TECHNOLOGICAL CHANGES IN THE LANGUAGE TRANSLATION INDUSTRY: IMPLICATIONS FOR US PATENT ATTORNEYS

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[*] JapanesePatentTranslation.com. Descriptions about the structure and operations in the translation industry, unless otherwise noted, are based on observations of Dr. Warren Smith during his 35 years as a participant in the industry as translator, translation business owner, and as a trained researcher in technology strategy (with a doctorate in the field).
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Sooner or later, many, if not most, practicing attorneys and other legal practitioners who work with patent documents in the United States (referred to herein as "US patent attorneys") will be confronted with patents or prior art requiring translation from a foreign language or will engage in prosecution or litigation involving foreign parties. This will require US patent attorneys to use a translation service to handle foreign-language documentation. While the rise of new automated translation technology ("machine translation") technologies, along with structural changes in the language translation industry, reduces costs and improves convenience in dealing with foreign-language documentation, it also has produced traps into which US patent attorneys can fall. The presence of these traps, however, also provides new opportunities for attorneys able to exploit them.

This paper examines recent changes in the structure of the global translation industry, advances in machine translation, and implications thereof for US patent attorneys.

Increased International Patent Activity Leads to Greater Need for Translation Services

According to a WIPO report, 66.8% of patent and 97.7% of utility model filings in 2019 were from the Asian region [1] with a year-on-year increase of 11.6% in patent filings from China. (The gross number of filings from the United States decreased over this same time period).[2] Domestically, the majority of utility patents granted by the USPTO beginning in 2008 were of foreign origin.[3] The

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[1] *WIPO IP Facts and Figures 2019* 8-9, WIPO (2020), https://www.wipo.int/publications/en/details.jsp?id=4487&plang=EN [https://perma.cc/4EAX-C4CJ].

[2] *Id.* at 12.

[3] *U.S. Patent Statistics Chart Calendar Years 1963 - 2019*, USPTO PAT. TECH. MONITORING TEAM (PTMT),

USPTO reports granting 77,756 utility patents "of foreign origin" in 2007, for example, and this number more than doubled to 187,315 in 2019.[4] In the last 10 years, there have reportedly been approximately 5,000 "cross-border" patent cases that have involved parallel litigation in multiple jurisdictions.[5]

While data on PTAB actions involving foreign patent owners is sparse, it is reasonable to anticipate that the doubling of patents "of foreign origin" issued will be matched with a substantial increase in PTAB actions involving foreign patent owners and can be expected to include a record of cited references and documentation that were not initially in English. Notwithstanding the origin of a patent that is subject to an attack on its validity, patent challengers employing various strategies may cite prior art documents that were originally drafted in foreign languages, which need to be translated for purposes of a given invalidity proceeding. For evidentiary purposes, such translations of prior art must be certified by a translator,[6] who may be cross-

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https://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm [https://perma.cc/4L32-CTN3], (last visited October 21, 2021).

[4] *Id.*

[5] *Multi-Jurisdiction and Cross-Border Patent Litigation*, CLARIVATE (Dec. 15, 2020), https://clarivate.com/derwent/webinars/multi-jurisdiction-and-cross-border-patent-litigation/ [https://perma.cc/U6Z8-5NMJ].

[6] A certified translation is a translation accompanied by a required attestation, affidavit, oath, or affirmation regarding the accuracy of the translation, to the effect that the translation is a true and correct representation of the original language that is being translated. *See* 37 C.F.R. § 42.63(b); *see also id.* § 41.154(b); 35 U.S.C. § 119(b)(3) (regarding other USPTO proceedings); FED. R. EVID. 604 (regarding translations in federal courts). FED. R. EVID. 604 uses the terms "interpreter" and "translation" in a way that may be interpreted ambiguously by federal courts, potentially leaving requirements of Rule 604 unsettled specifically with respect to translated documents, as opposed to interpretation of oral testimony. *See Taniguchi v. Kan Pac.*

examined regarding the translation if the translator's qualifications or the reliability of translation is disputed.[7] These requirements and considerations involving multiple languages may present challenges and opportunities to attorneys involved in US patent proceedings.

I. HOW US PATENT ATTORNEYS USE TRANSLATION AND INTERPRETATION SERVICES

Before discussing the changes in translation technology, let us briefly review how US patent attorneys consume translation and interpretation services.

The modes in which US patent attorneys use language services differ greatly in patent prosecution from those in patent litigation or other inter partes proceedings.

Translation During Patent Prosecution

During patent prosecution, translation services are used to translate foreign-language patent applications for filing in the United States as well as to translate English-

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Saipan, Ltd., 566 U.S. 560, 566–72 (2012) (defining "interpreter" for purposes of statutory construction).

[7] _See, e.g._, _United States v. Martinez-Gaytan_, 213 F.3d 890, 892–93 (5th Cir. 2000) (explaining and applying conditions under which federal courts may find translations to be hearsay); 37 C.F.R. § 42.53. USPTO rules for attestation do not specify translator qualifications. _See_ 37 C.F.R. §§ 41.154(b), 42.63(b). Rule 604 (FRE) does require that an interpreter be qualified to make a true translation. FED. R. EVID. 604. For technical documents to be translated, the translator is not specifically required to have technical expertise as an expert witness under Rule 702. FED. R. EVID. 702. But lack of technical understanding for a translator of advanced technical documents may implicate qualifications under Rule 604. _See_ FED. R. EVID. 604. This may invite other challenges of the translation or other evidence that may render statements inadmissible. For example, a translation from an unqualified translator or interpreter may be defective as impermissible hearsay under Rules 801 or 802. FED. R. EVID. 801, 802. Expert testimony based on a defective translation may also be unreliable under Rules 702 or 703 as a result. _See_ FED. R. EVID. 702, 703.

language patent applications for filing in other countries. Patent prosecution may also involve translation of search reports, office actions, and references cited from various regional or national patent offices and working with foreign agents throughout the prosecution process.

