

# WHO HAS SKIN IN THE PATENT TRANSLATION GAME?

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## *1. What do translators really do?*

The art of translation is a specific professional skill which transforms information *in one language environment into another language and its language traditions*, where the ultimate quality of the translation is determined by how well it preserves and conveys the meaning and unique features of the original text.

There exist very high levels of complexity in written texts, such as in professional-level scientific or medical articles, in legal documents and especially in patent applications and issued patents which present a combination of highly complex and very specialized legal and technical writing. Each additional degree of complexity in a text increases the difficulty of a quality translation task.

Strangely, as far as I can observe, the standards of translation quality are often lowered for translation of technical literature. It is even stranger how the standards of translation quality are often lowered for translations of highly specialized patent documents. Significant financial resources, as well as creativity and ingenuity of many people, are invested in innovation, improvements and technological advances, and in drafting patent applications and prosecuting them to issuance. At the translation step in a different jurisdiction a translation of inadequate quality can completely distort the essence of the innovative technology and make all that huge investment possibly worthless in that jurisdiction.

Traditionally a patent applicant would send an application to its foreign associate firm for filing and that foreign firm would handle the translation into its respective language. The translation costs charged by foreign associates were often very high and hard to justify.

If a startup company with limited resources had to meet a foreign filing deadline in a number of jurisdictions that may or may not be important to the business in the future, paying high translation costs for that uncertain future benefit was hard to justify. This may be true for a multinational company as well, which may have to nationalize a patent application of potential importance by the foreign filing deadline and incur translation costs often before marketing studies or test market data for that specific product or technology are available. In yet another example, for a pharmaceutical company a foreign filing deadline and associated translation costs usually happen years before the completion of several phases of clinical trials and subsequent regulatory approval. So the applicants' business necessity for trying to reduce translation costs is both present and understandable.

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## ***2. Background on patent translations***

Machine translation systems and tools aid an experienced translator in various ways. They contain multilingual dictionaries and databases of parallel patent texts, eliminating the need for a translator to repeatedly translate the same word or a combination of words, or they ensure that no portion of the text is lost or skipped. Those and other helpful features of a computer translation tool assist a human translator in increasing productivity.

To handle a high volume patent translations, translation vendors often run patent texts through a computer and then hire someone to do “post editing of machine translation”, or PEMT. To rephrase, the process of coming up with what later is presented as translation generally consists of feeding the original text in a source language into a machine, receiving an output in a target language from the machine and then hiring someone to do post machine translation editing tasks at a cheap price under the rationale that the service being provided by the person is not translating, but only editing of the already-made machine translation.

The same high volume of patent applications often forces a translation vendor to engage a local company in another country to receive, administer and handle the volume of translations locally. The local firm then hires local freelancers. That structure creates at least two layers of middlemen – a translation vendor and a local firm – between the patent applicant and a human being who actually does something with the text. In our practice we observed how a US patent applicant hired a “foreign filing vendor” which engaged a third-party translation vendor which, in turn, sent the translation work to a firm in Eastern Europe which, in turn, hired people to do post-machine editing, creating three layers of intermediaries between the US patent applicant and an end PEMT human being.

The pay for post machine editing in the jurisdictions I am familiar with is very low. Those post machine editing rates can somewhat vary both ways, but general rates are so low that not a single reputable translator I talked to admitted to doing low-cost post machine editing work.

In my view machine translation and post machine translation editing are at best an imitation of preparing a translation. The applicant will get only what a post machine translation editor or reviewer is capable of doing at a very low price – a correction of immediately obvious discrepancies of sentence structures, misused cases and tenses to make the text look “readable”, which usually does not require understanding of the meaning of the original technical text in English and comparing it with the output of a machine.

There is a lot of loud marketing buzz in the relevant industry about “neural networks”, “deep learning” and other phrases that create an impression of actual learning. As heavily as these translating machines are marketed as capable of learning, they are not, they are only a computer imitation of real human neural networks. They can be reprogrammed, recoded, fed different massive amounts of data with different weight coefficients and whatnot, but they cannot process *a meaning* of a sentence or a phrase. Use of computer-implemented neural networks can be very helpful, for example, in processing things like images or sound, but not in *understanding of a meaning* in a complex technical or legal context.

### ***3. Examples and results.***

We have seen in our practice countless truly striking examples of translation errors that came from third-party vendors either doing machine translations with post machine editing or outsourcing such translations to another middleman firm which, in turn, does a mix of utilizing machine translations and hiring human editors (students, for example) at very low prices.

