but without any guarantee of quality. To save time and to convey faithfully the information content of the text is the main objective of this type of post-editing, which does not consider modifications in style.
- 33) Raw machine translation output.** Unedited machine-translated text that requires human post-editing depending on the intended purpose of the translation.
- 34) Reviser.** Person whose job is to make sure that a target texts renders the content of a source text, preserves coherence and is idiomatic in a target language. The text reviser does not necessarily have to be the translator, in the case of human translation, or the post-editor, in the case of machine-translated texts. S/he is the last person in “revising” the final quality of the target text.
- 35) Revision.** Last step in a human or automatic translation upon completion of a target text. The aim is to make sure that the final translation renders the content of a source text, preserves coherence and is idiomatic in a target language.

- 36) SAE J2450.** A translation quality metric developed by the subcommittee of the Society of Automotive Engineers (SAE) for use in the automotive industry. This metric is based on a Score Sheet that enables evaluators to capture error types and quantities of translation errors. In order to be applied properly, it includes guidelines, detailed definitions of error categories, examples and a Quick Reference Guide.
- 37) Systran.** A commercially developed computerised translation tool that started producing machine translations for the European Institutions when the Commission bought the license to use this technology in the mid 1970s.
- 38) Translation.** The process of converting a text from a source language to a target language. An understanding of the context or meaning of the source text must be established in order to convey the same message in the target text.
- 39) Translation memory (TM).** A translation productivity tool comprising a database containing segments of source language and target language texts that have been aligned to match each other. TM systems are used to retrieve previously translated material, such as when handling new versions of existing documents (LISA, 2002: 35).
- 40) Translation support tool.** Term referring to any of the following aids: electronic dictionaries, localisation support tools, translation memory systems, alignment tools, terminology management systems, pre-editing tools and translator workstations.

References

LISA, *The LISA Localization Industry Primer*, 2002, 1-35. (PDF version provided by Sharon O'Brien in the Software Localisation module, lectured at Dublin City University, Ireland, 2002-2003).

Mossop, B. 2001. *Revising and Editing for Translators*. St. Jerome Publishing, Manchester, U.K.

Part (b): Electronic resources for further information

[Internet and electronic resources last accessed August 2003]

Professional Organisations and Research Centers:

- American Translators Association (ATA),
<<http://www.atanet.org/>>.
- Asian-Pacific Association for Machine Translation (AAMT),
<<http://www.aamt.info/>>.
- Association for Computational Linguistics (ACL),
<<http://www.aclweb.org/>>.
- Association for Machine Translation in the Americas (AMTA),
<<http://www.amtaweb.org/>>.
- Center for Computational Linguistics (CCL),
<<http://www.ccl.kuleuven.ac.be/>>.
- Center for Machine translation (CMT),
<<http://www.lti.cs.cmu.edu/Research/CMT-home.html>>.
- Department of Language Engineering,
<<http://www.ccl.umist.ac.uk/>>.
- Euromap Language Technologies,
<<http://www.hltcentral.org/>>.
- European Association for Machine Translation (EAMT),
<<http://www.eamt.org/>>.
- European Language Resources Association (ELRA),
<<http://www.elra.info/>>.
- European Network for Language and Speech (ELSNET)
<<http://www.elsnet.org/>>.
- International Association for Machine Translation (IAMT),
<<http://www.eamt.org/>>.
- Language Technologies Institute (LTI),
<<http://www.lti.cs.cmu.edu/>>.
- Localization Industry Standards Association (LISA),
<<http://www.lisa.org/>>.

- Natural Language Translation Group,
<<http://www1.bcs.org.uk>>.

Companies implementing MT:

Although there are more companies currently implementing MT, the following list refers only to the main corporations outlined in this dissertation.

- ABLE International Inc.,
<<http://www.ableintl.com>>.
- Caterpillar Inc.,
<<http://www.caterpillar.com>>.
- Cisco Systems,
<<http://www.cisco.com>>.
- Comprendium Gmbh,
<<http://www.comprendium.de>>.
- DaimlerChrysler,
<<http://www.daimlerchrysler.com>>.
- Detroit Translation Bureau
<<http://dtbonline.com>>.
- European Commission Translation Service,
<http://europa.eu.int/comm/translation/reading/articles/tools_and_workflow_en.htm>.
- Ford,
<<http://www.ford.com>>.
- Fortis A.G.
<<http://www.ag.be>>.
- General Motors,
<http://www.gm.com/flash_homepage>.
- IBM,
<<http://www.ibm.com>>.
- Lionbridge Technologies, Inc.,
<<http://lionbridge.com>>.
- Océ Technologies B.V.,

<<http://www.oce.com>>.

- Oracle corporation,

<<http://www.oracle.com>>.

- Pan-American Health Organisation,

<<http://www.paho.org>>.

- SAP A.G,

<<http://www.sap.com>>.

- Xerox,

<<http://www.xerox.com>>.

Magazines:

- HTL News,

<<http://www.hltcentral.org/news/index.php>>.

- International Journal for Language and Documentation (IJLD),

<<http://www.crux.be/English/IJLD/ijld.html>>.

- Language International, (although this periodical ceased publication in December 2002, a variety of articles are still online).

- Machine Translation,

<<http://www.kluweronline.com/issn/0922-6567>>.

- Multilingual Computing and Technology,

<<http://www.multilingual.com/>>.

- The Translator, Manchester: St. Jerome, 1997.

Other translation resources:

- Foreignword.com,

<<http://www.foreignword.com/>>

- The Translation Guide,

<<http://mason.gmu.edu/~aross2/>>

- The Translation Reference Center

<<http://www.transref.org/>>.

APPENDIX B: MARKETING BROCHURES 1 & 2

Human Translation by Enrique Torrejón & Post-editing of raw MT output by Lorena Guerra

This appendix includes two marketing brochures: “*Summary—Compendium Globaliser*” and “*Mobilizing your pharmaceutical sales force with handheld access to vital enterprise resources*” translated by Enrique Torrejón¹ on the one hand, and machine-translated and next, fully post-edited by the current researcher, on the other. In the case of the source text (ST) and the human translated text, the brochures are presented in monolingual version, in single column format. On the contrary, machine-translated and full post-edited texts, as facilitated by the MT software, are presented parallel to the ST, allowing for a better understanding of the comments and changes made.

¹ Torrejón's qualifications are: Bachelor Degree in Spanish Linguistics from University of Seville, June, 1989. Masters Degree in Computational Linguistics from Carnegie Mellon University, May 1994. Experienced freelance translator from English into Spanish since 1989. In-house translator at AT&T Business Translations from 1994 to 1996 and American Translators' Association accreditation English-to-Spanish, May 2002. He has also written two articles (*see Bibliography*) although the first one, from 1998, is not publicly available.

PART 1: “Summary — Compendium Globaliser”

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1.1 Human Translated Text	6
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1.3 FPE of raw MT output	14

PART 2: “Mobilizing your pharmaceutical sales force with handheld access to vital enterprise resources”

2. Source Text (ST)	18
2.1 Human Translated Text	20
2.2 Raw MT output (parallel to ST)	25
2.3 FPE of raw MT output	30

1 Source Text (ST)

“Summary – Compendium Globaliser”

Globalisation is undoubtedly changing the face of business. And the only way forward for global players is to be capable of understanding information and providing content in all the native languages of the countries in which they operate: for multinational customers, work forces, and business partners.

In many applications, speed is more essential than polished language, and having to wait hours or even days for a human translation can lead to a loss of a vital competitive edge. But in order to translate information you first have to find it. And, for many companies, finding vital data in the information “jungle” is just as much a problem as the language barrier.

The Challenge

Compendium’s aim was to build intelligent multilingual searching followed by translation of the results into a language the user can understand. And the challenge for Compendium was not only to build linguistically powerful search and translation tools but also to provide these capabilities inside many different types of workflows and system environments, and to be able to deal with documents in many different formats and originating from many different sources. This is why the Compendium Globaliser operates within the **i2z ECM Framework**, which provides

- Full integration into a **document management system**
- Integration of many different document and information sub-systems and workflows
- Coverage of many different system environments and platforms
- Powerful functions for analysis, search, retrieval, display and routing
- Efficient monitoring and caching functions
- A high level of security.

Sophisticated Document Analysis

The powerful search and translation features that the Compendium Globaliser provides are made possible by sophisticated processing carried out when documents are saved in the Content Stores. Document analysis provides:

- Identification of the document language
- Full-text indexing of documents
- Identification of information elements and text variables
- Optional translation into target languages for pre-indexing.

Powerful Search and Retrieval

What makes the Compendium Globaliser so special is that instead of just searching for a specific word or term in documents or complete archives, users can expand the search to include synonyms or sub-categories of the word. Powerful enough in just one language, the benefits of this technology becomes really apparent when several languages are involved. The search system can be configured to generate queries in all the languages the user requires. Functionality includes:

- Expansion of queries to include synonyms and sub-categories based on ontologies
- Translation and/or expansion of queries into other languages
- Search for information elements in documents (dates, names, addresses etc.).

The i2z Translation Module

The translation of documents from a source language into a target language is carried out by the Translation Module. Support is provided for all major European languages, and the format of the original document is retained in the translated document.

Translation functions can be called at different stages during the workflow: at the document analysis stage or after search and retrieval. **On-the-fly translation** support can also be provided from a wide variety of clients, independently of the search and retrieval process. This permits users to translate any documents they come across during the course of their daily work, including **e-mails**. Such translation support can even be integrated into corporate-wide **portals**.

The Compendium Globaliser provides a range of technologies to help users understand foreign-language documents and assess their relevance. These technologies guarantee:

- Ease of use
- High-quality output
- Customisability (see below)
- High performance and scalability
- A choice of technologies
- Integration into workflows

Machine Translation

The automatic translation component of the Compendium Globaliser uses one of the most highly developed linguistic approaches currently available. These systems have extensive grammars and powerful dictionaries, and are light years removed from previous word-to-word translation approaches. A wide range of **Language Pairs** is available.

Translation Memory

Translation Memory is a technology that leverages the results of previous human translations. This represents considerable savings in time and money. Translation Memory is best used in combination with Machine Translation.

Translation of Key Terms

This technology looks up key terms (determined by the user) in a term database and inserts the translations into the foreign-language document. This technology enables the user to quickly assess the relevance of a document for his or her purposes.

Customisation

The quality of the technologies used in the Compendium Globaliser stems from their customisability to the areas in which customers work, whether this is banking, insurance, healthcare or a particular line of industry. Generalised systems that do not have these adaptation capabilities can never hope to achieve the same results.

All the main technologies (analysis, queries, translation) can be customised before use, and the Compendium Globaliser also provides powerful tools for ongoing work of this kind.

Unique Features of Compendium Globaliser

The Compendium Translator offers all the outstanding state-of-the-art technology described above, plus a number of unique characteristics that no other system can boast.

- A close link between content management and translation
- Close integration on any platform or into any system environment
- True multilinguality and linguistic intelligence
- Customisation
- Flexible translation support

1.1 Human Translated Text

“Resumen – Globaliser de Comprendium”

La globalización está cambiando sin duda alguna la faz de los negocios. Y el único modo que a partir de ahora tienen los protagonistas globales es el de ser capaces de comprender la información y proporcionar contenidos en todas las lenguas nativas de los países donde tienen negocios: para los clientes, los trabajadores y los socios empresariales de distintos países.

En muchas aplicaciones, la velocidad es más importante que un estilo esmerado y el tener que esperar horas e incluso días una traducción humana puede suponer una pérdida de una ventaja competitiva vital. Pero para traducir información hay que encontrarla primero. Y para muchas compañías encontrar datos vitales en la “jungla” de información es un problema tan grande como el de las barreras lingüísticas.

El desafío

El objetivo de Comprendium era construir buscadores multilingües inteligentes que usaran traducción de los resultados a una lengua que el usuario pueda entender. Y el desafío de Comprendium no era solamente construir herramientas de búsqueda y traducción que fueran potentes desde un punto de vista lingüístico, sino que el desafío era también proporcionar estas herramientas integradas en muchos tipos diferentes de entornos de sistemas y de procesamiento de trabajos, y ser capaz al mismo tiempo de manejar documentos que contuvieran muchos formatos diferentes y que procedieran de muchas fuentes distintas. Esta es la razón por la que Globaliser de Comprendium funciona dentro del **Entorno i2z ECM**, el cual proporciona

- Integración completa en un **sistema de gestión documental**
- Integración de muchos subsistemas distintos de información y documentos y de procesamiento de trabajos
- Cobertura de muchos entornos y plataformas de sistemas distintos
- Potentes funciones para el análisis, la búsqueda, la recuperación, la presentación y el direccionamiento de información
- Funciones de monitoreo y de almacenamiento eficientes
- Un alto nivel de seguridad.

Análisis sofisticado de documentos

Las potentes aplicaciones de búsqueda y traducción que proporciona Globaliser de Comprendium son posibles gracias al sofisticado procesamiento que se lleva a cabo cuando se guardan los documentos en los Content Stores. El análisis de documentos proporciona:

- **La identificación del idioma del documento**
- El indexado de los documentos con el texto completo
- La identificación de los elementos de información y las variables del texto
- La traducción opcional a otros idiomas para una indexación previa.