Unlike many translations in the litigation stage, translations of priority documents for US patent applications do not typically require sworn statements certifying accuracy for evidentiary purposes.[8]   .Within the initial 12-month window for applying outside the country of first filing, US patent attorneys have some latitude to correct errors in the original text of a patent application, rephrase for clarity, and modify other language from the original disclosure or pending claims, under the caveat that any additions or substantive changes will not be entitled to an earlier priority date.[9]

A.   Translation During Patent Litigation

During the litigation phase, translation services are used in a variety of ways. One area where attorneys in US patent litigation may use translation services is in exploiting asymmetric practices in foreign-language documentation to establish grounds for invalidity of an issued patent based on prior art not readily available in English.

> **Example**: Patent applicants in China and Japan tend to be quick to file with their respective national patent offices.   Defensive patent applications (patent applications to document a technology without the intent to obtain a patent ultimately) tend to account for a significant portion of these filings, at least in Japan, where only about one-third of patent applications

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[8] *See* 37 C.F.R. § 1.55(3)-(4); MPEP. §§ 213.02, .04, 214-216.
[9] *See* 35 U.S.C. §§ 112(a), 119; 37 C.F.R. § 1.55.

eventually result in patents.[10]   The volumes and economic incentives appear even greater in China, especially when also considering the patent-like disclosures in some Chinese utility models.[11]   The implication of early filing is that the corpus of Japanese and Chinese unexamined patent and utility model application publications may be a fruitful place to find disclosures of prior art for patent invalidation actions.

In the experiences of the authors with a number of contested cases, even where settlement appears imminent, there is often a need for discovery, depositions, and sometimes still leading to trials, which may involve foreign-language deponents. Discovery often involves vast amounts of documentation, the manual review of which traditionally has been extremely costly.   In our experience and observations, the increased adoption of optical character recognition (OCR) systems tied to machine translation has dramatically decreased the cost of review and triage of large quantities of documents. These systems can save time and effort in determining whether production of particular documents as evidence, or professional translation of those documents, may be necessary or helpful.

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[10] *See Japan and WIPO Have Issued the Following Patent Publications and Utility Model Gazettes*, JURISPLUS (2020), https://www.jurisplus.co.jp/特許公報の種類/ [https://perma.cc/S9JN-8A9R]; Michael Carley, Deepak Hegde & Alan Marco, *What is the Probability of Receiving a U.S. Patent?*, 17 YALE J.L. & TECH. 203 (2015) (suggesting that the comparable figure for the in the United States is reportedly 55.8%).

[11] *See* Rob Sterne, *How China Will Fundamentally Change the Global IP System*, IPWATCHDOG (July 24, 2019), https://www.ipwatchdog.com/2019/07/24/china-changing-global-ip-system/id=111613/ [https://perma.cc/KEG7-A8BK] (including additional comments considering Chinese utility-model disclosures).

B. Requirements for Translated Documents in Patent Prosecution and Litigation

The key requirement in a translated document for use in legal proceedings is that the document is translated accurately. That is, the translated document must reflect what the author actually wrote in the document, as opposed to what the translator believes the author meant to write. In translation for litigation, defects in the document in the source language must be reflected accurately as defects in the target language as well. It is particularly important to maintain the same scope of ambiguity in the target language as in the source language, particularly regarding claim language.[12]

It is also useful if the translated document received by the patent attorney flags potential errors in the source text. This enables the patent attorney not only to discriminate between translation errors and errors in the source text, but also to amend the erroneous text (in some circumstances) or otherwise provide acceptable explanations.

> **Example:** A recent English-language PCT patent application was originally drafted in Hebrew. In the English translation that was filed, however, the word "renewable resource" was frequently misspelled as "renewable recourse."[13] When this document was subsequently translated into multiple languages (Chinese, Japanese, Korean) for the national phase, the translators, following standard industry practice, faithfully translated this phrase to mean "renewable

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[12] Reduction in ambiguity may reduce the scope of the technology disclosed or claimed.

[13] Renewable Energy Barge, U.S. Patent No. 10,633,063 B2 (filed Nov. 30, 2016).

aid," producing confusing documents.[14] It would have been more useful for the translator to inform the attorney of the spelling errors in the English text.

From a practical perspective, it is also desirable that translations be rendered inexpensively, quickly, and conveniently—insofar as the requirements described above are satisfied. Fortunately, new machine translation technologies and other new translation methodologies greatly reduce costs and improve convenience for the patent attorney and are very useful if the attorney is cognizant of the limitations of the new technologies and the risks involved in their use.

Another requirement in the translation process is that data security be maintained, especially in translations for filings, as these seek to protect leading-edge non-disclosed technologies. This is more of an issue than might be imagined: the translation industry is heavily dominated by freelance translators,[15] where even the largest language service providers that service the global intellectual property industry rely nearly entirely on freelancers. It has been our experience that while these firms have in-house project managers, many, if not most, have little direct control over their diaspora of translators around the globe. Translators' data security, including preservation of their clients' confidential or valuable private information, appears to be nearly always on an honor system. As described below, new

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[14] *Compare id.*, *with* 再生可能なエネルギ援助用のバージ船が, Application No. JP2019513605A, *and* 재생 에너지 바지선, Application No. KR20180101349A.

[15] *See* Hélène Pielmeier & Paul Daniel O'Mara, *The State of the Linguist Supply Chain*, CSA Rsch. (Jan. 28, 2020), https://insights.csa-research.com/reports/305013106/MethodologyandInform [https://perma.cc/F84Y-ZZRN] (discussing a Common-Sense Advisory survey of linguists (7,363 respondents) where 75% said they were self-employed, 7% said they worked for language service companies, and 6% worked in-house on the client side).

translation technologies present an increased security risk for sensitive data.

> **Example**: In the direct personal experience of one of the authors in a major case involving Daiwa Bank, an information leak from the language service provider enabled a third party (a US media firm) to identify the translator of some extremely sensitive documents. The third party contacted the translator and offered to purchase copies or summaries of the documents as well as advice on how to remain anonymous when leaking data. It was only the personal integrity of the translator that prevented leaking of sensitive data.

> **Example**: In an private discussion by one of the authors with the president of a small technical translation firm located in Silicon Valley, the company president expressed the need to carefully screen applicants for freelance translation positions, given the potential that unknown "freelancers" applying to her firm might actually be doing so for the express purpose of industrial espionage and to gain a view into ongoing developments in several major Silicon Valley firms known to be her clients.