#### *Incorrect Translation of Terms*

For example, we had several related nationalized PCT applications containing an English term “dehydration catalyst”, meaning that the catalyst aids in removing or eliminating water. But the term was translated as “dehydrogenation catalyst”, which means a catalyst that aids in a chemical reaction of eliminating hydrogen from a chemical compound. The resulting erroneous translation completely changed the meaning of one of the major terms describing the invention. In one of those applications the erroneously translated word “dehydrogenation” was used about 500 times throughout the application. That kind of translation errors makes any amount of money the patent applicant spent on patent prosecution in that jurisdiction practically worthless.

A term “abuse resistant coating” was translated into Russian as “influence resistant coating”, even though it was clear from the context that the invention was related to specific undesirable abusive conditions that the coating was designed to resist, not to withstand a mere “influence” which doesn’t have to be undesirable or abusive. In that case even the foreign patent examiner on the case complained about the error and requested correction of the translated application text after allowance.

An important invention feature “aperture” was translated as a term meaning an “indent”, or “notch”, or “cutting”, where in the application “an aperture” clearly meant “a through opening”.

In the phrase “an object can be treated like resonating cavities”, the word “treated” means that the object can be regarded as a resonating cavity (or that the object can be modeled, in an abstract way, after a resonating cavity). The verb “treated” was translated as “processed” in a manufacturing sense, as changed or acted upon with a tool. That translation had nothing to do with the meaning of the original English language phrase.

I cannot even start reciting how many times the terms “inlet” and “outlet” were erroneously translated into Russian in patent applications that crossed my desk. These terms can have many different meanings and translations, depending on the context in which those words are used in an application.

A term “passageway” was translated as “passing opening” wherein it followed from the context that it meant “a flow channel” and certainly not merely an opening.

A discovery in the field of geometry was revealed to us in a translation of the phrase “layer with three-dimensional surface features” which was translated as “layer with features of a three-dimensional surface.”

To translate a patent application correctly, one needs to understand the meaning of the term from

the context often in reference to the patent drawings. Machines are incapable of processing *the meaning*, so those fine technical differences and connotations are often lost in the machine translations. The post machine translation editing outsourced to low paid reviewers often does not catch such errors; the PEMT editors' pay rate or skill does not realistically give them the ability to analyze or study the context.

#### *Lack of Unity of Translated Terms*

There are also problems with unity of terminology. One patent examiner complained that the terms “surfaces” and “surface layers” were used interchangeably. It turned out that the translated words “surface layers” were not even present in the original English language International Application. The problem stemmed from an incorrect translation of the words “face layers”, so the examiner simply did not understand the meaning of the erroneously translated claim elements.

Another reason for problems with unity of terminology arises when a voluminous machine generated “translation” text is post-machine edited. It is often quite clear to us from reading such resulting “translations” that the voluminous text was split into several portions among several different post machine reviewers to meet a deadline. Each of them edited his or her own portion, and no one ensured unity of terminology.

#### *Scientific Terms*

For example, we have seen a number of post-machine edited translations from third-party vendors where the English term corresponding to the Russian word “density” was translated into a term which made no sense and certainly was not “density” in the correct measuring units. These were errors as a matter of physics. Whoever believes that a post-machine translation reviewer will think of units and whether terms make sense as a matter of science is mistaken at least based on what we observed in the translations we saw. The way a PEMT reviewer works and the speed with which he or she is required to produce edited texts do not imply thinking of that kind. In the same text the English sentence having a meaning “a density of X is the combined density of its components” read as “[an incorrectly translated density] of X is the united [an incorrectly translated density] of its components”. That “translated” sentence with the incorrectly translated term “density”, and the word “united” instead of “combined”, made no sense, unless that translation vendor was convinced that units are irrelevant and the “United States of America” is the same as the “Combined States of America”.

#### *Missing Words*

In another line of examples missing words in a translation, again, changed the meaning of the original English source text. We saw a translation of a phrase meaning “a structure contains one or more materials with *discrete* specific cell *pieces of material* that are integrated into X ...”. One needs to think to understand the meaning of this phrase in order to translate it. The translation we received read as follows: “a structure contains one or more *discrete materials* with specific cells integrated into X...” The word “pieces” in the translation was left out, and instead of the intended

discrete specific pieces (meaning “fragments”) of the material the translation referred to discrete materials, which was wrong.