Búsqueda y recuperación potentes

Lo que hace de Globaliser de Comprendium una tecnología tan especial es que en vez de hacer una búsqueda de una palabra o término específico en documentos o en archivos completos, los usuarios pueden expandir la búsqueda incluyendo sinónimos o subcategorías de la palabra. Ya de por sí bastante potente en un idioma, los beneficios de esta tecnología se hacen realmente patentes cuando se manejan idiomas distintos. El sistema de búsqueda se puede configurar para generar preguntas en todos los idiomas que solicite el usuario. Entre las funcionalidades se incluyen:

- Expansión de las preguntas para incluir sinónimos y subcategorías basados en ontologías
- Traducción y/o expansión de las preguntas a otros idiomas
- Búsqueda de elementos de información en documentos (fechas, nombres, direcciones, etc.).

El Módulo de Traducción i2z

La traducción de documentos de una lengua fuente a una lengua objetivo la lleva a cabo el Módulo de Traducción. Este maneja todas las lenguas europeas más importantes y mantiene el formato del documento original en el documento que contiene la traducción.

Se pueden solicitar las funciones de traducción en las distintas etapas durante el procesamiento: en la etapa de análisis del documento o después de la búsqueda y la recuperación. También se puede proporcionar desde una gran variedad de programas clientes **traducción instantánea**, independientemente de los procesos de búsqueda y recuperación. Esto permite que los usuarios traduzcan cualquier documento con el que se encuentran durante el curso de su trabajo diario, incluyendo **correos electrónicos**. Esta capacidad de proporcionar traducciones se puede integrar incluso en **portales** de corporaciones.

El Globaliser de Comprendium proporciona una gama de tecnologías para ayudar a los usuarios a comprender documentos escritos en idiomas extranjeros y evaluar su relevancia. Estas tecnologías garantizan:

- Facilidad de uso
- Resultado de alta calidad
- Capacidad de adaptación al usuario (ver abajo)
- Alto rendimiento y escalabilidad
- Un conjunto de tecnologías donde elegir
- Integración en los procesos de trabajos

Traducción Automática

El componente de traducción automática del Globaliser de Comprendium utiliza uno de los enfoques lingüísticos más desarrollados que se encuentran actualmente disponibles. Estos sistemas tienen extensas gramáticas y potentes diccionarios, y están a años luz de los anteriores enfoques de traducción palabra por palabra. Hay disponible una amplia gama de **Pares de Lenguas**.

Memoria de Traducción

La Memoria de Traducción es una tecnología que se aprovecha de los resultados de traducciones humanas previas. Esto supone ahorros considerables en tiempo y en dinero. La Memoria de Traducción se usa mejor en combinación con Traducción Automática.

Traducción de palabras claves

Esta tecnología busca palabras claves (especificadas por el usuario) en una base de datos terminológica e inserta las traducciones en el documento escrito en el idioma extranjero. Esta tecnología facilita al usuario la posibilidad de considerar rápidamente la relevancia del documento para los fines que tenga el usuario.

Adaptación al usuario

La calidad de las tecnologías usadas en el Globaliser de Comprendium tiene origen en su capacidad de adaptación a las áreas en las que trabajan los clientes, ya sean éstas bancos, seguros, sanidad o un área concreta de la industria. No se puede nunca esperar que sistemas generales que no tienen estas capacidades de adaptación puedan alcanzar los mismos resultados.

Se pueden adaptar al usuario todas las tecnologías principales (análisis, preguntas, traducción) antes del uso, y el Globaliser de Comprendium también proporciona potentes herramientas para el trabajo que se está realizando de este tipo.

Características únicas de Globaliser de Comprendium

El Traductor de Comprendium ofrece todas las excelentes tecnologías punteras en su área descritas anteriormente, además de un número de características únicas de las que ningún otro sistema puede hacer gala.

- Relación estrecha entre la gestión de contenidos y la traducción
- Integración directa en cualquier plataforma o dentro de cualquier entorno de sistema
- Verdadero carácter multilingüe e inteligencia lingüística
- Adaptación al usuario
- Funciones de traducción flexibles

1.2 Raw MT output (parallel to ST)

— Translation alternatives

— Unknown word(s)

Mistranslated term(s) (repeated words are highlighted only once)

Changes made in Step 5: FPE (Attached dictionary: "Compendium")

Summary - <u>Compendium Globaliser</u>	Sumario - <u>Compendium Globaliser</u>
Globalisation is undoubtedly changing the face of business. And the only way forward for global players is to be capable of understanding information and providing content in all the native languages of the countries in which they operate: for multinational customers, work forces, and business partners.	La globalización cambia indudablemente la cara de negocio. Y el único camino avanzado para jugadores globales es ser capaz de entender la información y proporcionar el contenido en todas las lenguas maternas de los países en los cuales ellos funcionan: para clientes multinacionales, fuerzas obreras, y socios de negocio.
In many applications, speed is more essential than polished language, and having to wait hours or even days for a human translation can lead to a loss of a vital competitive edge . But in order to translate information you first have to find it . And, for many companies, finding vital data in the information "jungle" is just as much a problem as the language barrier.	En muchas aplicaciones, la velocidad es más esencial que la lengua pulida, y necesidad esperar horas o hasta los días para una traducción humana pueden conducir a una pérdida de una ventaja en competición vital . Pero a fin de traducir información usted primero tiene que encontrarlo. Y, para muchas compañías, encontrando datos vitales en "la selva" de información es apenas tanto un problema como la barrera de los idiomas .
The Challenge	El Desafío
Compendium's aim was to build intelligent multilingual searching followed by translation of the results into a language the user can understand. And the challenge for Compendium was not only to build linguistically powerful search and translation tools but also to provide these capabilities inside many different types of workflows and system environments , and to be able to deal with documents in many different formats and originating from many different sources. This is why the Compendium <u>Globaliser</u> operates within the i2z ECM Framework , which provides	El objetivo de Compendium era construir la busca inteligente multilingüe seguida de la traducción de los resultados en una lengua que el usuario puede entender. Y el desafío para Compendium debía construir no solamente búsqueda lingüísticamente poderosa e instrumentos de traducción sino también proporcionar estas capacidades dentro de muchos tipos diferentes de procesos laborales y ambientes de sistema , y ser capaz de tratar con documentos en muchos formatos diferentes y originando de muchas fuentes diferentes. Este es por qué Compendium <u>Globaliser</u> hace funcionar dentro del i2z ECM el Marco , que provee

☐ Full integration into a document management system	☐ Integración <u>llena {plena}</u> en un sistema de dirección de documento
☐ Integration of many different document and information sub-systems and workflows	☐ Integración de mucho documento diferente y subsistemas de información y procesos laborales
☐ Coverage of many different system environments and platforms	☐ Cobertura de muchos ambientes de sistema diferentes y plataformas
☐ Powerful functions for analysis, search, retrieval, display and routing	☐ Las funciones poderosas para análisis, búsqueda, recuperación, muestran y encaminamiento
☐ Efficient <u>monitoring</u> and <u>caching</u> functions	☐ Escucha {Control} eficiente y funciones de <u>caching</u>
☐ A high level of security.	☐ Un nivel alto de seguridad.
<i>Sophisticated Document Analysis</i>	<i>Análisis de Documento Sofisticado</i>
The powerful search and translation features that the Compendium Globaliser provides are made possible by sophisticated processing carried out when documents are saved in the Content Stores. Document analysis provides:	La búsqueda poderosa y los rasgos de traducción que Compendium Globaliser proporciona son hechos posibles por el procesamiento sofisticado realizado cuando los documentos son salvados en las Tiendas Contentas. El análisis de documento provee:
☐ Identification of the document language	☐ Identificación de la lengua de documento
☐ Full -text indexing of documents	☐ Indexación de texto lleno de documentos
☐ Identification of information elements and text variables	☐ Identificación de elementos de información y variables de texto
☐ Optional translation into target languages for pre-indexing.	☐ Traducción opcional en idiomas terminales para preindexación.
<i>Powerful Search and Retrieval</i>	<i>Búsqueda Poderosa y Recuperación</i>
What makes the Compendium Globaliser so special is that instead of <u>just</u> searching for a specific word or term in documents or complete archives, users can expand the search to include synonyms or sub-categories of the word. Powerful enough in <u>just</u> one language, the benefits of this technology become really apparent when several languages are involved . The search system can be configured to generate queries in all the languages the user requires . Functionality includes:	Lo que hace Compendium Globaliser tan especial es que en vez de buscar <u>solamente {justo}</u> una palabra específica o término en documentos o archivos completos , los usuarios pueden ampliar la búsqueda para incluir sinónimos o subcategorías de la palabra. Bastante poderoso en <u>solamente {justo}</u> una lengua, las ventajas de esta tecnología se hacen realmente aparente cuando varias lenguas están implicadas . El sistema de búsqueda puede ser configurado para generar preguntas en todas las lenguas que el usuario requiere. La funcionalidad incluye:
☐ Expansion of queries to include synonyms and sub-categories based on ontologies	☐ Extensión de preguntas para incluir sinónimos y subcategorías basadas en ontologías
☐ Translation and/or expansion of queries	☐ Traducción y/o extensión de

into other languages	preguntas en otras lenguas
☐ Search for information elements in documents (dates, names, addresses etc.).	☐ . La búsqueda para elementos de información en documentos (fechas, nombres, se dirige etc.).
<i>The i2z Translation Module</i>	<i>El Módulo de Traducción i2z</i>
The translation of documents from a source language into a target language is carried out by the Translation Module. Support is provided for all major European languages, and the format of the original document is retained in the translated document.	La traducción de documentos de un lenguaje original en un idioma terminal es realizada por el Módulo de Traducción. El apoyo es proporcionado para todas las lenguas principales europeas, y el formato del documento original es retenido en el documento traducido.
Translation functions can be called at different stages during the workflow: at the document analysis stage or after search and retrieval. On-the-fly translation support can also be provided from a wide variety of clients, independently of the search and retrieval process. This permits users to translate any documents they come across during the course of their daily work, including e-mails. Such translation support can even be integrated into corporate-wide portals .	Las funciones de traducción pueden ser visitadas etapas {escenas} diferentes durante el proceso laboral: en la etapa {escena} de análisis de documento o después de búsqueda y recuperación. En marcha el apoyo de traducción puede ser también proporcionado de una amplia variedad de clientes, independientemente del proceso de recuperación y búsqueda. Este permite a usuarios traducir cualquier documento con el que ellos se encuentran durante el curso de su rutina diaria, incluso correos electrónicos . Tal apoyo de traducción puede ser hasta integrado en entradas extensamente corporativas .
The Compendium <u>Globaliser</u> provides a range of technologies to help users understand foreign-language documents and assess their relevance. These technologies guarantee :	Compendium <u>Globaliser</u> proporciona una variedad de tecnologías para ayudar a usuarios a entender documentos de idioma extranjero y tasar su importancia. Esta garantía de tecnologías:
☐ Ease of use	☐ . Facilidad de uso
☐ High-quality output	☐ . Salida de alta calidad
☐ <u>Customisability</u> (see below)	☐ . <u>Customisability</u> (véase abajo)
☐ High performance and scalability	☐ . Funcionamiento alto y adaptabilidad
☐ A choice of technologies	☐ . Una opción de tecnologías
☐ Integration into workflows	☐ . Integración en procesos laborales
<i>Machine Translation</i>	<i>Traducción automática</i>
The automatic translation component of the Compendium <u>Globaliser</u> uses one of the most highly developed linguistic approaches currently available. These systems have extensive grammars and powerful dictionaries, and are light years removed from previous word-to-	El componente de traducción automática de Compendium <u>Globaliser</u> usa uno de los acercamientos el más muy desarrollados lingüísticos actualmente disponibles. Estos sistemas tienen gramáticas extensas y diccionarios poderosos, y son años luz

word translation approaches. A wide range of Language Pairs is available.	quitados de acercamientos de traducción de palabra a palabra anteriores. Una amplia variedad de Pares de Lengua está disponible.
Translation Memory	Memoria de Traducción
Translation Memory is a technology that leverages the results of previous human translations. This represents considerable savings in time and money. Translation Memory is best used in combination with Machine Translation.	La Memoria de Traducción es una tecnología que acciones de palanca los resultados de traducciones anteriores humanas. Este representa ahorros considerables a tiempo y dinero. La Memoria de Traducción es mejor usada en la combinación con la Traducción Automática.
Translation of Key Terms	Traducción de Términos Claves
This technology looks up key terms (determined by the user) in a term database and inserts the translations into the foreign-language document. This technology enables the user to quickly assess the relevance of a document for his or her purposes.	Esta tecnología busca {visita} términos claves (decidido por el usuario) en una base de datos de término e inserta las traducciones en el documento de idioma extranjero. Esta tecnología permite al usuario tasar rápidamente la importancia de un documento para su objetivos.
Customisation	Personalización
The quality of the technologies used in the Compendium <u>Globaliser</u> stems from their <u>customisability</u> to the areas in which customers work, whether this is banking, insurance, healthcare or a particular line of industry. Generalised systems that do not have these adaptation capabilities can never hope to achieve the same results.	La calidad de las tecnologías usó en Compendium <u>Globaliser</u> tallos de su <u>customisability</u> a las áreas en las cuales los clientes trabajan, si este tiene una cuenta, seguro, asistencia médica o una línea particular de la industria. Los sistemas generalizados que no tienen estas capacidades de adaptación pueden esperar nunca conseguir los mismos resultados.
All the main technologies (analysis, queries, translation) can be customised before use, and the Compendium <u>Globaliser</u> also provides powerful tools for ongoing work of this kind.	Todas las tecnologías principales (análisis, preguntas, traducción) pueden ser personalizadas antes del uso, y Compendium <u>Globaliser</u> también proporciona instrumentos poderosos para el trabajo en curso de esta clase.
Unique Features of Compendium Globaliser	Rasgos Únicos de Compendium Globaliser
The Compendium Translator offers all the outstanding state-of-the-art technology described above, plus a number of unique characteristics that no other system can boast.	El Traductor de Compendium ofrece toda la tecnología de punta excepcional descrita encima , más varias características únicas de las cuales ningún otro sistema puede alardear.
□ A close link between content management and translation	□ . Un eslabón cercano entre dirección contenta y traducción