Another important consideration with translation for litigation in US federal courts, is admissibility under the Federal Rules of Evidence. Similar evidentiary rules may apply also in various administrative proceedings before federal agencies, including the USITC and the USPTO (e.g., PTAB). Together with other proceedings determining validity or infringement of patents in US District Courts, such proceedings are referred to as "patent trials" herein.

It is no exaggeration to say that if a key document, such as a crucial disclosure of prior art in an invalidity proceeding, is unexpectedly disallowed due to a violation of an evidentiary rule, this can be a deciding factor in the outcome of the case. Given the magnitude of the risk of inadmissibility produced by new technologies and structural changes in the translation industry, the balance of this paper

will focus on this requirement. Case studies examples will also be described briefly below.

C.   *Admissibility of Translated Documents in Patent Trials*

It is instructive to review a specific case to gain a view into possible grounds for challenging admissibility of translated documents. In IPR2017-00851, admissibility of competing translations of a prior art document (a Japanese patent application publication cited in support of obviousness arguments) were challenged by the respective opposing attorneys.

The Federal Rules of Evidence ("Rules") challenges included the following:

Rules 801 and 802, as being inadmissible hearsay, due to a certificate of translation being flawed and that the translator was unavailable for cross-examination.

Rule 702(b)-(d), as being inadmissible expert testimony for "failing to be based upon sufficient facts or data, as the product of unreliable principles and methods and for failing to reliably apply sound principles and methods to the facts of the case[.]" That the expert testimony relied on a translation that seemed unintelligible in some places and contained some material errors in meaning was the foundation for an argument that reliable principles and methods were not followed. This rule may also be invoked if there is reason to believe that the objectivity of the translator's product may have been compromised by pressure by counsel or some other reason or if the translation process is unknown or left to an unproven technology.

Rule 604, if a translator lacks qualifications to make an accurate translation, such as sufficient experience or training in the source language, target language, or specialized subject matter described in the substance of a document to be translated.

Rule 403, as being "unfairly prejudicial, confusing and misleading[.]" This rule may be invoked as a basis for challenging admissibility of an exhibit if the poor quality of a translation causes confusion. This rule is subject to broad discretion of a judge. [16]

It is important to note that translated documents, to be admitted as evidence, must be accompanied by a declaration stating that the translation is, to the best of one's knowledge, an accurate translation of the source document.[17] In the absence of such a declaration, the translated document devolves into "hearsay" offered by the party presenting the translated document, subject to definitions and exclusions under Rule 801 and 802 (and likely none of the various exceptions). However, in IPR2017-00851, the translator's certificate itself was challenged under Rule 801 and Rule 702(a)-(d).[18] As discussed below, this is particularly important because, in many large language service providers, the "certificates" are issued not by the actual translators, but by project managers who hire the translators. In our experiences, with many if not most cases, the project managers do not actually have the ability to read the source language material. This obvious deficiency may raise immediate challenges to a project manager's qualifications to make such sworn certifications regarding accuracy.

Structural and Technical Changes in the Language Translation Industry

In recent years, the authors have witnessed the translation industry undergoing several technology-driven

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[16] *Nexeon Ltd. v. OneD Material, LLC*, IPR2017-00851, Paper 9 at 1 and 5 (P.T.A.B. Sept. 11, 2017)*; see also Nexeon*, Exs. 1004, 1061, 1062, and 2002. No ruling was made on any of these challenges – the IPR was terminated before a ruling.

[17] 37 C.F.R. § 42.63(b) (2012) (stating that a foreign translation should be accompanied by an affidavit (i.e., sworn oath before a notary public), or otherwise meet the requirements set forth in 37 C.F.R. § 1.68)*; see* FED. R. EVID. 604.

[18] *Nexeon*, Paper 9 at 5.

transformations, engendering both risks and opportunities for US patent attorneys. These transformations include the following:

- Globalization of the translation industry (emergence of developing-nation translators)
- Rise of artificial intelligence (AI)-based machine translation technologies
- Shared translation memories
- Automated project management systems

II.   GLOBALIZATION OF THE TRANSLATION INDUSTRY

Reduced cost of telecommunications has led to aggressive entry of developing-nation translators into the translation industry.[19] Most notably, translators in China and India are seeking to win a share of the English-language translation industry.[20] The low per-capita GDP of China and India (approximately ¼ and 1/10 that of the USA, respectively)[21] enables substantial benefits in terms of cost, where translators from these countries often charge a small fraction of what is charged by translators based in countries with higher per-capita GDP.

On the other hand, the reduced costs come with some very real risks. While, as a general rule observed in the authors' experiences with higher-end translation services,

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[19] *See* Liraz Postan, *Globalization and Translation*, BLEND (Jan. 13, 2020) https://www.getblend.com/blog/globalization-translation/ [https://perma.cc/2QRP-M53V].

[20] *See Globalization of Entertainment Content Propels Translation Demand*, Indian Language Services (Mar. 7, 2019) https://indialanguageservices.com/2019/03/07/globalization-of-entertainment-content-propels-translation-demand/ [https://perma.cc/4LD9-ZXYK].

[21] CIA, REAL GDP PER CAPITA (2020), https://www.cia.gov/the-world-factbook/field/real-gdp-per-capita/country-comparison [https://perma.cc/WFT5-7BUB].

translations almost always flow into the translator's native tongue (given the inability to fully ensure quality when translating into a non-native language), these new entrants offer services between two non-native languages. The authors have observed, consistent with general expectations, that translation into a non-native language often results in lower quality. Any obvious shortcomings in quality should invite challenges under any of Rules 403, 604, 702, and 703.[22]

However, this statement is not without some controversy. For example, in a recent interview by one of the authors with a patent attorney who runs an agency for translating Japanese patent applications for filing in English, the operator of the agency estimated that 80% to 90% of Japanese-English patent translation for filing is performed by Japanese natives who have learned English as a second language.[23] In has been our observation in discussions in online forums of professional translators that there is some disagreement within the translation industry regarding the effects of inherent asymmetries in skill levels when translating into one's native language versus translating into a non-native language. Notably, in these discussions, translators (and firms that hire them) that engage in the practice of translation into non-native languages argue that it is safe to do so, while those that refuse such a practice argue that translating into a non-native language is irresponsible and severely compromises quality.

