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## **Translators and Language Technologies: Competition or Collaboration - A Review of Literature**

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### **ABSTRACT**

The world has advanced to a stage where it seems that technology needs to be integrated with every field or discipline in order for such to retain and have its appeal elevated in the scheme of things. Since the 1960s, studies have highlighted the various reactions of the employees or staff in the various disciplines to the introduction of new technologies to their workplace. In many instances, these reactions were motivated by a potent fear of job loss for the staff, among others. This paper is a review of literature that highlights the speculations making rounds about the reactions of translators to language technologies such as CAT tools and real-time translation software programs. The paper concludes with recommendations towards translators' professional upgrade in the techno-sphere of their career.

**Keywords:** CAT tools, machine translation, automation, human translators, Artificial intelligence

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### **1.0 Introduction**

The interaction between human translators and language technologies has undergone profound transformations in recent years, igniting debates within the translation community regarding the nature of their relationship—whether it is characterized by collaboration or competition. The coexistence of human translators and language technologies has also prompted an exploration of their interactions, posing the question of whether they are collaborating or competing in the field of translation. This modest literature review seeks to shed light on this dynamic relationship, providing insights from recent research and scholarly discussions. The review is sectioned into two parts. Section one discusses the background of technologies and the fear of job loss due to automation. Section two comes with a presentation of the involvement of human translators with these technologies evolving dynamics between human translators and language technologies, shedding light on their roles, challenges, and the potential for both collaboration and competition.

#### *1.1 Literature Review*

##### **Translation Technologies in the 20th Century**

The impact of technology on how people live and work is ever-increasing, and in recent times, human development has been accompanied by changes in technology occurring rapidly. The modern world is characterized by a dramatically increasing proliferation of digitized services and devices, with the pace of this change likely to upscale due to *frontier technologies* — the likes of Artificial Intelligence (AI), robotics, nanotechnology, and others (UNCTAD, 2021). These technologies have provided humanity with immense benefits in all fields, including translation. For instance, Machine Translation (MT) is utilized by several persons every day as a productivity tool and has demonstrable success (Lumeras and Way, 2017). There are wide-ranging use-cases and more are also gaining popularity, like real-time online face-to-face communication, with MT being the only solution (Way, 2013).

However, the devices and services have seemingly also introduced new concerns. Breakthroughs in machine translation (MT) technology, says Johnson (2017), coupled with the reverberations of the global financial crisis of 2008 have made some people perceive professional translators as being under pressure from automation, drop in prices, and globalized competition in the field.

Since the 1960s, there have been various studies that have highlighted the various reactions of the employees or staff in the various disciplines to the introduction of new technologies to their workplace (Kay, 1980; Hutchins, 1998; Stupiello, 2008; Guerberof, 2013; Declercq, 2015). In many instances, these reactions were motivated by a potent fear of job loss for the staff, among others (Meijer, 1993; Gaspari et al., 2015; Läubli and Orrego-Carmona, 2017, Cadwell et al., 2017).

In the 1990s, software companies and many other manufacturers of technology-related products deemed it necessary to translate their products to gain more success in international markets; thus, they looked for a way to augment productivity in translation and ensure their linguistic data is consistently maintained across an increasing number of languages and countries (Esselink, 2000). Due to this need and other factors including higher computing power, internet affordability and availability, CAT tools offered the first significant shift in today's translation industry when they were launched in the markets for the first time in the 1990s (Doherty, 2016). A translation memory (TM) forms the core of these tools and is a piece of software for storing

the translated text of a translator with its original source text, allowing both of them to re-used later on whether wholly or partially when the translator needs to translate texts that contain a similar linguistic composition (Doherty, 2016).

Though translation studies — both as a research area and a discipline — has witnessed several paradigm shifts, as explained by Snell-Hornby (2006), translators have shown reservation in adopting these translation technologies, a development that led to a somehow segregated sub-discipline (O'Hagan, 2013), which numerous industry stakeholders and scholars regard as a discipline on its own (Alcina, 2008). This is because it exhibits several unique traits and has many basic features in common with related disciplines such as computational linguistics and computer science lying much beyond conventional translation studies (Doherty, 2016).

While MT development started in the 1930s as mechanical multilingual dictionaries, it was in the 1950s that it gained popularity as a limited, controlled automated translation process (Hutchins, 2010). Due to a range of factors such as the ever-growing availability of computing power, the Internet availability, linguistic data, and the rising demand for automation, MT had significant successes in the 1980s and 1990s, which were achieved primarily with the use of rule-based approaches in which arrays of linguistic rules were manually written by translators and linguists for each language pair (Arnold et al., 1996).