☐ Close integration on any platform or into any system environment	☐ . Integración cercana sobre cualquier plataforma o en cualquier ambiente de sistema
☐ True <u>multilinguality</u> and linguistic intelligence	☐ . <u>Multilinguality</u> verdadero e inteligencia lingüística
☐ Customisation	☐ . Personalización
☐ Flexible translation support	☐ . Apoyo de traducción flexible

1.3 Full PE of raw MT output (parallel to ST)

Summary - Compendium Globaliser	Resumen - Compendium Globaliser
Globalisation is undoubtedly changing the face of business. And the only way forward for global players is to be capable of understanding information and providing content in all the native languages of the countries in which they operate: for multinational customers, work forces, and business partners.	Sin duda alguna, la globalización está cambiando la fisonomía de los negocios. Y la única solución para los que apuestan por el mercado global es la de ser capaces de comprender la información y de ofrecer un contenido en todas las lenguas nativas de los países en los que operan: para clientes multinacionales, empleados, y socios empresariales.
In many applications, speed is more essential than polished language, and having to wait hours or even days for a human translation can lead to a loss of a vital competitive edge. But in order to translate information you first have to find it. And, for many companies, finding vital data in the information “jungle” is just as much a problem as the language barrier.	En muchas aplicaciones, la rapidez es más importante que un lenguaje cuidado y tener que esperar horas e incluso días para conseguir una traducción realizada por un traductor humano, puede llevar a una pérdida vital en el margen competitivo. Pero para traducir información, lo primero que hay que hacer es encontrarla. Y, para muchas compañías, esto puede ser un problema aún mayor que las barreras lingüísticas.
The Challenge	El Desafío
Compendium’s aim was to build intelligent multilingual searching followed by translation of the results into a language the user can understand. And the challenge for Compendium was not only to build linguistically powerful search and translation tools but also to provide these capabilities inside many different types of workflows and system environments, and to be able to deal with documents in many different formats and originating from many different sources. This is why the Compendium Globaliser operates within the i2z ECM Framework , which provides	El objetivo de Compendium era conseguir una búsqueda multilingüe inteligente acompañada de una traducción de los resultados, todo ello en una lengua que el usuario pudiese comprender. Así, el desafío para esta compañía era ofrecer no sólo una búsqueda potente desde un punto de vista lingüístico, sino unas herramientas de traducción cuyas capacidades abarcasen diferentes flujos de trabajo y entornos de sistema; que fuesen capaces de tratar con documentos procedentes de diversas fuentes y formatos. Esta es la razón por la que Compendium Globaliser opera dentro del Entorno de ECM i2z , que permite:
☐ Full integration into a document management system	☐ Plena integración en un sistema de gestión de documentación de empresa.
☐ Integration of many different document and information sub-systems and workflows	☐ Integración de diferentes documentos y subsistemas de información y flujos de trabajo
☐ Coverage of many different system environments and platforms	☐ Adaptabilidad a diversos sistemas y plataformas
☐ Powerful functions for analysis, search, retrieval, display and routing	☐ Potentes funciones de análisis, búsqueda, recuperación, presentación y redireccionamiento
☐ Efficient monitoring and caching functions	☐ Eficientes funciones de supervisión y

	almacenamiento.
☐ A high level of security.	☐ Un alto nivel de seguridad.
Sophisticated Document Analysis	Sofisticado Análisis de Documentos
The powerful search and translation features that the Compendium Globaliser provides are made possible by sophisticated processing carried out when documents are saved in the Content Stores. Document analysis provides:	La potente búsqueda y traducción de Compendium Globaliser hace posible un sofisticado procesamiento de los documentos cuando éstos se guardan en los “Content Stores”. Dicho análisis permite:
☐ Identification of the document language	☐ La identificación de la lengua del documento
☐ Full-text indexing of documents	☐ Una indexación completa de los documentos
☐ Identification of information elements and text variables	☐ Identificación de elementos de información y variables del texto
☐ Optional translation into target languages for pre-indexing.	☐ La traducción opcional a otras lenguas de destino para una previa indexación.
Powerful Search and Retrieval	Potente Búsqueda y Recuperación
What makes the Compendium Globaliser so special is that instead of just searching for a specific word or term in documents or complete archives, users can expand the search to include synonyms or sub-categories of the word. Powerful enough in just one language, the benefits of this technology become really apparent when several languages are involved. The search system can be configured to generate queries in all the languages the user requires. Functionality includes:	Lo que hace a Compendium Globaliser tan especial es que en vez de buscar solamente una palabra específica o un término en documentos o archivos, los usuarios pueden ampliar la búsqueda incluyendo sinónimos o subcategorías de una misma palabra. Potente no sólo en una lengua, las ventajas de esta tecnología se pueden apreciar, incluso con mayor claridad, cuando varias lenguas entran en juego. El sistema de búsqueda se puede configurar para generar preguntas en todas las lenguas que el usuario requiera. Dicha funcionalidad incluye:
☐ Expansion of queries to include synonyms and sub-categories based on ontologies	☐ Una extensión de preguntas para incluir sinónimos y subcategorías basadas en ontologías
☐ Translation and/or expansion of queries into other languages	☐ La traducción y/o extensión de preguntas en otras lenguas
☐ Search for information elements in documents (dates, names, addresses etc.).	☐ La búsqueda de elementos de información en documentos (fechas, nombres, direcciones, etc.).
The i2z Translation Module	El Módulo de Traducción i2z
The translation of documents from a source language into a target language is carried out by the Translation Module. Support is provided for all major European languages, and the format of the original document is retained in the translated document.	El Módulo de Traducción i2z se encarga de traducir los documentos de una lengua a otra. Además de adaptarse a las principales lenguas europeas, éste permite que se mantenga el formato del texto original en el texto traducido.
Translation functions can be called at different stages during the workflow: at the document analysis stage or after search and retrieval. On-	Las funciones de traducción pueden incorporarse en cualquier momento; bien durante el flujo de trabajo, en la etapa de

the-fly translation support can also be provided from a wide variety of clients, independently of the search and retrieval process. This permits users to translate any documents they come across during the course of their daily work, including e-mails. Such translation support can even be integrated into corporate-wide portals.	análisis del documento o después de la búsqueda y recuperación. Incluyo, se puede conseguir una traducción inmediata accesible para una gran variedad de clientes, independientemente del proceso de búsqueda y recuperación. Éste permite a usuarios traducir cualquier documento con el que se encuentren durante un día de trabajo, incluso correos electrónicos. Tal adaptabilidad de traducción puede también integrarse en portales de compañías.
The Compendium Globaliser provides a range of technologies to help users understand foreign-language documents and assess their relevance. These technologies guarantee:	Compendium Globaliser proporciona una variada gama de tecnologías para ayudar a los usuarios a entender los documentos en idioma extranjeros y así valorar su importancia. Estas tecnologías garantizan:
☐ Ease of use	☐ Facilidad de uso
☐ High-quality output	☐ Resultados de alta calidad
☐ Customisability (see below)	☐ Adaptabilidad a las necesidades del usuario (véase a continuación)
☐ High performance and scalability	☐ Alto rendimiento y escalabilidad
☐ A choice of technologies	☐ Una amplia gama de tecnologías
☐ Integration into workflows	☐ Integración en flujos de trabajos
Machine Translation	Traducción automática
The automatic translation component of the Compendium Globaliser uses one of the most highly developed linguistic approaches currently available. These systems have extensive grammars and powerful dictionaries, and are light years removed from previous word-to-word translation approaches. A wide range of Language Pairs is available.	El componente de traducción automática de Compendium Globaliser utiliza uno de los más recientes y desarrollados enfoques lingüísticos. Estos sistemas disponen de extensas gramáticas y potentes diccionarios, que distan años luz de enfoques anteriores donde se traducía palabra por palabra. Además, ofrecen una amplia variedad de Pares de Lenguas.
Translation Memory	Memoria de Traducción
Translation Memory is a technology that leverages the results of previous human translations. This represents considerable savings in time and money. Translation Memory is best used in combination with Machine Translation.	La Memoria de Traducción es una tecnología que reaprovecha los resultados de traducciones previamente realizadas por traductores. Esto implica unos ahorros de tiempo y dinero considerables. La Memoria de Traducción es incluso más productiva si se usa en combinación con la Traducción Automática.
Translation of Key Terms	Traducción de Términos Claves
This technology looks up key terms (determined by the user) in a term database and inserts the translations into the foreign-	Esta tecnología busca términos claves (seleccionados por el usuario) en una base de datos e inserta las traducciones en el

language document. This technology enables the user to quickly assess the relevance of a document for his or her purposes.	documento del idioma extranjero. Además permite al usuario valorar rápidamente la importancia que un documento puede tener de cara a sus intereses.
Customisation	Personalización
The quality of the technologies used in the Compendium Globaliser stems from their customisability to the areas in which customers work, whether this is banking, insurance, healthcare or a particular line of industry. Generalised systems that do not have these adaptation capabilities can never hope to achieve the same results.	La calidad de las tecnologías de Compendium Globaliser radica en su adaptabilidad a las áreas en las cuales los clientes se desenvuelven, si éste tiene una cuenta, seguro, asistencia médica o un área particular de la industria. Los sistemas generales que no tienen estas capacidades de adaptación nunca podrán conseguir los mismos resultados.
All the main technologies (analysis, queries, translation) can be customised before use, and the Compendium Globaliser also provides powerful tools for ongoing work of this kind.	Todas las tecnologías principales (análisis, preguntas, traducción) pueden ser personalizadas antes de su uso; Compendium Globaliser también proporciona herramientas potentes para el trabajo de este tipo.
Unique Features of Compendium Globaliser	Características Únicas de Compendium Globaliser
The Compendium Translator offers all the outstanding state-of-the-art technology described above, plus a number of unique characteristics that no other system can boast.	Compendium Translator ofrece una de las mejores tecnologías, como ya se ha descrito, además de un número de características únicas de las que ningún otro sistema puede alardear,
☐ A close link between content management and translation	☐ Un estrecho vínculo entre la gestión de contenidos y la traducción
☐ Close integration on any platform or into any system environment	☐ Fácil integración en cualquier plataforma o entorno de trabajo
☐ True multilinguality and linguistic intelligence	☐ Verdadero multilingüismo e inteligencia lingüística
☐ Customisation	☐ Personalización
☐ Flexible translation support	☐ Flexible adaptación de traducción.

2 Source Text (ST)

“Mobilizing your pharmaceutical sales force with handheld access to vital enterprise resources”

SAP Solution Brief

On the road and out of town – that's where the real work of the pharmaceutical sales representative gets done.

With severely limited customer face time, your sales force needs 24-hour access to vital enterprise resources to prepare, execute, and review sales calls.

The mySAP™ Mobile Business solution has the answer:

Mobile Sales Pharma for handhelds. It puts your sales reps on the road with handheld access to business-critical enterprise applications, information, and services – anytime, anywhere – faster and more easily than ever before.

Your sales force is scattered around the country and across the globe. Your representatives are on the road up to 80% of the time, meeting with doctors, pharmacists, scientists, and hospital administrators. With luck, they get three-minute meetings – vital face time to position your products with customers and to manage business relationships.

Pharmaceutical sales is a challenging business. And when opportunity knocks, you want your sales representatives ready with 24-hour mobile access to all the information they need to research customers' histories, analyze customers' needs, and answer customers' questions quickly and effectively.

mySAP™ Mobile Business combines the convenience and portability of handheld devices with the functionality of the mySAP.com® platform to deliver vital business applications and resources beyond enterprise walls and out into the field – where the work gets done and the deals get made.

When your company's profitability lives and dies by the productivity of your sales force, you want a solution that supports success – anytime, anywhere. Mobile Sales Pharma for handhelds empowers your highly trained sales representatives to make decisions and take action in a way that reduces demand on back-end systems, enhances customer relationships, boosts productivity, and improves overall sales effectiveness.

THE ENTERPRISE AT YOUR FINGERTIPS NO MATTER WHERE YOU ARE

Mobile Sales Pharma for handhelds acts as a personalized mobile portal to the enterprise. It integrates seamlessly with other mySAP.com solutions to give your sales force on-the-road access to mission-critical applications, information, and services.

Whether you use mobile phones, PDAs, or other handheld devices, mySAP Mobile Business can transform them into affordable tools that put enterprise resources where your sales representatives need them – in the palms of their hands.

The technology allows applications to function locally on mobile devices so your representatives in the field can always get the job done with or without a network connection.