Either way, there are some situations where use of a translator for translating into a non-native language does not present substantial risks, such as when translating background information for use solely for reference by the attorney, where precision in expression in the target language is not critically important.

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[22] FED. R. EVID. 403, 604, 702, 703.
[23] Interview with anon. translator. (Nov. 2021).

Example: Institution of IPR2017-02141 was originally denied, given the lack of likelihood that Petitioner would prevail in an invalidity argument that relied on a translation of a specific prior art document.[24] An important factor in the case was the semantic scope of one particular word in the disclosure.[25] The translation, used by both sides, was a Japanese-to-English translation that was translated by a Korean national.[26] The document was full of minor errors telegraphing that English was not the native language of the translator, such as calling a "golf course" a "golf field" instead.[27] While the use of "golf field" instead of "golf course" did not substantially reduce the clarity of the document, nor was it central to the case, this simple choice of words that indicated an obvious lack of familiarity with the most basic English terms of the art was cited multiple times in arguments challenging the translation.[28] Despite this setback, Petitioner commissioned a new translation.[29] The new translation not only corrected the many errors, but also had a different take on a key term that was central to the case.[30] With the new translation, Petitioner challenged the IPR denial.[31] The challenge prevailed: Petitioner was granted a rehearing, and the IPR proceeding was instituted.[32] In the decision granting Petitioner's request for rehearing, the PTAB points out the key factor of why

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[24] Yamaha Golf Car Co. v. Club Car, LLC, No. 2017-02141, Paper 26 at 5–6 (P.T.A.B. June 26, 2018).

[25] *Id.*

[26] Yamaha Golf Car Co. v. Club Car, LLC, No. 2017-02141, Ex. 2001 at 39 (P.T.A.B. Jan. 4, 2018).

[27] Petitioner's Opposition to Motion to Terminate at 6, Yamaha Golf Car Co. v. Club Car, LLC (2018) (No. 2017-02141).

[28] *Id.* at 7 n.1.

[29] Yamaha Golf Car Co. v. Club Car, LLC, No. 2017-02141, Paper 26 at 6 (P.T.A.B. June 26, 2018).

[30] *Id.*

[31] *Id.* at 2.

[32] *Id.* at 4.

it reversed its prior decision: ". . . in order for us to render our Decision, we also had to rely on 'Patent Owner's poor translation of the '053 Prior Art.'"[33] In the rehearing, any expert witness testimony "that even remotely relies on or concerns" the flawed original translations was expressly disregarded.[34]

The physical location of the translator is important as well. Translators living in foreign countries may be non-respondent when summoned for cross-examination, which may further pose challenges or weaknesses in the arguments of the party offering an unavailable translator's translation as evidence. Indeed, it must be noted that in most, if not all, foreign countries a third party cannot be compelled to comply with subpoenas from a US court. The inability to directly examine the translator regarding work processes, the objectivity of the translator, or questions of whether a translation was unduly biased by opposing counsel, may give rise to valid evidentiary challenges under Rules 403, 604, 702, or 703.

> **Example**: In another PTAB trial proceeding, the translator of a key prior art document was requested to appear for a deposition pursuant to 37 C.F.R. § 42.53(d)(1).[35] The party who contracted the services of the original translator had never communicated directly with the translator, but instead had ordered the translation from a large translation firm.[36] Following considerable diligence by the party responsible for making the translator available for deposition, the translator was unavailable, living in Colombia, and he

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[33] Yamaha Golf Car Co. v. Club Car, LLC, No. 2017-02141, Paper 26 at 5 (P.T.A.B. June 26, 2018).

[34] Yamaha Golf Car Co. v. Club Car, LLC, No. 2017-02141, Paper 71 at 8 (P.T.A.B. Apr. 2, 2019).

[35] Petitioner's Motion to Submit Supplemental Information at 10, Quanergy Sys., Inc. v. Velodyne LiDAR, Inc. (P.T.A.B. Aug. 6-8, Nov. 5, 2018) (No. 2018-00255).

[36] *Id.* at 4–5.

refused to participate remotely in a deposition by video conference.[37] This turn of events required that a new translator be hired to render a new certified translation, so that the new translator could appear to defend the new translation from challenges by the patent owner.[38] This required the additional time and expense of locating and communicating with the original translator, requesting leave to produce the new translation, and creating and producing the new translation. In addition, the original translator's unavailability for cross-examination also required a separate series of motions to submit a replacement petition (with references to the new translation), and a supplemental declaration.[39]

Additionally, while there are certainly some exceptions, there is a tendency for non-native translators to speak English less convincingly than native English speakers, because the ability to read and write a foreign language is not necessarily tied to the ability to speak that language convincingly.[40] If the non-native translator has substandard verbal English skills (or even too strong an accent) when cross-examined, this can create other problems

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[37] *Id.* at 3–4.

[38] Quanergy Sys., Inc. v. Velodyne LiDAR, Inc., No. ~~IPR~~2018-00255, Paper 23 at 2–3 (P.T.A.B. Aug. 6-8, Nov. 5, 2018).

[39] *See* Quanergy Sys., Inc. v. Velodyne LiDAR, Inc., No. ~~IPR~~2018-00255, Papers 23, 35 (P.T.A.B. Aug. 6-8, Nov. 5, 2018).

[40] *See, e.g.*, Heidi Byrnes, *Contexts for advanced foreign language learning: a report on an immersion institute, in* DEVELOPING PROFESSIONAL-LEVEL LANGUAGE PROFICIENCY 61, 71-74 (B.L. Leaver & B. Shekhtman, eds., Cambridge Univ. Press illus. ed. 2002); Boris Shekhtman, et al., *Developing professional-level oral proficiency: the Shekhtman Method of Communicative teaching, in* DEVELOPING PROFESSIONAL-LEVEL LANGUAGE PROFICIENCY 119, 119-30 (B.L. Leaver & B. Shekhtman, eds., Cambridge Univ. Press illus. ed. 2002); Tim Caudery, *Teaching high-level writing skills in English at a Danish university, in* DEVELOPING PROFESSIONAL-LEVEL LANGUAGE PROFICIENCY 177, 179-83 (B.L. Leaver & B. Shekhtman, eds., Cambridge Univ. Press illus. ed. 2002).

when attempting to overcome a challenge of the translator's
competence or impeachment of the translator's credibility.