#### *Patent Terminology*

The beginning paragraph of a detailed description of the invention section in one of our cases read in English “The present invention provides a method for manufacturing...” while the Russian translation we received literally read “Methods of a real disclosure provide for manufacturing...”

Recall that a translation machine does not think, it runs sophisticated formulae and statistical data, it codes, recodes and decodes massive volumes of data, but even the most sophisticated computer-implemented neural network cannot and does not process what something *means*. In technical translations not understanding the meaning of a word, phrase or concept leads to a meaningless translation.

I am certain there are many other errors that we have never had a chance to catch in patent prosecution. There are also numerous examples of poor grammatical structure and completely lost substantive meaning in the sentences that read smoothly and probably tricked a human mind of a reviewer into thinking that if it reads well, it must be correct.

#### ***4. What does it all mean in the patent context? Several things.***

Even if the applications where the translation referred to a different process (dehydrogenation instead of dehydration) had only one incorrectly translated word and otherwise was perfectly correct, the overall translation of that application ended up being 100% incorrect. In a legal document such as a patent or patent application, even the 99% accuracy of the translation very often might mean that it is 100% incorrect. It also means that whatever the entire investment was in protecting applicant’s patent rights in that jurisdiction, that entire investment was possibly wasted.

Consider an application filed under the PPH program. In our experience chances are higher that a PPH application will get a first action allowance. Chances are also much higher that no competent patent agent or patent examiner will review the application for possible translation errors or discrepancies and that all existing translation errors will remain in the issued patent. We took a look at the texts translated by third party vendors and filed “as is” in a number of post-first-action-allowance applications and saw various errors that had to be corrected at least to the extent possible. Correcting specifications, preparing and filing corrective submissions cost hours of our agents’ time billed to clients. Those costs would not have been incurred if (1) the translations were proofread before filing by a competent fully bilingual patent agent specializing in patent prosecution in that specific technical area, and (2) the errors were still discovered in the filed application and corrected free of charge by the same patent agency which translated the text in the first place. These are high not-so-hidden costs which applicants incur later in prosecution when a foreign patent examiner acts upon an application.

As another illustration, we had an application nationalized in Russia and Ukraine. The Russian case was filed as a PPH application and issued fairly quickly on a first-action allowance. As the quick PPH route was not available for the Ukrainian counterpart application, a Ukrainian examiner eventually issued an office action on the merits including about two full pages of complains about incorrectly translated terminology. We took a look at the text of the already issued counterpart RU patent and sure enough, the text translated by a third party vendor had the same numerous translation errors in the issued patent.

I keep thinking that it is ironic how US patent litigants spend huge sums of money fighting over the meaning of a phrase or a specific term in a patent, but at the same time translation of the same carefully drafted complex application text ends up being entrusted to an underpaid soul half-way across the globe editing a computer generated output which is presented as a translation.

### ***5. Patent translations: the ultimate cost of outsourcing***

The ultimate advantage of outsourcing is usually financial, but the more complex the outsourced service is, the more the expected cost savings are offset by the costs of monitoring the outsourced activity and quality control. To rephrase, some of the well-known sins of outsourcing are (1) overlooking the hidden costs of outsourcing, and (2) not having control over the outsourced activity.

In my view some of the hidden costs of patent translation outsourcing are the following:

1) A quality translation saves at least one round of prosecution between a Patent Office and an applicant (one round being an Office Action – a report of the Office Action to the applicant – preparing and filing a response to Office Action – reporting filed response to applicant, including all corresponding docketing tasks). For a 15,000 word application the difference between translating, say, at \$0.20 per word and \$0.15 per word will be \$750 (presumed savings). Our experience is such that with an erroneous translation an extra round of prosecution can cost on average \$2000 or more in overall professional fees depending on the extent of translation corrections that need to be done. Of course, a patent prosecuting firm charges the applicant for correcting someone else's translation. If the same patent prosecuting firm finds and corrects its own translation errors (no translator is perfect), there is no charge to the applicant for such corrections.

Any translator knows that correcting someone else's translation is very arduous and incredibly time consuming. Instead of translating a term or a phrase correctly the first time (reading the source, figuring out the translation and writing it down), one needs to read the source, read the translation, figure out where the error is, figure out the correct translation and then incorporate that correction into the entire text. In my practice I have never been dissuaded that correcting another's translation errors is ultimately much more time consuming and expensive than doing the work from the beginning.