By extending the enterprise to your mobile sales force, you avoid the commonly experienced information loss associated with traditional sales force automation tools. You also give your sales force increased flexibility and greater decision-making capabilities to deliver the kind of one-face-to-the-customer service that builds strong, long-term business relationships.

Improved Pharmaceutical Customer Management

Given the ability to create, update, and search data related to pharmaceutical customer groups, your sales team can access listings that contain complete customer interaction histories and quickly gain analytical insights into customers' situations. They can also mine data according to pharmaceutically specific customer attributes based on specialization, group, subgroup, or regional pharmaceutical market structures.

More Efficient Sales Force Activity Management

Mobile Sales Pharma for handhelds gives your sales representatives the power to manage their activities wherever they are. It lets them create, view, and update capabilities that enable the easy administration of essential sales cycle activities, such as sales calls, meetings, and e-mail correspondences, helping them boost their productivity in business everyday.

Trouble-Free Product Management

When customers make inquiries and your sales representatives need answers immediately, Mobile Sales Pharma for handhelds provides fast, secure access to electronic dossiers containing vital product information. Whether they need information on side effects, data on active ingredients, recent results of clinical studies, technical specifications, product documentation, upgrade alerts, or marketing materials – Mobile Sales Pharma for handhelds puts the data right at their fingertips.

REDUCED COSTS, INCREASED EFFICIENCIES, IMPROVED CUSTOMER RELATIONSHIPS

Your pharmaceutical sales representatives are seldom in the office – which is good. You want them on the road, interacting with your customers, positioning your products, and building relationships.

Mobile Sales Pharma for handhelds helps you mobilize your sales force and improve its performance, extending critical customer-

relationship-based resources beyond enterprise boundaries. By granting your sales team unprecedented access to enterprise information and applications, you can:

- Improve sales call preparedness
- Cut operational costs through wireless automation

- Reduce paperwork and other demands on back-end systems
- Improve customer relationships with prompt responses to inquiries
- Enhance overall knowledge management throughout the enterprise
- Leverage time-critical business analytics beyond enterprise walls

In a multichannel, one-face-to-the-customer sales and marketing environment, your people in the field need all the support they can get. Mobile Sales Pharma for handhelds delivers that support – improving efficiency and sales force effectiveness like never before.

The mySAP.com® e-business platform

To remain both competitive and profitable in the new Internet economy, successful companies must be able to work together and openly across traditional enterprise boundaries, collaborating in virtual global networks. With mySAP.com, SAP integrates its extensive business and industry expertise into a comprehensive platform of e-business solutions, services, and technology. By integrating mySAP.com with their business strategy, companies gain lasting competitive advantage, adding significant value and maximizing ROI.

The mySAP.com e-business platform is a family of solutions and services that empowers organizations and individuals to collaborate successfully – anywhere, anytime. The business solutions provided by mySAP.com enable any organization, regardless of size, to run its business more efficiently and productively, and to gain significant competitive advantage in today's economy. mySAP.com is based on an open, flexible, collaborative services architecture that supports both SAP and non-SAP systems.

mySAP.com creates value by allowing quick response to new business opportunities and by reducing costs, enabling companies to collaborate, integrate, and empower themselves for business success in today's economy – you know, the profitable one.

Find Out More

To learn more about how mySAP Mobile Business can improve the performance of your pharmaceutical sales force, call SAP at +49/1805/34 34 34 or visit our Web sites at <http://www.sap.com/pharm>, www.sap.com/mobile and www.sap.com/crm.

2.1 Human Translated Text

“Cómo movilizar sus comerciales farmacéuticos a través del acceso con handheld a recursos vitales de la empresa”

Solución SAP, resumen

En la carretera y viajando – ahí es donde se viene hacer el trabajo real del comercial farmacéutico.

Con el tiempo extremadamente limitado que tienen de entrevistarse con los clientes, sus comerciales necesitan acceso durante las 24 horas a recursos vitales de la empresa para preparar, realizar y revisar las llamadas para hacer ventas.

La solución mySAP™ Mobile Business tiene la respuesta:

Mobile Sales Pharma para handhelds. Proporciona a su comercial que se encuentra viajando acceso con handheld a aplicaciones, información y servicios de la empresa que son críticos para el negocio –en cualquier momento y en cualquier lugar-- de una forma más rápida y más fácil que nunca antes.

Sus comerciales están repartidos por todo el país y por todo el mundo. Sus comerciales se encuentran viajando hasta el 80% del tiempo que tienen, reuniéndose con médicos, farmacéuticos, científicos y administradores de hospitales. Si tienen suerte, llegan a tener reuniones de sólo 3 minutos –tiempo de presentación vital para presentar ventajosamente sus productos a los clientes y para forjar relaciones comerciales.

Las ventas farmacéuticas son un negocio que presenta muchos desafíos. Y cuando la oportunidad se presenta, Ud. quiere que sus comerciales estén listos con acceso móvil las 24 horas a toda la información que necesitan para averiguar el historial de los clientes, analizar las necesidades de los clientes y contestar a las preguntas de los clientes de forma rápida y efectiva.

mySAP™ Mobile Business combina la utilidad y la portabilidad de los dispositivos handheld con la funcionalidad de la plataforma mySAP.com® para proporcionar vitales recursos y aplicaciones comerciales más allá de las paredes de la empresa llevándolos al terreno de los clientes –donde se realiza el trabajo y se cierran los tratos de negocios.

Cuando la rentabilidad de su compañía depende vitalmente de la productividad de sus comerciales, Ud. quiere una solución que apoye el éxito – en cualquier lugar y en cualquier momento. Mobile Sales Pharma para handhelds les da los recursos a sus muy preparados comerciales para que tomen decisiones y entren en acción de una manera que reduce la demanda en los sistemas de apoyo, mejora las relaciones con los clientes, aumenta la productividad y mejora la efectividad global de sus ventas.

LA EMPRESA AL ALCANCE DE SUS MANOS NO IMPORTA DONDE SE ENCUENTRE

Mobile Sales Pharma para handhelds funciona como un portal móvil personalizado de acceso a la empresa. Se integra sin dificultad con otras soluciones mySAP.com para

proporcionar a sus comerciales que se encuentran de viaje acceso a aplicaciones, información y servicios que son críticos para hacer negocios.

No importa si Ud. usa teléfonos móviles, PDA u otro dispositivo handheld, mySAP Mobile Business puede transformarlos en herramientas rentables que ponen a disposición de los comerciales los recursos de la empresa donde los necesitan: en la palma de sus manos.

La tecnología permite que las aplicaciones funcionen localmente en dispositivos móviles de manera que sus representantes comerciales que se encuentran trabajando puedan realizar siempre su trabajo con o sin conexión a la red.

Al extender la empresa hasta sus comerciales que se encuentran trabajando en distintos lugares, Ud. evita la típica pérdida de información experimentada por los comerciales tradicionales y que está asociada con las herramientas automatizadas que utilizan. También concede Ud. a sus comerciales una flexibilidad mayor y mayor capacidad en la toma de decisiones para así proporcionar el tipo de atención personalizada al cliente que cimienta relaciones comerciales sólidas y duraderas.

Mejora en la gestión de clientes farmacéuticos

Dada la capacidad de crear, actualizar y buscar datos relacionados con los grupos de clientes farmacéuticos, sus comerciales pueden acceder a listados que contienen los historiales completos de las relaciones con los clientes y comprender rápidamente de una forma analítica las situaciones de los clientes. También pueden recuperar datos según atributos de clientes específicos del campo farmacéutico y basados en la especialización, el grupo, el subgrupo o las estructuras del mercado farmacéutico regional.

Gestión más eficaz de la actividad de los comerciales

Mobile Sales Pharma para handhelds proporciona a sus comerciales el poder de gestionar sus actividades dondequiera que estén. Les permite la capacidad de crear, visualizar y actualizar datos, lo cual permite la fácil administración de las actividades esenciales del ciclo de ventas, tales como las llamadas para hacer ventas, las reuniones comerciales y la correspondencia a través de correo electrónico, ayudándoles de este modo a aumentar su productividad en los negocios todos los días.

Gestión sin incidentes de los productos

Cuando los clientes tienen alguna consulta que hacer y sus comerciales necesitan las respuestas inmediatamente, Mobile Sales Pharma para handhelds proporciona acceso seguro y rápido a expedientes electrónicos que contienen información vital sobre los productos. Ya sea que sus comerciales necesiten información sobre efectos secundarios, datos de ingredientes activos, resultados recientes de estudios clínicos, especificaciones técnicas, documentación del producto, actualización de alertas, o material publicitario – Mobile Sales Pharma para handhelds pone los datos justo al alcance de sus manos.

REDUCCIÓN DE LOS COSTES, AUMENTO DEL RENDIMIENTO, MEJORA DE LAS RELACIONES CON LOS CLIENTES

Sus comerciales farmacéuticos están raramente en la oficina – y eso es bueno. Ud. los quiere ver viajando, interactuando con sus clientes, presentando ventajosamente sus productos y estableciendo relaciones comerciales.

Mobile Sales Pharma para handhelds le ayuda a movilizar sus comerciales y a mejorar su rendimiento al extender los recursos críticos que tienen que ver con las relaciones con los clientes más allá de las fronteras de la empresa. Al conceder a su equipo de comerciales acceso sin precedentes a la información y las aplicaciones de la empresa, Ud. puede:

- Mejorar la preparación para hacer llamadas para hacer ventas
- Reducir los costes operacionales a través de la automatización inalámbrica
- Reducir el papeleo y otras demandas en los sistemas de apoyo
- Mejorar las relaciones con los clientes proporcionando rápidamente respuestas a sus consultas
- Mejorar la gestión global del conocimiento a través de toda la empresa
- Sacar partido de los análisis de negocios vitales para la toma de decisiones llevándolos más allá de los confines de la empresa

En un entorno de marketing y ventas a través de múltiples canales y de atención personalizada al cliente, su personal que se encuentra trabajando con los clientes necesita todo el apoyo que pueda conseguir. Mobile Sales Pharma para handhelds proporciona ese apoyo –mejorando la eficacia y la efectividad de los comerciales como nunca se ha visto antes.

La plataforma de e-business mySAP.com®

Para seguir siendo tanto competitivas como rentables en la nueva economía basada en Internet, las compañías que tienen éxito deben ser capaces de trabajar de forma conjunta y abierta más allá de las fronteras tradicionales de las empresas, colaborando en las redes globales virtuales. Con mySAP.com, SAP incorpora sus extensos conocimientos expertos en industria y negocios a una plataforma completa de soluciones, servicios y tecnología de e-business. Al incorporar mySAP.com a su estrategia empresarial, las compañías ganan una ventaja competitiva duradera añadiendo un valor considerable y sacando el mayor partido a la rentabilidad de su inversión (ROI).

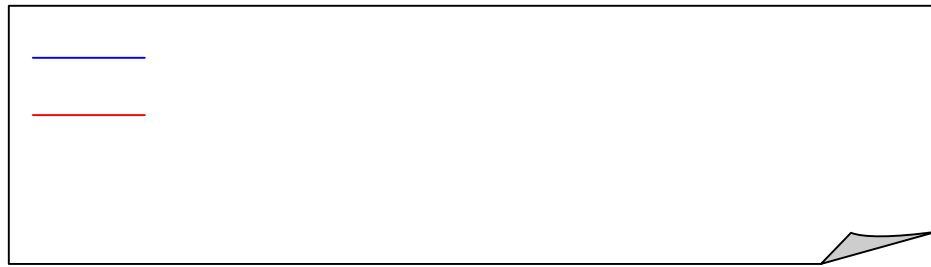
La plataforma de e-business mySAP.com es una familia de soluciones y servicios que posibilita que las organizaciones y a los individuos colaboren con éxito –en cualquier lugar y en cualquier momento. Las soluciones comerciales que proporciona mySAP.com permite a cualquier organización, no importa su tamaño, gestionar su negocio de una forma más eficaz y productiva, y conseguir una considerable ventaja competitiva en la economía de hoy. mySAP.com está basada en una arquitectura de servicios abierta, flexible y de colaboración que permite integrar tanto sistemas de SAP como de otras marcas.

mySAP.com crea valor al permitir una respuesta rápida a las nuevas oportunidades de negocios así como al reducir los costes, permitiendo a las compañías colaborar, integrarse y prepararse para el éxito comercial en la economía de hoy –Ud ya sabe, la que es rentable.

Si quiere saber más

Para saber más sobre cómo mySAP Mobile Business puede mejorar el rendimiento de sus comerciales farmacéuticos, póngase en contacto con SAP llamando al +49-1805-343434 o visite nuestro sitio web en estas direcciones: <http://www.sap.com/pharm>, www.sap.com/mobile y www.sap.com/crm.