Another impact of the globalization of the translation
industry is that "supply chains" have gotten longer, where
US translation firms often subcontract to offshore translation
suppliers, who then subcontract to other local suppliers.
Often this results in the identity of the actual translator being
unknown. Increasingly, the required certifications are
signed by managers with no knowledge of the translation
process or, worse yet, may be faked. The lack of provenance
of a translated document presents the risk (or opportunity)
for evidentiary challenges.

> **Example**: William Lise, president of Kirameki
> Translations, makes the following report of a situation
> he experienced while interpreting during a deposition:
> "an attorney presented to a witness a very poorly
> translated document with a certification letter
> purporting that a translator personally known to us
> executed the translation. Taking a look at the
> translation, however, its extremely poor quality
> immediately told me that it was not done by that
> translator. We sent off an email to the translator and
> discovered not only that he was not involved in the
> translation, but also that this was not the first time that
> the translation broker-agency had engaged in this type
> of deception. The translation entity involved is one of
> the several large players in the Japanese discovery
> document translation business."[41]

III.   RISE OF ARTIFICIAL INTELLIGENCE-BASED MACHINE TRANSLATION TECHNOLOGIES

New artificial intelligence-based machine translation
technologies such as Google Translate and DeepL are

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[41] William Lise, *Translation Supply Chain Integrity and Accountability*,
KIRAMEKI   (June   19,   2020)   http://www.kirameki-
translation.co.jp/supplychain.html. [https://perma.cc/ZE56-5VUA].

increasingly amazing in their ability to produce smooth, natural-sounding English from various source languages. These tools are able to produce convincing translations essentially instantaneously and without cost, enabling US attorneys to get the gist of documentation, especially prior art, without the time or expense of a human translator. The outputs of machine translation (MT) have appeared good enough to some US language service providers to convince them to change their business models to move these tools from a supplementary role as a peripheral tool into a central position in their translation processes. In so doing, these service providers are moving to a model where "translators" are being replaced with "bilingual editors" who are expected to perform "post-MT editing," as has been observed in the experiences of the authors.

The efficiency of machine translation is impressive and produces very real benefits in both cost reduction and the quick turn-around that is often critically important to attorneys. In situations where quality is of less importance, or where bilingual editors can be leveraged, some meaningful efficiencies may be realized without significant risk of other problems. Nevertheless, this approach to translation involves a host of issues of which attorneys generally should be aware, including the following:

1) Artificial intelligence machine translation (AIMT) works on a context-driven inferential basis. The translations AIMT produces are the antithesis of "translate what the author actually said, not what you think he ought to have said" rule of translation for legal proceedings. While the results often read smoothly (at least for simple documents), AIMT (based on its familiarity with similar sentences from other documents) is known to, often literally, add words and sometimes entire phrases not found in the source text or omit phrases that it is unable to make work smoothly with a sentence. The result is often a deceptively smooth-sounding sentence that deviates greatly from the original text. It is

important that the user of machine translations understands the limitations of AIMT.   Despite their deep limitations, unedited machine translations have been known to appear as exhibits in patent trials.

> **Example**: In an experiment by one of the authors of this paper, a leading online AIMT, DeepL,[42] was given a short sample of business correspondence to translate from Japanese into English.   The sample included a statement that a corrected invoice would be sent, followed (in Japanese, albeit in somewhat nonstandard orthography) by: "I apologize [for my error]" (大変しつれいいたしました). Perplexingly, the translation that was produced for this apology instead read "We are very happy to receive your invoice."   Here the translation tool appears to have keyed off of a few words in the source language and combined them with the context of the previous paragraph to produce an entirely outlandish result devoid of accuracy or context.

2) In some major US-based language service providers (translation agencies), machine translation is displacing the highly skilled translator, enabling the translation agency to use lower-paid bilingual editors instead. In discussions in online translator forums, several respected patent translators (Japanese-English) complained to us that fixing flawed machine translation outputs is often far more time-consuming than straight translation and have therefore withdrawn from such work as financially unrewarding. Inexperienced translators, on the other hand, report feeling like supermen (as one translator put it), given the increased efficiency (when compared to the normal productivity of an inexperienced translator). While machine

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[42] *Why DeepL?*, DEEPL (2022) https://www.deepl.com/en/whydeepl [https://perma.cc/U7G4-EFLM] ("Using a novel [neural network] design, DeepL networks learn to grasp the subtle meanings of sentences and translate them to a target language in an unprecedented way").

translation can make a slow translator fast, it cannot make a poor translator good. Unfortunately, as is apparent from discussions in online forums for professional translators, the deployment of this technology in many major language service providers is causing top-tier translators to abandon work from those language service providers, to seek work directly from attorneys and law firms, or through boutique translation firms that emphasize quality over cost. The withdrawal of experienced translators for whom AIMT is financially disadvantageous presents a follow-on risk to the US patent attorney as the translation industry skews toward translators with less skill: studies show that less-skilled translators are often profoundly unaware of their limitations while making more numerous and significant errors than more-skilled translators.[43]

The post-MT editing approach involves other risks to quality as well. It takes considerable diligence for an editor to match up sentence elements between an MT translation and the source text to verify that the translation is actually correct. If the word choices in the machine translation can be termed "close enough," it is only through discipline that an "editor" will make a change to a slightly better term. This problem is exacerbated by the fact that the AIMT has been trained using documents translated by many different humans using incompatible styles (think Rembrandt vs. Pablo Picasso); it has been our observation that the MT produces inconsistent styles and word choices, even for nearly identical input texts. Unlike the translation process (where the translator chooses what he or she feels is the optimal term to begin with and feels ownership of the product), with machine translation there are financial incentives to let suboptimal word choice slide in "someone else's" translation, which can be anticipated to result in a

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[43] *See generally* Stephen Fitzmaurice, *Educational Interpreters and the Dunning-Kruger Effect*, 28 J. Interpretation 1 (2020).

tendency for errors and inconsistencies to remain in the output. AIMT may take a term that is used repetitively in a source document and loosely inject synonyms instead throughout the translation. Such inconsistencies in simple word choices, particularly in the case of translations of patent applications, prior art, or other legal documents for filing, can result in unintended (and often adverse) outcomes.