2) Potentially not having an enforceable patent in a foreign jurisdiction, possibly wasting an entire investment of time and money there.

3) A patentee can be held to a meaning of a term in a claim or a specification in a foreign jurisdiction based on how the patentee translated (admitted to the meaning of) that term or phrase in a counterpart foreign application/patent. I have seen the term “adhesive” translated as “glue”, “bonded together” translated as “tied together”, and so on.

In my view the problems with quality control are the following:

1) A patent applicant inevitably outsources its patent translations either to a translation vendor or to its foreign associate firm. For the vast majority of languages, a patent applicant has no control over nor any way to check the quality of the resulting translation, because no one in-house with expertise in the relevant technical area speaks or read the target language. In my experience with translations from English to rather exotic languages like Russian or Ukrainian, rarely was there someone in-house who could speak or read it. So how could a patent applicant exercise any quality control over the outsourced translations? Realistically it can't. It means that usually there is no quality control of the third party vendor translations at the patent applicant's side other than relying on the same outsourcing vendor for quality assurances.

2) My many years of practice as a bilingual patent attorney have taught me that obtaining a quality patent translation involves the following steps: (1) translation by a translator who is a specialist in a required technical area<sup>2</sup>; (2) proofreading/checking industry-specific terminology; (3) work of an editor of technical and patent-specific terminology; (4) proofreading/checking correct grammar and structure of the language. The nature of our human brain (our human neural network) is such that if someone makes a mistake, it is hard for the same brain to discover that mistake, so another person's brain and a second pair of eyes are often needed to catch the mistake. Therefore, these steps should be performed by at least two different people. It is crucial for quality control, in my view, that one of these two people should be a *bilingual patent agent or at the very least an experienced patent engineer who is an expert in the relevant **technical and patent terminology** in both source and target languages.*

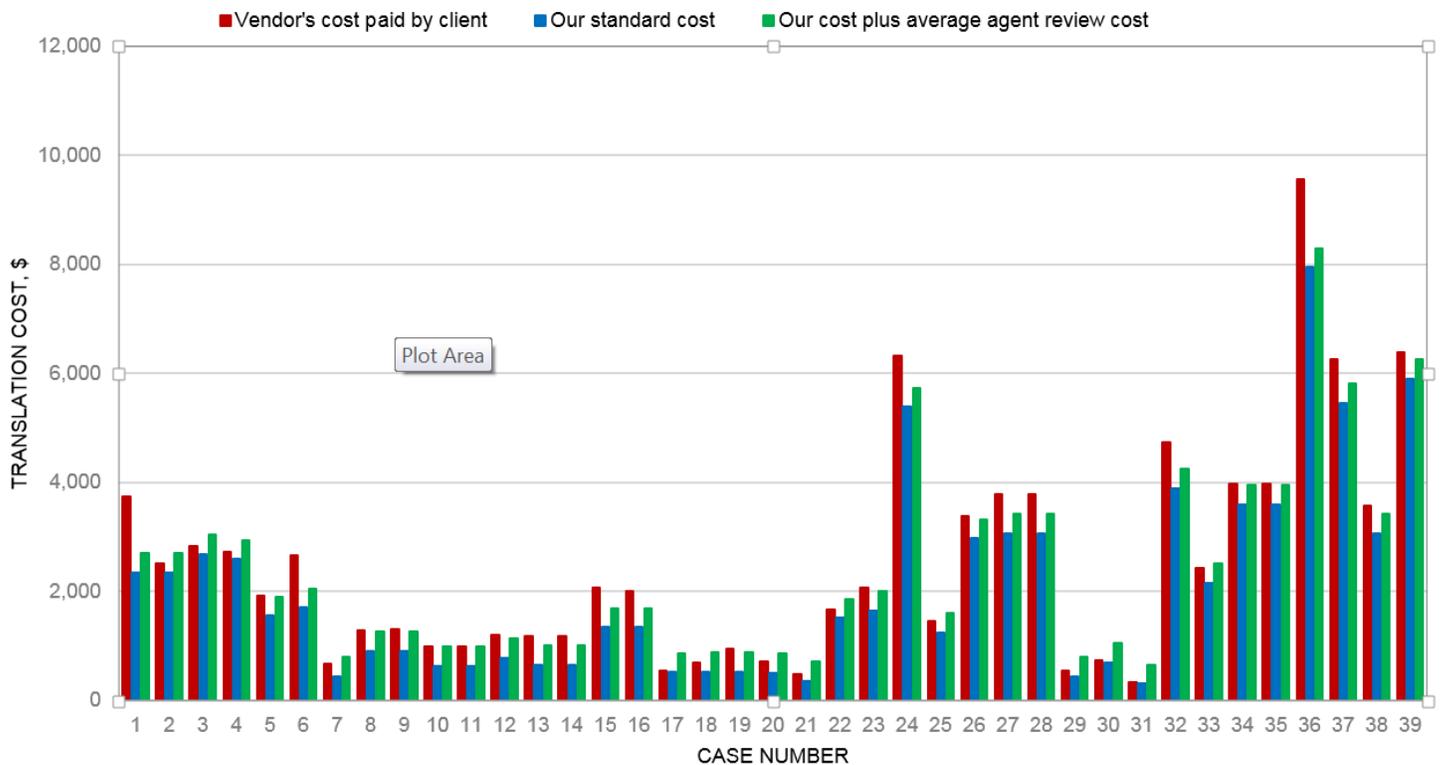
In our experience of a small firm there can be an efficient way to follow those best practice translation recommendations. It includes a translation by a human translator and a further review by a bilingual patent agent without layers of intermediaries and without post machine editors. We took a number of random cases out of the thousands we have handled and looked at the comparative Eng>Ru translation costs in preparation for foreign filing. The resulting costs turned