2.2 Raw MT output (parallel to ST)



SAP Solution Brief	Informe de Solución de SAVIA {ZAPA}
MOBILIZING YOUR PHARMACEUTICAL SALES FORCE WITH HANDHELD ACCESS	LA MOVILIZACIÓN DE SU PERSONAL DE VENTAS FARMACÉUTICO CON ACCESO PORTÁTIL
TO VITAL ENTERPRISE RESOURCES	A RECURSOS VITALES DE LA EMPRESA
On the road and out of town - that's where the real work of the pharmaceutical sales representative gets done.	Sobre el camino y de la ciudad - esto es donde el verdadero trabajo del representante farmacéutico de ventas es hecho.
With severely limited customer face time, your sales force needs 24-hour access to vital enterprise resources to prepare, execute, and review sales calls.	Con el tiempo de cara de cliente con severidad limitado, su personal de ventas necesita el acceso de 24 horas a recursos vitales de la empresa de preparar, ejecutar, y examinar llamadas de ventas.
The mySAPTM Mobile Business solution has the answer:	La solución mySAPTM Móvil Comercial tiene la respuesta:
Mobile Sales Pharma for handhelds. It puts your sales reps on the road with handheld access to business-critical enterprise applications, information, and services - anytime, anywhere - faster and more easily than ever before.	Ventas Móviles Pharma para handhelds. Esto pone a sus representantes de ventas sobre el camino con el acceso portátil a aplicaciones comerciales críticas de la empresa, información, y servicios - en cualquier momento, en todas partes - más rápido y más fácilmente que alguna vez antes.
Your sales force is scattered around the country and across the globe. Your representatives are on the road up to 80% of the time, meeting with doctors, pharmacists, scientists, and hospital administrators. With luck, they get three-minute meetings - vital face time to position your products with customers and to manage business relationships.	Su personal de ventas es dispersado en todo el país y a través del globo. Sus representantes están sobre el camino hasta el 80 % del tiempo, que se encuentra con doctores, farmacéuticos, científicos, y administradores de hospital. Con la suerte, ellos consiguen reuniones de tres minutos - tiempo de cara vital para colocar sus productos con clientes y manejar relaciones comerciales.
Pharmaceutical sales is a challenging business. And when opportunity knocks, you want your sales representatives ready with 24-hour mobile access to all the information they need to research customers' histories, analyze customers' needs, and answer customers' questions quickly and effectively.	Las ventas farmacéuticas son un negocio desafiante. Y cuando la oportunidad llama, usted quiere a sus representantes de ventas listos con el acceso móvil de 24 horas a toda la información ellos tienen que investigar las historias de los clientes, analizar las necesidades de los clientes, y contestar las

	preguntas de los clientes rápidamente y con eficacia.
mySAP™ Mobile Business combines the convenience and portability of handheld devices with the functionality of the mySAP.com® platform to deliver vital business applications and resources beyond enterprise walls and out into the field - where the work gets done and the deals get made.	el mySAP™ Negocio Móvil combina la conveniencia y la transportabilidad de dispositivos portátiles con la funcionalidad del mySAP.com® plataforma para entregar aplicaciones vitales comerciales y recursos más allá de paredes de la empresa y hacia fuera en el campo - donde el trabajo es hecho y los tratos son hechos.
When your company's profitability lives and dies by the productivity of your sales force, you want a solution that supports	Cuando la rentabilidad de su compañía vive y muere por la productividad de su personal de ventas, usted quiere una solución que apoya
success - anytime, anywhere. Mobile Sales Pharma for handhelds empowers your highly trained sales representatives to make decisions and take action in a way that reduces demand on back-end systems, enhances customer relationships, boosts productivity, and improves overall sales effectiveness.	éxito - en cualquier momento, en todas partes. Las Ventas Móviles Pharma para handhelds autoriza a sus representantes muy entrenados de ventas a tomar decisiones y tomar medidas en un camino que reduce la demanda sobre sistemas de parte trasera, realza relaciones de cliente, incrementa la productividad, y mejora la eficacia total de ventas.
THE ENTERPRISE AT YOUR FINGERTIPS NO MATTER WHERE YOU ARE	LA EMPRESA AL ALCANCE DE LA MANO NO IMPORTA DONDE USTED ES
Mobile Sales Pharma for handhelds acts as a personalized mobile portal to the enterprise. It integrates seamlessly with other mySAP.com solutions to give your sales force on-the-road access to mission-critical applications, information, and services.	Las Ventas Móviles Pharma para handhelds actúan como una entrada personalizada móvil a la empresa. Esto integra sin costuras con otro mySAP.com soluciones de dar a su personal de ventas el acceso sobre camino a aplicaciones críticas de misión, información, y servicios.
Whether you use mobile phones, PDAs, or other handheld devices, mySAP Mobile Business can transform them into affordable tools that put enterprise resources where your sales representatives need them - in the palms of their hands.	Si usted usa teléfonos móviles, PDAs, u otros dispositivos portátiles, mySAP Negocio Móvil pueden transformarlos en instrumentos económicos que ponen recursos de la empresa donde sus representantes de ventas los necesitan - en las palmas de sus manos.
The technology allows applications to function locally on mobile devices so your representatives in the field can always get the job done with or without a network connection.	La tecnología permite que aplicaciones funcionen en la localidad sobre dispositivos móviles entonces sus representantes en el campo pueden hacer siempre el trabajo con o sin una unión de red.
By extending the enterprise to your mobile sales force, you avoid the commonly experienced information loss associated with traditional sales force automation tools. You also give your sales force increased flexibility and greater decision-making capabilities to deliver the kind of one-face-to-the-customer service that builds strong, long-term business	Ampliando la empresa a su personal de ventas móvil, usted evita la pérdida comúnmente experimentada de información asociada con instrumentos de automatización de personal de ventas tradicionales. Usted también da su personal de ventas aumentó flexibilidad y capacidades de toma de decisiones mayores de entregar la clase de servicio "una cara al

relationships.	cliente" que construye relaciones fuertes, a largo plazo comerciales.
Improved Pharmaceutical Customer Management	Dirección de Cliente Mejorada Farmacéutica
Given the ability to create, update, and search data related to pharmaceutical customer groups, your sales team can access listings that contain complete customer interaction histories and quickly gain analytical insights into customers' situations. They can also mine data according to pharmaceutically specific customer attributes based on specialization, group, subgroup, or regional pharmaceutical market structures.	Considerando la capacidad de crear, para actualizar, y buscar datos relacionados con grupos de cliente farmacéuticos, su equipo de ventas puede tener acceso a listados que contienen historias de interacción de cliente completas y rápidamente ganan perspicacias analíticas en las situaciones de los clientes. Ellos pueden también el mío datos según atributos de cliente farmacéuticamente específicos basados en especialización, grupo, subgrupo, o estructuras regionales farmacéuticas de mercado.
More Efficient Sales Force Activity Management	Dirección de Actividad de Personal de Ventas más Eficiente
Mobile Sales <u>Pharma</u> for <u>handhelds</u> gives your sales representatives the power to manage their activities wherever they are . It lets them create, view, and update capabilities that enable the easy administration of essential sales cycle activities, such as sales calls, meetings, and e-mail correspondences , helping them boost their productivity in business everyday.	Las Ventas Móviles <u>Pharma</u> para <u>handhelds</u> dan a sus representantes de ventas el poder de manejar sus actividades dondequiera que ellos sean . Esto les deja crear, ver, y actualizar capacidades que permiten la administración fácil de actividades de ciclo esenciales de ventas, como llamadas de ventas, reuniones, y envían correspondencias por correo electrónico, ayudándoles a incrementar su productividad en el negocio diario.
Trouble-Free Product Management	Dirección de Producto sin Problemas
When customers make inquiries and your sales representatives need answers immediately, Mobile Sales <u>Pharma</u> for <u>handhelds</u> provides fast, secure access to electronic dossiers containing vital product information. Whether they need information on side effects, data on active ingredients, recent results of clinical studies, technical specifications, product documentation, upgrade alerts , or marketing materials - Mobile Sales <u>Pharma</u> for <u>handhelds</u> puts the data right at their fingertips .	Cuando los clientes piden informes y sus respuestas de necesidad de representantes de ventas inmediatamente, las Ventas Móviles <u>Pharma</u> para <u>handhelds</u> proveen rápido, acceso seguro a expedientes electrónicos que contienen la información de producto vital. Si ellos necesitan la información sobre efectos secundarios, datos sobre ingredientes activos, los resultados recientes de los estudios clínicos, especificaciones técnicas, documentación de producto, mejoran alarmas , o materiales de control de comercialización - las Ventas Móviles <u>Pharma</u> para <u>handhelds</u> ponen los datos directamente en sus yemas del dedo .
REDUCED COSTS, INCREASED EFFICIENCIES, IMPROVED CUSTOMER RELATIONSHIPS	GASTOS REDUCIDOS, EFICIENCIA AUMENTADO, MEJORARON RELACIONES DE CLIENTE
Your pharmaceutical sales representatives are seldom in the office - which is good . You want them on the road, interacting with your	Sus representantes farmacéuticos de ventas están raras veces en la oficina - que está bien . Usted los quiere sobre el camino, que actúa

customers, positioning your products, and building relationships.	recíprocamente con sus clientes, colocando sus productos, y construyendo relaciones.
Mobile Sales <u>Pharma</u> for <u>handhelds</u> helps you mobilize your sales force and improve its performance, extending critical customer-	Las Ventas Móviles <u>Pharma</u> para <u>handhelds</u> le ayudan a movilizar su personal de ventas y mejorar su funcionamiento, ampliando al cliente crítico-
relationship -based resources beyond enterprise boundaries. By granting your sales team unprecedented access to enterprise information and applications, you can:	recursos a base de relación más allá de límites de la empresa. Concediendo su equipo de ventas acceso sin precedentes a información de la empresa y aplicaciones, usted puede:
• Improve sales call preparedness	• Mejoran el estado de preparación de llamada de ventas
• Cut operational costs through wireless automation	• Reducen gastos operacionales por la automatización inalámbrica
• Reduce paperwork and other demands on back-end systems	• Reducen el trabajo de escribir {el papeleo} y otras demandas sobre sistemas de parte trasera
• Improve customer relationships with prompt responses to inquiries	• Mejoran relaciones de cliente con respuestas incitadores a preguntas
• Enhance overall knowledge management throughout the enterprise	• Realzan la dirección de conocimiento total en todas partes de la empresa
• Leverage time-critical business analytics beyond enterprise walls	• Acción de palanca negocio crítico de tiempo analytics más allá de paredes de la empresa
In a multichannel, one-face-to-the-customer sales and marketing environment, your people in the field need all the support they can get . Mobile Sales <u>Pharma</u> for <u>handhelds</u> delivers that support - improving efficiency and sales force effectiveness like never before.	En un de varios canales, de ventas "una cara al cliente" y ambiente de control de comercialización, su gente en la necesidad de campaña todo el apoyo ellos pueden ponerse . Las Ventas Móviles <u>Pharma</u> para <u>handhelds</u> no entregan aquel apoyo - eficacia que mejora y eficacia de personal de ventas como nunca antes.
The <u>mySAP.com®</u> e-business platform	El <u>mySAP.com®</u> plataforma de e-negocio
To remain both competitive and profitable in the new Internet economy, successful companies must be able to work together and openly across traditional enterprise boundaries, collaborating in virtual global networks. With mySAP.com, <u>SAP</u> integrates its extensive business and industry expertise into a comprehensive platform of e-business solutions, services, and technology. By integrating mySAP.com with their business strategy, companies gain lasting competitive advantage, adding significant value and maximizing <u>ROI</u> .	Para permanecer tanto competitivo como provechoso en la nueva economía de Internet, las compañías acertadas deben ser capaces de trabajar juntos y abiertamente a través de límites tradicionales de la empresa, que colaboran en redes virtuales globales. Con mySAP.com, <u>LA SAVIA {ZAPA}</u> integra su negocio extenso y maestría de industria en una plataforma completa de soluciones de e-negocio, servicios, y tecnología. Integrándose mySAP.com con su estrategia comercial, ganancia de compañías que dura ventaja competitiva, añadiendo valor significativo y maximizando <u>ROI</u> .
The mySAP.com e-business platform is a family of solutions and services that empowers	mySAP.com la plataforma de e-negocio es una

organizations and individuals to collaborate successfully - anywhere, anytime. The business solutions provided by mySAP.com enable any organization, regardless of size, to run its business more efficiently and productively, and to gain significant competitive advantage in today's economy. mySAP.com is based on an open, flexible, collaborative services architecture that supports both <u>SAP</u> and non-SAP systems.	familia de soluciones y servicios que autoriza organizaciones e individuos a colaborar con éxito - en todas partes, en cualquier momento. Las soluciones comerciales proporcionadas por mySAP.com permiten cualquier organización, sin tener en cuenta el tamaño, controlar su negocio de una manera más eficiente y productivamente, y ganar la ventaja significativa competitiva en la economía de hoy. mySAP.com está basado en una arquitectura de servicios abierta, flexible, de colaboración que apoya tanto sistemas de no <u>savia</u> como <u>SAVIA {ZAPA}</u>.
mySAP.com creates value by allowing quick response to new business opportunities and by reducing costs, enabling companies to collaborate, integrate, and empower themselves for business success in today's economy - you <u>know</u>, the profitable one.	mySAP.com crea el valor permitiendo a la respuesta rápida a nuevas oportunidades comerciales y reduciendo gastos, permitiendo a compañías colaborar, integrar, y autorizarse para el éxito comercial en la economía de hoy - usted <u>sabe {conoce}</u>, el provechoso.
Find Out More	Averigüe Más
To learn more about how <u>mySAP Mobile</u> Business can improve the performance of your pharmaceutical sales force, call <u>SAP</u> at +49/1805/34 34 34 or visit our <u>Web sites</u> at http://www.sap.com/pharm, www.sap.com/mobile, and www.sap.com/crm.	Para aprender más sobre como el Negocio <u>mySAP Móvil</u> puede mejorar el funcionamiento de su personal de ventas farmacéutico, llame la <u>SAVIA {ZAPA}</u> en +49/1805/34 34 34 o visite nuestros <u>Sitios Web</u> en http://www.sap.com/pharm, www.sap.com/mobile, Y www.sap.com/crm.