Of particular concern is the inability of AIMT, with its emphasis on producing idiomatic expression, to evaluate the full semantic scope of expressions in the source language and then deliberately choose awkward and non-idiomatic expression, if necessary, to preserve in the translated sentence the scope of ambiguity found in the source language. While in theory this can be corrected during editing, in practice fully analyzing the semantic scope of the source text and restructuring the target sentence is very labor intensive, requiring a level of discipline and awareness that may not be present in the lower-compensated bilingual editor, especially if the AIMT has produced a smooth-reading translation that, at first glance, seems correct.

3) It is unclear how quickly machine translation will advance further. In a personal interview with a Google Translate project manager in 2015, it was reported that Google Translate had already consumed the entire corpus of existing bilingual patents at WIPO, and that further progress would be at a much-reduced rate. More importantly, as MT tools are becoming more widely used, machine-translated patent applications (with various degrees of editing) are being filed, and the artificial intelligence engines are starting to consume their own output, which may impede—or even reverse—quality improvements in the future.

> **Example**: In recent experiments by one of the authors
> with Japanese-English translation using DeepL, within
> a single paragraph, the same Japanese word was
> translated variously as "shaft," "rod," "axis," and

"axle" (no doubt reflecting different choices made by the various human translators of the materials from which the AI-based algorithm was taught). While in casual correspondence these inconsistencies might not be a problem, confusion over such inconsistencies in patent documents is more than a mere inconvenience when it can actually make the translation unfit for use. Such inconsistent terms may be understood in a legal setting to refer to separate and distinct elements, rather than the same element or class of elements. For example, inconsistencies in choice of terms can cause a pending patent application to be rejected as unclear, lacking written description, or both.[44] In litigation, a prior-art translation that would have been unfit for filing in this way invites various challenges, both in terms of admissibility and on the merits of what the translation actually shows on its face or would have taught to a person of ordinary skill in the art.

4) Concerns regarding the use of machine translation extend beyond only quality issues: another important issue for attorneys is confidentiality. While industry leaders such as Google Translate and DeepL make strong assurances that data remain private if you use professional versions, the statements can be confusing.[45] The free version of Google Translate involves sharing data.[46] Confidentiality is enough of a concern that the USPTO has explicitly prohibited translators from using machine translation even as reference tools (beyond an extremely limited scope) when translating ISRs.

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[44] 35 U.S.C. §112.

[45] The meaning of the statement by Google Translate is not entirely clear: "We will not make the content of the text that you send available to the public, or share it with anyone else, except as necessary to provide the Cloud Translation API service." *Data Usage FAQ*, GOOGLE TRANSLATE, https://cloud.google.com/translate/data-usage [https://perma.cc/V3XR-PXFJ].

[46] *See id.*

5) Of particular concern is the risk of (or opportunity for) a challenge to admissibility. If a machine translation appears as evidence, who takes responsibility for its quality? Who can defend it from an evidentiary challenge? Is the translation engine "qualified as an expert by knowledge, skill, experience, training, or education" under Rule 702?[47] The inconsistencies introduced through the use of AIMT produce the risk of an evidentiary challenge at least under Rule 403.[48] If the highly qualified and experienced professional translators of yesterday are replaced by inexperienced low-cost "editors," can these bilingual editors withstand cross-examination?

IV.   SHARED TRANSLATION MEMORIES

Related to machine translation (but not so prone to the contextual inferential errors such as in the example above) is the use of a tool such as a "translation memory."[49] A translation memory accumulates in a database sentences translated by a translator over an extended period of time (sometimes even over decades).[50] While the translator is translating a particular sentence, the translation-memory tool examines the database for any sentences that are similar to the sentence being translated.[51] If such a sentence is found, it is displayed, with differences (if any) from the earlier sentence highlighted, allowing the translator to make modifications accordingly.[52] This can be quite useful when translating families of documents that include identical sections (such as when translating a family of closely-related

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[47] *See* FED. R. EVID. 702.
[48] FED. R. EVID. 403.
[49] *See generally* Harold Somers, *Translation Memory Systems*, *in* COMPUT. & TRANSLATION: A TRANSLATOR'S GUIDE 31 (Harold Somers ed. 2003).
[50] *See id.* at 31, 33.
[51] *See id.* at 31.
[52] *Id.* at 37–40.

patent applications, or office actions that use the same boilerplate), ensuring consistency of expression between related documents.

While an individual translator using a private translation memory stored on his or her own computer does not present substantial increased risk to an attorney who hires that translator, modern translation-memory systems have shifted to being *shared* translation memories.[53] Shared translation memories often reside on centralized servers shared across a group, a translation firm, or even wider.[54] This is useful because it allows cooperation between multiple individuals and some degree of consistency between families of related documents.[55]   However, confidentiality is again an issue, where contents of entire documents (even sensitive patent applications and other privileged documents) appear in servers that are accessible by broad ranges of freelance translators who are only loosely affiliated with the translation firm.[56] If such translation firms do not also invest in information security as much as the attorneys and law firms who hire them, such confidential information may be subject to even broader exposure, including unauthorized access and unintentional disclosure (e.g., leaks).

As with machine translation, shared translation memories will have consistency issues, given inputs from

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[53] *See*, *e.g.*, *Translation Memory*, TRANSLATION PLANET (2021), https://www.translationsplanet.com/translation-memory/ [https://perma.cc/BXW3-DQXM].

[54] *See id.*

[55] *See id.*

[56] Usually, the servers store these as individual sentences, to be available when similar sentences are encountered. However, in the author's experience, the sentences are time stamped, so they can be sequenced if there is a data breach. Note that, by design, the translated sentences are made available to third parties for use in translation. Sometimes individual sentences, even acontextually, can carry privileged information or personally-identifying information, for example.

multiple translators using different styles and word choices. Reconciliation among the wordings of different translators becomes challenging and time consuming, causing the more experienced translators to avoid the use of these systems, leaving them to be used by the less experienced translators. This results in the same risks and opportunities for the attorneys as discussed in the Machine Translation section above.