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<sup>2</sup> Computer tools that assist human translators are extremely helpful and aid greatly in translator's productivity. They are widely used by anyone working in the translation field. Those aiding tools should not be confused with machine translations which result from a machine being fed a text in a source language and outputting a text in a target language, without any input or judgment from a competent human translator.

out to be often about the same or lower than the costs actually paid by a client to a third party translation vendor.

**Translation costs**



**6. Recommendations**

Partnering with someone who has skin in the game by incurring risk in achieving the goal is known to be a more robust success strategy. The patent translation outsourcing decisions seem to fall along the same line. I am convinced that outsourcing such very complex legal and scientific/engineering texts as patent applications to a third party with skin in the translation “game” has a much better chance of quality control while not increasing costs. In my view a third party translation vendor has no skin in the patent prosecution process and in the ultimate goal of obtaining a valuable patent in a relevant jurisdiction. A translation vendor is out of the picture even before the translated application is filed in a foreign jurisdiction and certainly very long before an office action is issued by a foreign Patent Office<sup>3</sup>.

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<sup>3</sup> I have heard complaints from colleagues at other US patent firms that they too have serious problems with translations of patent application into Asian languages provided by outsourcing vendors. The pattern is the same – translation errors become apparent during prosecution, well after the national filing date. By that time, whoever was an actual reviewer at the end of the multiple intermediary translation outsourcing chain is likely long gone.

A foreign patent firm in the relevant jurisdiction certainly has skin in the long term patent prosecution game. At the very least that skin is reputational, financial and professional. First, the patent firm signs its name on all filings with the foreign Patent Office, so when a translated application publishes or a patent issues, it will be the patent firm's name and reputation on that publication, not a translation vendor's name. Patent firms do value their reputation with clients and in the professional community. Second, if a patent firm translated an application and later found translation errors in the text, the patent firm will have to spend time and make all the corrections free of charge at its own expense. One can easily spend a day correcting a voluminous chemical application in a language like Russian where nouns and adjectives have six cases depending on three genders and where verbs have different endings for different genders in different tenses. Such corrections cannot be done by a "find-replace" function, they need to be done manually. Third, many law firms assist their clients not only in patent prosecution, but in other IP and non-IP areas. These are strong long term professional relationships which take time and trust to build and which are unmatched by any outside third party vendor.

So what is the recommendation? After all, patent firms used to charge very high prices for their translations, but costs continue to be an important consideration for patent applicants. In my view, it is the following: take the price quote of a third party vendor and ask your patent law firm if it can do the work at the same or close price. I believe it is likely that patent firms will be able to do the translation work at a similar or comparable price. As our experience and data show, translations can be done by patent firms cost effectively by people with the right skills and qualifications.

There is another basic rule of outsourcing: do not outsource your core competence. For patent applicants one of their core competences is mastery of the written technical and legal language and the skill in using that written language to describe and claim the essence of innovative products and processes. It seems crucial to me to preserve that mastery in another language by producing quality translations. Practically, since outsourcing of patent translations cannot be avoided, it is much better to outsource to a party with the most skin in *your* game.