2.3 Full PE of raw MT output (parallel to ST)

SAP Solution Brief	Descripción del Producto de SAP
MOBILIZING YOUR PHARMACEUTICAL SALES FORCE WITH HANDHELD ACCESS TO VITAL ENTERPRISE RESOURCES	MOVILIZANDO A SU PERSONAL DE VENTAS FARMACÉUTICO CON UN ACCESO PORTÁTIL A LOS RECURSOS ESENCIALES DE LA EMPRESA
On the road and out of town - that's where the real work of the pharmaceutical sales representative gets done.	Sobre la carretera y fuera de la ciudad - ahí es donde el verdadero trabajo del representante farmacéutico de ventas tiene lugar.
With severely limited customer face time, your sales force needs 24-hour access to vital enterprise resources to prepare, execute, and review sales calls.	Viendo a los clientes con tan poco tiempo, su personal de ventas necesita un acceso de 24 horas a los recursos más importantes de la empresa para así preparar, llevar a cabo, y examinar las llamadas de ventas.
The mySAP™ Mobile Business solution has the answer:	La solución Móvil Comercial “mySAP™” tiene la respuesta:
Mobile Sales Pharma for handhelds. It puts your sales reps on the road with handheld access to business-critical enterprise applications, information, and services - anytime, anywhere - faster and more easily than ever before.	Ventas móviles “Pharma”. Esta tecnología pone a sus representantes de ventas sobre la carretera con un acceso portátil a las aplicaciones comerciales más importantes de la empresa, información y servicios - en cualquier momento, en cualquier parte - más rápido y más fácil que nunca.
Your sales force is scattered around the country and across the globe. Your representatives are on the road up to 80% of the time, meeting with doctors, pharmacists, scientists, and hospital administrators. With luck, they get three-minute meetings - vital face time to position your products with customers and to manage business relationships.	Su personal de ventas se encuentra disperso por todo el país y por todo el globo. Sus representantes se pasan el 80 % del tiempo en la carretera, reuniéndose con doctores, farmacéuticos, científicos y administradores de hospital. Con suerte, consiguen reuniones de tres minutos - un tiempo esencial para promocionar los productos y establecer relaciones comerciales con los clientes.
Pharmaceutical sales is a challenging business. And when opportunity knocks, you want your sales representatives ready with 24-hour mobile access to all the information they need to research customers' histories, analyze customers' needs, and answer customers' questions quickly and effectively.	Las ventas farmacéuticas son un negocio desafiante. Y cuando la oportunidad llama a su puerta, usted quiere a sus representantes de ventas listos, con un acceso a la información de 24 horas. Los representantes de ventas tienen que investigar el historial de los clientes, analizar sus necesidades, y contestar a sus preguntas rápida y eficazmente.
mySAP™ Mobile Business combines the convenience and portability of handheld devices with the functionality of the	El Negocio Móvil “mySAP™” combina la comodidad y la transportabilidad de dispositivos portátiles con la funcionalidad de

mySAP.com® platform to deliver vital business applications and resources beyond enterprise walls and out into the field - where the work gets done and the deals get made.	la plataforma “mySAP.com®” que le ofrece unas aplicaciones esenciales desde el punto de vista comercial, junto con unos recursos más allá de las paredes de la empresa; en el campo - donde se trabaja y donde se negocia.
When your company's profitability lives and dies by the productivity of your sales force, you want a solution that supports success - anytime, anywhere. Mobile Sales Pharma for handhelds empowers your highly trained sales representatives to make decisions and take action in a way that reduces demand on back-end systems, enhances customer relationships, boosts productivity, and improves overall sales effectiveness.	Cuando la rentabilidad de su compañía se basa completa y enteramente en la productividad de su personal de ventas, usted quiere una solución que le garantice éxito - en cualquier momento, en cualquier lugar. Las ventas móviles “Pharma” permiten a sus representantes de ventas más cualificados tomar decisiones y tomar medidas de manera que se reduzcan las demandas sobre los sistemas de apoyo, mejorando las relaciones con los clientes e incrementando la productividad y la eficacia total de las ventas.
THE ENTERPRISE AT YOUR FINGERTIPS NO MATTER WHERE YOU ARE	LA EMPRESA AL ALCANCE DE SUS MANOS NO IMPORTA DONDE ESTÉ
Mobile Sales Pharma for handhelds acts as a personalized mobile portal to the enterprise. It integrates seamlessly with other mySAP.com solutions to give your sales force on-the-road access to mission-critical applications, information, and services.	Ventas móviles “Pharma” actúa como un portal móvil personalizado de acceso a la empresa. Éste se integra sin problemas con cualquier producto de “mySAP.com” con lo que usted puede dar a su personal de ventas un acceso a aplicaciones críticas para los negocios, información, y servicios, todo ello sobre la carretera.
Whether you use mobile phones, PDAs, or other handheld devices, mySAP Mobile Business can transform them into affordable tools that put enterprise resources where your sales representatives need them - in the palms of their hands.	Si usted usa teléfonos móviles, APDs, u otros dispositivos portátiles, el Negocio Móvil “mySAP” puede transformarlos en una herramienta económica que pone los recursos de la empresa donde sus representantes de ventas los necesiten - en la palma de sus manos.
The technology allows applications to function locally on mobile devices so your representatives in the field can always get the job done with or without a network connection.	La tecnología permite que estas aplicaciones funcionen localmente en dispositivos móviles con lo que sus representantes pueden continuar su trabajo con o sin conexión a la red.
By extending the enterprise to your mobile sales force, you avoid the commonly experienced information loss associated with traditional sales force automation tools. You also give your sales force increased flexibility and greater decision-making capabilities to deliver the kind of one-face-to-the-customer service that builds strong, long-term business relationships.	Ampliando la empresa a su personal de ventas móvil, usted evita la pérdida tan común de información asociada con las tradicionales herramientas de automatización del personal de ventas. A la vez está ofreciendo a su personal de ventas una mayor flexibilidad y capacidades a la hora de tomar decisiones y de suministrar un servicio a sus clientes que, a largo plazo, constituye sólidas relaciones comerciales.
Improved Pharmaceutical Customer Management	Mejor Atención Farmacéutica de sus clientes

Given the ability to create, update, and search data related to pharmaceutical customer groups, your sales team can access listings that contain complete customer interaction histories and quickly gain analytical insights into customers' situations. They can also mine data according to pharmaceutically specific customer attributes based on specialization, group, subgroup, or regional pharmaceutical market structures.	Considerando la capacidad de crear, actualizar y buscar datos relacionados con grupos de clientes, su equipo de ventas puede tener acceso a listados que contengan el historial completo de interacción del cliente con lo que, rápidamente se adquieren las perspicacias analíticas de los clientes. También se pueden extraer datos según los atributos específicos del cliente basados en especialización, grupo, subgrupo, o estructuras regionales farmacéuticas de mercado.
More Efficient Sales Force Activity Management	Mayor Control de la Actividad del Personal de Ventas
Mobile Sales Pharma for handhelds gives your sales representatives the power to manage their activities wherever they are. It lets them create, view, and update capabilities that enable the easy administration of essential sales cycle activities, such as sales calls, meetings, and e-mail correspondences, helping them boost their productivity in business everyday.	Ventas móviles "Pharma" permite a sus representantes de ventas realizar sus actividades dondequiera que estén. Esto les deja crear, ver y actualizar capacidades que permiten una fácil administración de las actividades esenciales del ciclo de ventas, como llamadas, reuniones o correos electrónicos, ayudándoles a incrementar su productividad en el negocio diario.
Trouble-Free Product Management	Dirección del Producto sin Problemas
When customers make inquiries and your sales representatives need answers immediately, Mobile Sales Pharma for handhelds provides fast, secure access to electronic dossiers containing vital product information. Whether they need information on side effects, data on active ingredients, recent results of clinical studies, technical specifications, product documentation, upgrade alerts, or marketing materials - Mobile Sales Pharma for handhelds puts the data right at their fingertips.	Cuando los clientes hacen preguntas y sus representantes necesitan responder inmediatamente, Ventas móviles "Pharma" proporciona un rápido y seguro acceso a los expedientes electrónicos que contienen información esencial del producto. Si, incluso, necesitan información sobre efectos secundarios, datos sobre ingredientes activos, resultados recientes de estudios clínicos, especificaciones técnicas, documentación del producto, actualización de alertas o materiales de marketing - Ventas móviles "Pharma" pone los datos directamente al alcance de sus manos.
REDUCED COSTS, INCREASED EFFICIENCIES, IMPROVED CUSTOMER RELATIONSHIPS	MENOS GASTOS, MAYOR EFICIENCIA, MEJORES RELACIONES CON EL CLIENTE
Your pharmaceutical sales representatives are seldom in the office - which is good. You want them on the road, interacting with your customers, positioning your products, and building relationships.	Sus representantes farmacéuticos de ventas están rara vez en la oficina - lo cual es bueno. Usted los quiere sobre la carretera, que hablen con sus clientes, que presenten sus productos, y que entablen relaciones comerciales.
Mobile Sales Pharma for handhelds helps you mobilize your sales force and improve its performance, extending critical customer-	Ventas móviles "Pharma" le ayuda a movilizar a su personal de ventas y a mejorar su funcionamiento ampliando los recursos críticos que tienen que ver con el cliente
relationship-based resources beyond enterprise	mediante una relación más allá de las paredes

boundaries. By granting your sales team unprecedented access to enterprise information and applications, you can:	de la empresa. Concediendo a su equipo de ventas un acceso sin precedentes a la información de la empresa y a las aplicaciones usted puede:
• Improve sales call preparedness	• Preparar mejor las llamadas de ventas
• Cut operational costs through wireless automation	• Reducir gastos operacionales a través de la automatización inalámbrica
• Reduce paperwork and other demands on back-end systems	• Reducir el papeleo y otras demandas basadas en sistemas de apoyo
• Improve customer relationships with prompt responses to inquiries	• Mejorar las relaciones con sus clientes mediante rápidas respuestas a sus preguntas
• Enhance overall knowledge management throughout the enterprise	• Mejorar la dirección general de la empresa
• Leverage time-critical business analytics beyond enterprise walls	• Reaprovechar las analíticas comerciales críticas más allá de paredes de la empresa
In a multichannel, one-face-to-the-customer sales and marketing environment, your people in the field need all the support they can get. Mobile Sales Pharma for handhelds delivers that support - improving efficiency and sales force effectiveness like never before.	En un entorno de marketing y ventas a través de múltiples canales y de atención personalizada, su gente necesita toda la ayuda que se les pueda proporcionar. Ventas móviles "Pharma" proporciona esta ayuda - mejorando, como nunca antes, la eficacia y la eficacia del personal de ventas.
The mySAP.com® e-business platform	La plataforma e-business de "mySAP.com®"
To remain both competitive and profitable in the new Internet economy, successful companies must be able to work together and openly across traditional enterprise boundaries, collaborating in virtual global networks. With mySAP.com, SAP integrates its extensive business and industry expertise into a comprehensive platform of e-business solutions, services, and technology. By integrating mySAP.com with their business strategy, companies gain lasting competitive advantage, adding significant value and maximizing ROI.	Para ser competitivo y obtener unas ganancias en la nueva economía de Internet, las compañías que tienen éxito deben trabajar juntas y abiertamente, más allá de los límites tradicionales de la empresa, colaborando en redes virtuales globales. Con "mySAP.com", SAP integra su extenso negocio y maestría de industria en una plataforma completa de soluciones de e-business, servicios, y tecnología. Al integrar "mySAP.com" en su estrategia comercial, las compañías obtienen mayores ganancias, proporcionando una fuerte ventaja competitiva, añadiendo a su vez un valor significativo y maximizando el rendimiento del capital invertido.
The mySAP.com e-business platform is a family of solutions and services that empowers organizations and individuals to collaborate successfully - anywhere, anytime. The business solutions provided by mySAP.com enable any organization, regardless of size, to run its business more efficiently and productively, and to gain significant competitive advantage in today's economy. mySAP.com is based on an	"mySAP.com" la plataforma de e-business ofrece una gama de soluciones y servicios que permite que las organizaciones e individuos colaboren con éxito - en todas partes, en cualquier momento. Las soluciones comerciales que ofrece "mySAP.com" permiten que cualquier organización, sin tener en cuenta el tamaño, pueda controlar su negocio de una manera más eficiente y

open, flexible, collaborative services architecture that supports both SAP and non-SAP systems.	productiva, e incluso que pueda adquirir una importante ventaja competitiva en la economía actual. “mySAP.com” consiste en una arquitectura de servicios abierta, flexible, de colaboración que se integra tanto con SAP como con sistemas no pertenecientes a esta compañía.
mySAP.com creates value by allowing quick response to new business opportunities and by reducing costs, enabling companies to collaborate, integrate, and empower themselves for business success in today’s economy - you know, the profitable one.	“mySAP.com” tiene gran valor ya que permite una respuesta rápida a las nuevas oportunidades comerciales y además reduce gastos, permitiendo a las compañías colaborar, integrar, y aumentar el éxito comercial en la economía de hoy - ya sabe, una solución que ofrece ganancias.
Find Out More	Para más información
To learn more about how mySAP Mobile Business can improve the performance of your pharmaceutical sales force, call SAP at +49/1805/34 34 34 or visit our Web sites at http://www.sap.com/pharm , www.sap.com/mobile , and www.sap.com/crm .	Para aprender más sobre cómo el negocio móvil de “mySAP” puede mejorar el funcionamiento de su personal de ventas farmacéutico, llame al número +49/1805/34 34 34 o visite nuestras páginas Web: http://www.sap.com/pharm , www.sap.com/mobile , y www.sap.com/crm .