V.   AUTOMATED PROJECT-MANAGEMENT SYSTEMS

Another recent technological shift in the translation industry that can affect patent attorneys is the rise of automated project management systems. Historically, project managers in language service providers have made relationships with their stables of freelance translators for each language, learning their strengths and weaknesses (such as the technologies wherein the translators are skilled or not, types of projects that are good fits for the individual translators, etc.). This allowed the project managers to match a project to the translator who is the best fit for the project. In many if not most major translation firms, however, this approach has been replaced with the greater efficiency of an automated project management system to match jobs to translators, and to handle logistics of assigning tasks and receiving completed projects, with little or no involvement of the project manager.

While such a system is efficient and economical (for the language service provider, that is), in practice, the system is designed around having a group of translators who satisfy minimum skill requirements. When a job is to be placed, instead of a knowledgeable project manager selecting the translator who is the best fit, a mass email notification is sent to all translators that are considered to satisfy minimal qualification levels. Whoever responds first is assigned the job—regardless of goodness of fit. Thus, rather than the

same translator being assigned each document in families of patents over time (ensuring consistency in word choice and style, and the improved quality that comes from increased knowledge of the technology), each document is assigned individually on a first come/first-served basis.   As one experienced translator put it, "It's not who's most qualified, it's whoever 'buzzes in' first that gets the job."[57]

More concerning than the lack of continuity is that the commoditization of translators changes the basis of competition from technical knowledge and expertise to price. While these systems attempt to incorporate quality-scoring systems as well (to weed out unqualified translators), automation of translation-quality assessment is difficult, so the system devolves to measuring relatively unimportant or artificial metrics.

The result of these automated project management systems, as with the technological changes described above, is a greater opportunity for the patent attorney to challenge translated documents. For example, the automated project management systems do not assign translation projects based on who would be most likely to be qualified under Rule 604, but rather on the basis of who is least expensive and most available (able to "buzz in" first) at a given moment.[58]   A translator with degrees in English and translation may be able to render a grammatically correct translation that reads smoothly. However, a lack of technical training or experience in the relevant field (that is, the lack of the ability to read and interpret a document from the perspective of a person having ordinary skill in the art) may lead to serious errors in understanding that subsequently will be reflected in the translated document without being immediately apparent to the attorney or court that reads the translated document.

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[57] Interview with anon. translator. (Nov. 2021).
[58] FED. R. EVID. 604

Example: In a patent-infringement hearing regarding rechargeable-battery technology in which one of the authors took part, the interrogating attorney questioned a Japanese witness about a technical characteristic of one of his company's products accused of infringing an asserted patent. The characteristic in question was a characteristic that was pivotal in assessing whether or not the accused product infringed on petitioner's patent: "Do you know the specific surface area of the battery electrode?" The lead interpreter (a highly experienced and respected linguist, albeit lacking training in science or engineering) interpreted this question, quite reasonably, as "Do you know, specifically, the surface area of the battery electrode?" The check interpreter,[59] having been an engineer before becoming an interpreter, was able to able to identify "specific surface area" as a term of the art with a specialized meaning in context. The contextual meaning, likely unknown to most language professionals who have not studied related sciences in depth, refers to "total surface area per unit mass." This allowed the check interpreter to correct the defective interpretation to instead include "specific surface area" as a technical term. Had the check interpreter not had an extensive engineering background to supplement his knowledge of both languages, the record would have become extremely confused, with a fundamental disconnect between the attorney and the witness regarding a pivotal issue in the case. While a discussion of interpretation is outside the scope of this article, this real-world example is still illustrative of the need to ensure that the translator that is hired to translate technical materials has enough of a technical background to approach the level of ordinary skill in

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[59] Frequently depositions and hearings that involve "oral translation" (interpretation) involve a lead interpreter provided by one party, and a second interpreter, known as a "check interpreter" that is provided by the other party to ensure correctness and objectivity of the interpretations rendered.

the art with respect to the translator's understanding of
technical concepts that would be lost on a layperson.

In another related approach to translation, recently a
firm has appeared that offers nearly instantaneous "human"
translations. The approach taken by the firm is to divide a
document into individual sentences for translation by dozens
or hundreds of translators, some of whom may not be subject
to any vetting, in some cases of crowdsourcing. Translators
may be allowed to claim individual word-sized or sentence-
sized micro jobs, to translate the sentences in parallel,
sometimes not even having the ability to view each other's
work to try to deal with consistency issues. A more senior
editor may then cobble together the results produced by the
individual translators. As this firm boasted, in a personal
discussion with one of the authors, that it has literally
thousands of translators from all over the world who have
signed on as services providers for these micro jobs, it is
unlikely that there has been any vetting whatsoever of the
translators who participate in this "crowd-sourced"
approach. It is concerning that, given, the low-commitment
nature of the micro job work, combined with the very low
barriers to entry, lends itself to casual work by part-time,
inexperienced translators who may be unavailable or
unpresentable for depositions. By their nature, micro jobs
can be expected to be unappealing to translators who have
more experience, who seek for both higher levels of
compensation and the more in-depth understanding of the
technology and context that can only derive from translating
much longer texts. This approach has all of the issues with
consistency and confidentiality described above, while
precluding the translators from gaining an intelligible
understanding of the document as a whole. It is also
particularly susceptible to an evidentiary challenge under

any of Rules 604, 702, 703, or Rule 801,[60] given the group-translation approach with no single identifiable "translator."

Given the lack of continuity of translators produced by these systems, in some language service providers, it is the project manager who signs the translation certificate.[61] In such a case, one can anticipate an evidentiary challenge to prevail.