APPENDIX C: MARKETING BROCHURE 3

Human Translation & Post-editing of raw MT output by Lorena Guerra

The marketing brochure included in this appendix (“*Summary—Compendium Intelligence: Financial Edition*”) was first translated, then, machine-translated and next, fully post-edited by the current researcher. In the case of the source text (ST) and the human translated text, the brochure is presented in monolingual version, in single column format. On the other hand, the machine-translated and full post-edited text is presented parallel with the ST in column format, in order to illustrate more effectively the comments and changes made. This presentation format was facilitated by the MT software.

“Summary — Compendium Intelligence: Financial Edition”

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1 Source Text (ST)

“Summary – Compendium INTELLIGENCE FINANCIAL Edition”

In today's world of information overflow, getting access to user relevant data is paramount to the efficiency of an enterprise and optimal use of human resources. The ability to work with personalized information is a competitive advantage to your enterprise.

Compendium INTELLIGENCE - FINANCIAL Edition supports the personalization of the information – gathering process by monitoring relevant news sources, which users can specify (like important Internet sites or news agency information), and by filtering information for profiles of interest that users can define for themselves. Users will receive an alert as soon as new and relevant data is detected. The alert can be by email or by a message on the screen, and the information can be translated into the users' native language automatically.

The FINANCIAL Edition's unique classification and extraction technology coupled with the world class translation and multilingual support technology (Compendium GLOBALIZER) provides you with information from structured and unstructured data and puts your enterprise right on the leading edge of productivity.

The most important features of this solution can be summarized as follows:

- user-definable data source monitoring (internet, mails, directories etc.)
- conversion of different formats (HTML, pdf, ...) into a transparent XML information format
- two-step filtering, using classification technology to eliminate irrelevant input, and extraction technology for fine-tuning of user profiles
- advanced classification mechanism, based on machine learning using neural networks. User-definable classification hierarchy. Support of multiple and hierarchical classification
- information Extraction technology to identify semantic entities and increase precision in user profile definition
- fully definable user profiles, combining key terms, key information elements, and document categories. Not just simple string search
- support for name search, by providing multilingual phonetic normalization to identify sounding-alike names
- full search and retrieval capabilities in the archive of stored documents

- user profile matching and alerting support, in case of new events. Different alerting modes, esp. push mode alert, are supported
- full multilingual support. Language identification of documents. Multilingual classification and extraction components. Machine translation of search queries. Machine translation of documents to be viewed. Special adaptations to financial domain documents
- integration into document management backend, supporting multiple communication protocols, backend storage and archiving, searching in multiple Content Stores, user security administration, multi-platform environment from Windows to various UNIX and even IBM OS400 systems, and many more
- significant cost reduction, by providing fast native-language access to relevant information sources, instead of cumbersome manual search and translation

The Compendium INTELLIGENCE - FINANCIAL Edition is user-definable on each level: definition of data sources, definition of classification taxonomy, definition of user profiles, definition of alerting. This way it fully supports the personalization objective.

Existing approaches lack central features of such a solution:

- Most of them cannot do all needed steps of the workflow: news source monitoring as well as filtering and alerting.
- They are less flexible and cannot match the quality of the Compendium INTELLIGENCE - FINANCIAL Edition

They can only do filtering and searching on a string basis, and even to define e.g. both check and checks (plural form) are left as a burden to the user. They cannot extract information elements in multilingual contexts:

- They are less flexible in the alerting and presentation mode, esp. push services are often not supported
- They are not linked to a backend document management and archiving system; they do not support full search capabilities in addition to the filtering and alerting
- They are not multilingual; at best there is two parallel workflows for two languages They have no integrated translation functionality
- Overall, the Compendium INTELLIGENCE - FINANCIAL Edition offers superior functionality to solve the personalization problem. Experts consider this solution to be the most advanced one which is currently available.

1.1 Human Translated Text

“Resumen– Compendium INTELLIGENCE

Edición financiera”

En la actualidad, con el exceso de información, acceder a datos relevantes para el usuario es crucial para la eficiencia de una empresa y para el uso óptimo de los recursos humanos. La posibilidad de trabajar con información personalizada ofrece a la empresa ventajas muy importantes a nivel competitivo.

Compendium INTELLIGENCE– Edición financiera, permite dicha personalización mediante un control de las fuentes de información más importantes que el usuario puede elegir (por ejemplo, importantes páginas web, noticias informativas de la compañía) e incluso una selección de los perfiles de mayor interés. Los usuarios reciben un aviso tan pronto como se detectan noticias o información relevante. Dicha notificación puede ser vía e-mail o mediante un mensaje recibido en la pantalla; así la información se puede traducir inmediatamente a la lengua deseada.

La edición financiera con una clasificación y extracción de terminología única, una traducción de primera clase y una tecnología de adaptación multilingüe “*Compendium GLOBALISER*” permite obtener información de datos tanto estructurados como sin estructurar, además de ofrecer a la empresa un lugar privilegiado a nivel competitivo.

Los rasgos más importantes de este producto se resumen en los siguientes:

- monitoreo de la fuente de datos definible por el usuario (Internet, e-mails, directorios, etc.)
- adaptación de diferentes formatos (HTML, pdf,...) a un formato transparente de información XML
- filtración llevada a cabo mediante dos pasos: primero se hace una clasificación tecnológica para eliminar datos irrelevantes y después se hace una extracción tecnológica para conseguir una detallada selección de los perfiles de interés del usuario
- avanzado mecanismo de clasificación basado en una máquina que aprende gracias a una red neuronal. Jerarquía de clasificación definible por el usuario, incluso con posibilidad de múltiples y jerárquicas distribuciones
- tecnología de extracción de la información para identificar entidades semánticas y aumentar la precisión en la definición del perfil de interés del usuario
- completa definición de los perfiles de interés del usuario, combinando términos claves, información y elementos críticos, así como categorías de documentos. No es una simple búsqueda a nivel de frases
- adaptación para la búsqueda de nombres permitiendo una normalización fonética multilingüe para identificar nombres con una pronunciación similar

- completa capacidad de búsqueda y extracción en los archivos de documentos ya almacenados
- correspondencia con el perfil de interés del usuario y alerta en caso de que haya nuevas noticias. Diferentes modos de alertar al usuario, la tecnología "push" también se puede incorporar
- completa adaptación multilingüe. Identificación del idioma del documento. Clasificación multilingüe y extracción de componentes. Traducción automática de preguntas formuladas. Traducción automática de documentos que incluso se pueden ver mientras se traducen. Adaptación especial a documentos pertenecientes al campo financiero
- integración con sistemas de apoyo en la gestión de la documentación, adaptándose a protocolos de comunicación multilingüe, sistemas de almacenamiento, búsqueda en múltiples Content Stores, seguridad de la gestión del usuario, adaptabilidad a varias plataformas desde Windows hasta UNIX e incluso a sistemas IBM OS400, entre otros
- importante reducción de costes mediante un rápido acceso y traducción de las fuentes de información más importantes, en vez de una incómoda búsqueda manual y su posterior traducción.

Compendium INTELLIGENCE– Edición financiera, es definible por el usuario a cualquier nivel: al precisar la fuente de datos, el tipo de clasificación, los perfiles de interés, e incluso al definir los modelos de alerta. De esta manera, permite una completa adaptación al objetivo del usuario.

Los enfoques existentes no incluyen los rasgos y peculiaridades de este producto.

- La mayor parte de ellos no permiten llevar a cabo los pasos necesarios en un flujo de trabajo: monitoreo de las fuentes de datos, filtración o alertas.
- Estos sistemas son menos flexibles y no pueden igualarse a la calidad que ofrece *Compendium INTELLIGENCE– Edición financiera*.

Éstos, simplemente filtran la información y llevan a cabo búsquedas, pero sólo a nivel de frase. Incluso a la hora de definir una palabra en singular o en plural, su eficiencia es bastante limitada. Tampoco pueden extraer información de elementos en contextos multilingües.

- Son menos flexibles a la hora de ofrecer y presentar modelos de alerta, y el modelo de la tecnología "push" por ejemplo, no se puede incorporar
- No ofrecen conexión con los sistemas de apoyo de gestión de la documentación o con sistemas de archivo; no permiten la incorporación de capacidades de búsqueda como recursos adicionales o el filtrado y alertas.

- No son multilingües y como mucho, permiten el manejo de dos flujos de trabajo pertenecientes a dos idiomas diferentes. Tampoco ofrecen ninguna función de traducción.
- En general, *Compendium INTELLIGENCE— Edición financiera*, ofrece mayores y mejores funciones para resolver los problemas particulares del usuario. Los expertos consideran que, hoy día, este producto es el más avanzado.

1.2 Raw MT output (parallel with ST)

- Translation alternatives from the general dictionary
- Translation alternatives from the user dictionary
- Unknown word(s)
- Related terms coded into the user dictionary
- Mistranslated terms** (Terms in italics are wrongly spelt)
- Main changes made in Step 5** (Attached dictionary “Compendium”)

<u>Summary - Compendium</u> INTELLIGENCE	<u>Resumen{Sumario}</u> - Compendium INTELIGENCIA
FINANCIAL Edition	Edición FINANCIERA
In today's world of information overflow, getting access to user relevant data is paramount to the efficiency of an enterprise and optimal use of human resources. The ability to work with personalized information is a competitive advantage to your enterprise.	En el mundo de hoy del desbordamiento de información, consiguiendo el acceso al usuario los datos relevantes son supremos a la eficacia de un uso de la empresa y óptimo de recursos humanos. La capacidad de trabajar con la información personalizada es una ventaja competitiva a su empresa.
<u>Compendium INTELLIGENCE</u> - FINANCIAL Edition <u>supports</u> the personalization of the information - gathering process by <u>monitoring</u> relevant news sources, which users can specify (like important Internet sites or news agency information), and by filtering information for profiles of interest that users can define for themselves . Users will receive an alert as soon as new and relevant data is detected . The alert can be by email or by a message on the screen, and the information can be translated into the users' native language automatically.	INTELIGENCIA de <u>Compendium</u> - la Edición FINANCIERA <u>apoya</u> la personalización de la información - juntando el proceso <u>supervisando</u> fuentes de noticias relevantes, <i>qué</i> usuarios pueden especificar (como sitios de Internet importantes o información de agencia de noticias), y filtrando la información para perfiles del interés que los usuarios pueden definir para ellos . Los usuarios recibirán una alarma tan pronto como los datos nuevos y relevantes son descubiertos . La alarma puede ser por el correo electrónico o por un mensaje sobre la pantalla, y la información puede ser traducida en la lengua nativa{materna} de los usuarios automáticamente.
The FINANCIAL Edition's unique classification and extraction technology coupled with the world class translation and multilingual support technology (<u>Compendium GLOBALIZER</u>) provides you with information from structured and unstructured data and puts your enterprise right on the leading edge of productivity.	La tecnología de extracción y clasificación única de la Edición FINANCIERA conectada con la traducción de clase mundial y tecnología de adaptabilidad{apoyo} multilingüe (<u>Compendium GLOBALIZER</u>) le provee de la información de datos estructurados e inestructurados y pone su empresa directamente sobre el emplomado de productividad.
The most important <u>features</u> of this solution	<u>Características{Rasgos}</u> más importantes de

can be summarized as follows:	esta solución pueden ser resumidas como sigue:
• user-definable data source <u>monitoring</u> (internet, mails, directories etc.)	• fuente de datos <u>definible de usuario control{escucha}</u> (Internet, correos, directorios etc.)
• conversion of different formats (HTML, pdf, ...) into a transparent <u>XML</u> information format	• conversión de formatos diferentes (HTML, pdf...) en un formato transparente <u>XML</u> de información
• Two-step filtering, using classification technology to eliminate irrelevant <u>input</u>, and extraction technology for <u>fine-tuning</u> of user profiles	• Filtración de dos pasos, usando tecnología de clasificación para eliminar <u>entrada</u> irrelevante, y tecnología de extracción para poner a <u>punto</u> de perfiles de usuario
• advanced classification mechanism, based on machine learning using <u>neural networks</u>. User-definable classification hierarchy. <u>Support</u> of multiple and hierarchical classification.	• mecanismo de clasificación avanzado, basado en máquina que aprende utilización de <u>redes de los nervios</u>. Jerarquía de clasificación definible de usuario. <u>Adaptabilidad{apoyo}</u> de clasificación múltiple y jerárquica.
• Information Extraction technology to identify semantic entities and increase precision in user profile definition	• Tecnología de Extracción de Información para identificar entidades semánticas y precisión de aumento en definición de perfil de usuario
• fully definable user profiles, combining key terms, key information elements, and document categories. Not <u>just</u> simple <u>string</u> search.	• perfiles de usuario totalmente definibles, combinando términos claves, elementos claves de información, y categorías de documento. No <u>búsqueda de cuerda solamente{justo}</u> simple.
• <u>support</u> for name search, by providing multilingual phonetic normalization to identify <u>sounding-alike</u> names	• <u>adaptabilidad{apoyo}</u> a búsqueda de nombre, proporcionando normalización multilingüe fonética para identificar nombres parecidos de <u>sondeo</u>
• <u>full</u> search and <u>retrieval</u> capabilities in the archive of stored documents	• capacidades de <u>recuperación</u> y <u>búsqueda</u> <u>plenas{llenas}</u> en el archivo de documentos almacenados
• User profile matching and <u>alerting support</u>, in case of new events. Different alerting modes, <u>esp.</u> <u>push mode</u> alert, are <u>supported</u>	• Correspondencia de perfil de usuario y <u>alertar adaptabilidad{apoyo}</u>, en caso de nuevos acontecimientos. Los modos diferentes que alertan, <u>esp.</u> alarma de <u>modo de empuje</u>, son <u>apoyados</u>
• <u>full</u> multilingual <u>support</u>. Language identification of documents. Multilingual classification and extraction components. Machine translation of search queries. Machine translation of documents to be viewed. Special	• <u>adaptabilidad{apoyo}</u> <u>plena{llena}</u> multilingüe. Identificación de lengua de documentos. Clasificación multilingüe y componentes de extracción. Traducción automática de preguntas de búsqueda.

adaptations to financial domain documents.	Traducción automática de documentos para ser vistos . Adaptaciones especiales a documentos de esfera financieros.
Integration into document management backend, supporting multiple communication protocols, backend storage and archiving, searching in multiple Content Stores, user security administration, multi-platform environment from Windows to various UNIX and even IBM OS400 systems, and many more.	Integración en parte trasera de dirección de documento, apoyando múltiples protocolos de comunicación, almacenaje de parte trasera y archivar, que busca en múltiple Content Stores, administración de seguridad de usuario, ambiente de multiplataforma de Windows a vario UNIX y hasta IBM OS400 sistemas, y más muchos.
significant cost reduction, by providing fast native-language access to relevant information sources, instead of cumbersome manual search and translation	la reducción de coste significativa, proporcionando la lengua nativa{materna} rápida tiene acceso a fuentes relevantes de información, en vez de búsqueda incómoda manual y traducción
The Compendium INTELLIGENCE - FINANCIAL Edition is user-definable on each level : definition of data sources, definition of classification taxonomy, definition of user profiles, definition of alerting. This way it fully supports the personalization objective.	La INTELIGENCIA Compendium - la Edición FINANCIERA es definible de usuario sobre cada nivel : definición de fuentes de datos, definición de taxonomía de clasificación, definición de perfiles de usuario, definición de alertar. De estos solución{camino} esto totalmente apoya el objetivo de personalización.
Existing approaches lack central features of such a solution:	Los enfoques{acercamientos} existentes carecen de características{rasgos} centrales de tal solución:
Most of them cannot do all needed steps of the workflow: news source monitoring as well as filtering and alerting.	La mayor parte de ellos no pueden hacer todos los pasos necesarios de flujo de trabajo{de proceso laboral}: fuente de noticias control{escucha} así como filtración y alertar.
They are less flexible and cannot match the quality of the Compendium INTELLIGENCE - FINANCIAL Edition	Ellos son menos flexibles y no pueden emparejar la calidad de la INTELIGENCIA Compendium - Edición FINANCIERA
They can only do filtering and searching on a string basis , and even to define e.g. both check and checks (plural form) are left as a burden to the user . They cannot extract information elements in multilingual contexts:	Ellos pueden hacer sólo la filtración y la busca en una base de cuerda , y hasta definir p.ej ambo control y controles (forma plural) son dejadas como una carga al usuario . Ellos no pueden extraer elementos de información en contextos multilingües:
They are less flexible in the alerting and presentation mode, esp. push services are often not supported	Ellos son menos flexibles en alertar y modo de presentación, esp. servicios de empuje no son a menudo apoyados
They are not linked to a backend	Ellos no son unidos para una dirección

document management and archiving system; they do not <u>support full</u> search capabilities in addition to the filtering and alerting	de documento de parte trasera y sistema archivador; ellos no <u>apoyan</u> capacidades <u>plenas {llenas}</u> de búsqueda además de la filtración y alertar
They are not multilingual; at best there is two parallel <u>workflows</u> for two languages. They have no integrated translation functionality	Ellos no son multilingües; en lo mejor hay dos <u>flujo de trabajos {procesos laborales}</u> paralelos para dos lenguas. Ellos no tienen ninguna funcionalidad de traducción integrada
Overall, the Compendium INTELLIGENCE - FINANCIAL Edition offers superior functionality to solve the personalization problem. Experts consider this solution to be the most advanced one which is currently available.	En general, la INTELIGENCIA Compendium - la Edición FINANCIERA ofrece la funcionalidad superior para solucionar el problema de personalización. Los expertos consideran esta solución de ser los más avanzados que están actualmente disponibles.

1.3 Full PE of raw MT output (parallel with ST)

Summary - Compendium INTELLIGENCE	Resumen - Compendium INTELIGENCIA
FINANCIAL Edition	Edición FINANCIERA
In today's world of information overflow, getting access to user relevant data is paramount to the efficiency of an enterprise and optimal use of human resources. The ability to work with personalized information is a competitive advantage to your enterprise.	En la actualidad, con el exceso de información, acceder a datos relevantes para el usuario es de suma importancia para la eficacia de una empresa así como para el uso óptimo de los recursos humanos. La capacidad de trabajar con información personalizada es una ventaja competitiva para su empresa.
Compendium INTELLIGENCE - FINANCIAL Edition supports the personalization of the information - gathering process by monitoring relevant news sources, which users can specify (like important Internet sites or news agency information), and by filtering information for profiles of interest that users can define for themselves. Users will receive an alert as soon as new and relevant data is detected. The alert can be by email or by a message on the screen, and the information can be translated into the users' native language automatically.	<i>Compendium INTELIGENCIA - Edición FINANCIERA</i> incorpora una personalización de la información - controlando el proceso mediante una supervisión de las noticias más relevantes, que los usuarios pueden incluso especificar (como importantes páginas de Internet o información sobre noticias de la agencia), y filtrando la información sobre perfiles de interés definidos por los usuarios. Éstos recibirán un aviso tan pronto como datos nuevos y relevantes sean recibidos. Dicha notificación puede ser o bien por correo electrónico o mediante un mensaje recibido en la pantalla. Así la información se puede traducir automáticamente a la lengua nativa de los usuarios.
The FINANCIAL Edition's unique classification and extraction technology coupled with the world class translation and multilingual support technology (Compendium GLOBALIZER) provides you with information from structured and unstructured data and puts your enterprise right on the leading edge of productivity.	La tecnología de extracción y clasificación única de la Edición FINANCIERA, junto con la traducción de primera clase y la tecnología de adaptabilidad multilingüe (<i>Compendium GLOBALIZER</i>), le proporcionan la información de datos estructurados o sin estructurar poniendo a su empresa directamente en un lugar privilegiado a nivel productivo.
The most important features of this solution can be summarized as follows:	Las características más importantes de este producto se resumen en las siguientes:
• user-definable data source monitoring (internet, mails, directories etc.)	• especificación por parte del usuario en el monitoreo de las fuente de datos (Internet, correos, directorios etc.)
• conversion of different formats (HTML, pdf, ...) into a transparent XML information format	• conversión de formatos diferentes (HTML, pdf...) en un formato de información transparente XML
• Two-step filtering, using classification	• Filtración llevada a cabo mediante dos

technology to eliminate irrelevant input, and extraction technology for fine-tuning of user profiles	pasos: usando la tecnología de clasificación para eliminar datos irrelevantes, y la tecnología de extracción para ajustar los perfiles de mayor interés para el usuario
advanced classification mechanism, based on machine learning using neural networks. User-definable classification hierarchy. Support of multiple and hierarchical classification.	mecanismo de clasificación avanzado, basado en una máquina que aprende utilizando redes neuronales. Jerarquía de clasificación definible por el usuario. Adaptabilidad de clasificación múltiple y jerárquica.
Information Extraction technology to identify semantic entities and increase precision in user profile definition	tecnología de Extracción de información para identificar entidades semánticas y mayor precisión en la definición de perfil de interés del usuario
fully definable user profiles, combining key terms, key information elements, and document categories. Not just simple string search.	perfiles del usuario totalmente definibles, combinando términos claves, elementos críticos de información, y categorías de documento. No es una mera y simple búsqueda a nivel de frases.
support for name search, by providing multilingual phonetic normalization to identify sounding-alike names	adaptabilidad en la búsqueda de nombre, permitiendo una normalización multilingüe fonética para identificar nombres con una fonética parecida
full search and retrieval capabilities in the archive of stored documents	plenas capacidades de recuperación y búsqueda en archivos de documentos ya almacenados
User profile matching and alerting support, in case of new events. Different alerting modes, esp. push mode alert, are supported	correspondencia con el perfil de interés del usuario y soporte de alertas en caso de nuevas noticias. diferentes modos de alertar, especialmente, el modelo de empuje “push”, que también se puede incorporar
full multilingual support. Language identification of documents. Multilingual classification and extraction components. Machine translation of search queries. Machine translation of documents to be viewed. Special adaptations to financial domain documents.	plena adaptabilidad multilingüe. Identificación de la lengua de los documentos. Clasificación multilingüe y componentes de extracción. Traducción automática de preguntas de búsqueda. Traducción automática de documentos que se pueden incluso ver mientras se traducen. Especial adaptación a documentos pertenecientes al campo financiero.
Integration into document management backend, supporting multiple communication protocols, backend storage and archiving, searching in multiple Content Stores, user security administration, multi-platform environment from Windows to various UNIX and even IBM OS400 systems, and many more.	Integración en sistema de apoyo en la gestión de documentos, incorporando múltiples protocolos de comunicación, sistemas de almacenamiento y archivo, búsqueda en diversos “Content Stores”, seguridad de la gestión del usuario, adaptabilidad a múltiples plataformas, desde Windows hasta UNIX e incluso a sistemas de IBM OS400, entre otros.
significant cost reduction, by providing fast native-language access to relevant information sources, instead of cumbersome	significativa reducción de costes mediante un rápido acceso y traducción de las fuentes de información más importantes,

manual search and translation	evitando así una incómoda búsqueda manual y su posterior traducción
The Compendium INTELLIGENCE - FINANCIAL Edition is user-definable on each level: definition of data sources, definition of classification taxonomy, definition of user profiles, definition of alerting. This way it fully supports the personalization objective.	<i>Compendium INTELLIGENCE - Edición FINANCIERA</i> se adapta, en todo momento, a las necesidades del usuario: en la definición de las fuentes de datos, en los tipos de clasificación, al detallar los perfiles de interés para el usuario, e incluso en los modos de alerta. De esta manera, se puede conseguir una adaptabilidad personalizada.
Existing approaches lack central features of such a solution:	Los enfoques existentes carecen de las características centrales de este producto:
Most of them cannot do all needed steps of the workflow: news source monitoring as well as filtering and alerting.	La mayor parte de ellos no pueden desempeñar todos los pasos necesarios requeridos en un flujo de trabajo: monitoreo de las fuentes de información, así como filtración y alertas.
They are less flexible and cannot match the quality of the Compendium INTELLIGENCE - FINANCIAL Edition	Estos sistemas son menos flexibles y no pueden igualar la calidad de <i>Compendium INTELLIGENCE - Edición FINANCIERA</i>
They can only do filtering and searching on a string basis, and even to define e.g. both check and checks (plural form) are left as a burden to the user. They cannot extract information elements in multilingual contexts:	Pueden hacer la filtración y la busca sólo a nivel de frase, y a la hora de definir una palabra en singular y/o en plural, su eficiencia es muy limitada. Tampoco pueden extraer elementos de información en contextos multilingües:
They are less flexible in the alerting and presentation mode, esp. push services are often not supported	Son menos flexibles en los modos de alerta y de presentación y los modelos de empuje “push” están rara vez incorporados.
They are not linked to a backend document management and archiving system; they do not support full search capabilities in addition to the filtering and alerting	No están unidos a sistemas de apoyo en la gestión o archivo de documentos; además, no permiten la incorporación de capacidades de búsqueda como recursos adicionales, o el filtrado y alertas.
They are not multilingual; at best there is two parallel workflows for two languages. They have no integrated translation functionality	No son multilingües; como mucho, permiten el manejo paralelo de dos flujos de trabajo pertenecientes a dos lenguas. Además, tampoco integran ninguna funcionalidad que facilite la traducción.
Overall, the Compendium INTELLIGENCE - FINANCIAL Edition offers superior functionality to solve the personalization problem. Experts consider this solution to be the most advanced one which is currently available.	En general, <i>Compendium INTELLIGENCE - Edición FINANCIERA</i> ofrece una funcionalidad superior a la hora de solucionar el problema de la personalización. Los expertos consideran este producto como el más avanzados que actualmente hay a nuestra disposición.