> **Example**: In a recent review of cases in front of the PTAB, a certificate attesting to the accuracy of a translated document was found to be signed by a project manager who had no personal familiarity with the relevant source language, and little knowledge of the translator who actually performed the translation, nor of the "principles and methods" used to render the translation.[62]

VI. IMPLICATIONS FOR PATENT ATTORNEYS

The discussion of translation technologies and practices above has several major implications for US patent attorneys:

Modern machine translation can provide an extremely quick and convenient (albeit quite blurry) view into foreign-language documentation, which is particularly useful in evaluating foreign-language prior art or providing a "gist" translation a described above to enable the attorney to identify documents of interest without paying for more reliable translations.

When there is the need to translate a document that may be critical to a case, however, it is important to verify the identity and suitability of the specific individual

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[60] FED. R. EVID. 604, 702, 703, 801.

[61] This may also be motivated by a desire to keep the actual translator "anonymous" to prevent the translator and attorney from working together directly on future projects.

[62] Specific reference redacted for reasons of privilege.

translator who is to render the translation. This is important even when using a major language service provider.

Identify what qualifies a translator as an "expert." If there is a risk that a translation will be challenged, make sure your translator satisfies the qualifications. If a document offered by opposing counsel is problematic, challenge the document if the translator appears to lack the necessary qualifications to be an expert witness, or if the translation on its face appears to use unreliable methods or techniques.

How experienced is the translator?

How proficient is the translator in the source and target languages?

Does the translator have translation experience—and preferably industrial experience and/or formal education—in the relevant art, in addition to experience and/or training in translation alone?

What translation process will the translator be using (specifically guarding against the use of machine translation and group translation memories)?

If the translation is of a prior-art reference, or of a document having other technical and/or legal significance, would the translator be able to appear for a deposition/trial if the translation is challenged? Would the translator "present well" (with full credentials, confident presence, fluency in verbal expression of spoken English, etc.) in a deposition?

If working through a language service provider, verify that the project manager knows the translator, and that only the actual translator will sign any certificate of translation.

Request the translator to explicitly identify errors in the source document, to facilitate later corrections if the translation is for prosecution, or to guard against challenges if the translation is for litigation.

In patent invalidity proceedings, it may be useful to challenge admissibility of translated documents or expert

testimony relying thereon, by raising objections as may be appropriate under Rules 403, 604, 702, 703, 801, 802, or equivalent evidentiary rules where applicable.[63]

Verify that the translation certificate of any translation submitted by opposing counsel was actually signed by the translator (rather than by a project manager who had little involvement in the actual translation process or no knowledge of the source language) and raise a hearsay objection if the certificate is signed by other than the actual translator.

A qualified and experienced translator can be used to identify defects in a translated exhibit, as the basis for an evidentiary challenge.[64]

VII. NEW STRATEGIES FOR PATENT ATTORNEYS

An awareness of the susceptibility of translated documents to challenges allows patent attorneys to develop new litigation strategies.

> **Example**: A translator of a key exhibit in a patent infringement case was issued a subpoena to testify regarding the translation process he used, to identify whether or not he had been unduly biased by counsel (an evidentiary challenge to the exhibit). Given the extremely aggressive nature of the subpoena (demanding that all computers, cell phones, etc., of the translator be surrendered for forensic analysis), the translator contacted the relevant attorney for relief. The attorney successfully had the subpoena quashed. The translator was later informed that the result of the translator not appearing to defend the translation, however, was that the translated document was

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[63] FED. R. EVID. 403, 604, 702, 703, 801, 802.

[64] *See, e.g., id.* 702.

deemed inadmissible, presumably as unreliable hearsay.[65]

> **Example**: In a patent infringement case in front of the Western District of Wisconsin, plaintiff identified a suspected translation error in a prior art reference submitted by the defendant as part of an invalidity argument. Either during, or immediately prior to, the trial, plaintiff informed defendant of its intention to challenge admissibility of the document. Defendant rushed to bring in the translator (from vacation in Mexico) to discuss the translation. After an informal meeting between plaintiff, defendant, and the translator, plaintiff declined to file the challenge immediately, while reserving the right to do so later. (Presumably, this is because the translator presented well, and plaintiff determined that the translator would be able to successfully defend his translation if challenged.) Without the challenge, however, there was no opportunity for defendant to respond decisively to the challenge. Defendant reported its belief that if the translator returned to his vacation, plaintiff would use this opportunity to launch the challenge unopposed. The translator spent the rest of the trial in reserve in the witness ready room, to ensure that this key exhibit would not be challenged.[66]

VIII.   FINAL NOTE: DEMAND QUALITY

IP litigation is an industry where cases can be won or lost based (quite literally) on the exactly right translation of a single word, the presence or absence of a comma, the proper use of a conjunction, or an inference about the direct object of a sentence.[67] In such an industry, it is incumbent on the attorneys to demand the highest quality translations possible.

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[65] Personal experience of one of the authors.
[66] Personal experience of one of the authors.
[67] *See* Yamaha Golf Car, No. 2017-02141, Paper 21 at 5-6 (P.T.A.B. June 26, 2018).

Example: In a personal email correspondence of one of the authors with a high-level manager in a major international language service provider that services the IP industry in particular, during a discussion about the use of an automated management system that assigns jobs to any of a stable of translators with a minimum required skill level rather than assigning the job to the specific translator that is the best fit, the manager made a statement to the effect that "this is the sad business reality. In the end it is all driven by the market. If the market does not demand a higher quality level, or is unable to discriminate between outputs of more- and less-qualified translators, it would be a poor business decision to use any other system."

If attorneys want unimpeachable translations, they must go through the effort of demanding them. Otherwise, key documents may end up inadmissible, or "minor" translation errors may end up being the deciding factors in major cases, in the end potentially costing the losing party orders of magnitude more than the price differential above the lowest translation services bidder in a race to the bottom.

IX.   CONCLUSION

New translation technologies and globalization of the translation industry can be expected to reduce the cost of translation and improve accessibility to foreign-language documentation—but at what cost? Attorneys, by understanding the limitations of the new translation technologies and by being diligent in taking a few simple steps to ensure proper translation practice, can carry out their professional responsibility to mitigate risks of breaching confidentiality, and to avoid plausible challenges to admissibility of translated documentation. Moreover, a basic understanding of the limitations of translation processes can arm attorneys with the ability to challenge and disallow poorly translated exhibits from opposing parties.