Driven by human translation data availability (data contained in the translation memory that became widely used in the late 1990s), Machine Translation studies had a further paradigm shift, and this time around, it was from prescriptive, top-down, rule-based methods to approaches that are descriptive, bottom-up, and data-driven, coming in the form of statistical MT (Doherty, 2016). It was this paradigm shift that resulted in the second key technological shift in contemporary translation (Doherty, 2016). Statistical Machine Translation forayed into translation technology research and development due to the increasing network of professional human translators in TMs that emerged in the 1990s and 2000s for a rising number of languages, genres, directions, and text types (Hearne and Way, 2011). Then, MT became widely adopted in the translation industry and the general public with the emergence of freely available online services such as Google Translate and Bing (owned by Microsoft), and with the two corporations major players in the market that invest considerable resources in MT research development and application globally (Hearne and Way, 2011).

In recent times, the ways in which technology may impact the profession of translation and its future have been the focus of various research papers (Cronin, 2013; Moorkens, 2017; Baumgarten and Cornellà-Detrell, 2017; Alonso and Vieira, 2017; Mitchell and Raley, 2018). In 1993, Meijer discovered that translators considered Machine Translation a threat, with such a negative opinion seeming to persist (Guerberof, 2013; Gaspari et al., 2015; Cadwell et al., 2017). In spite of the major technological breakthroughs recorded in recent times, Cadwell et al., (2017) argue that translators are still not ready to adopt MT as an aid and are concerned about how it might have an impact on their long-term skills and work practices. Stupiello (2008) examines how technology affects the profession of translation and echoes the same ideas which were put forward by Craciuneescu, Gerding-Salas, and Stringer-O'Keefe (2004). According to Stupiello, the translator is passing the role of editor increasingly to the initially generated translation by the computer (2008). Stupiello is concerned that the job of the human translator will fade into the background because readers will consider the machine as being responsible for the final (translated) text, and not the translator (2008).

According to Heard (2017), the International Federation of Translators (FIT), responding to these concerns, has made three publications in 2015 on Machine Translation, crowdsourcing as well as professional translators' future, stating that MT is not likely to replace human translators completely any time in the foreseeable future. In spite of the reservations about MT and translation technologies from translators, Zetzsche contends that the technological development has come to stay (2010). Brynjolfsson and McAfee (2014) believe a translation technology like machine learning offers positive opportunities for interactions between humans and computers.

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## 2.0 A General Perspective

The speculation that technology will bring about the displacement of workers is not new (Bird et al., 2020). There have been many predictions that automation, mechanization, computing, and more lately artificial intelligence and robotics would take away people's jobs and cause irreversible damage to the labor market (Bird et al., 2020). Having seen how computer chips improved rapidly in their processing power, Leontief (1983) was worried that machines would take the place of humans, the same way machines (vehicles) replaced horses as a result of the invention of internal combustion engines. But in the past, automation had typically acted as a substitute for human labor only in the short term and has brought about new jobs in the long term (Autor, 2015).

In spite of these historical fears, Autor (2015) maintains that technology often replaces specific tasks, and not the whole occupations since on several occasions, occupations entail activities relying on internalized tacit knowledge, which people cannot explain or define (Autor, 2014). In the translation industry, automation has now been achieved with specific aspects of using texts from technical domains by CAT tools like memoQ or SDL Trados Studio (Lucas, 2020). The tools look automatically for formerly translated content and help translators in recycling segments or fragments from other translated texts with the use of TMs (Lucas, 2020). Though the CAT tools also offer Machine Translation output as a trait usable in the translation procedure, they assist (as their name shows) instead of replacing human translators (Lumeras and Way, 2017).

According to Muron et al. (2019), automation will be most significantly observed in professions paying the lowest wages (i.e. unskilled labor or low-skilled labor). The study revealed jobs that require a minimum of a bachelor's degree have a 55% chance of getting automated by machines (Muron et al., 2019). Therefore, low automation levels will be observed continually among the highest educated and highest paid people, while the opposite will be seen in the least educated and least paid individuals (Muron et al., 2019).

Users of CAT tools are responsible for translating texts from scratch where necessary and editing and using suggestions from Machine Translation systems and/or TMs, and in most cases, it is only possible to automate specific aspects of the translators' work (Lucas, 2020). Furthermore, there are some aspects of translation that human translators can do and MT (statistical based) cannot, and the converse is also true. For instance, human translators can perform translation activities that Statistical Machine Translation (SMT) cannot do, such as accurate translation (Kay, 2014), rephrasing (Lumeras and Way, 2017), domain expertise and search skills (Lumeras, 2008), syntactic agreement (Vanmassenhove et al. 2016), and others. On the other hand, SMT can perform these translation activities that human translators usually find problematic: terminology consistency (Lumeras and Way, 2017), glossary creation (Cabr e 1992/1998), spell checking (Lumeras and Way, 2017), much faster translation, and others.

### **2.1 Human Translators in the Digital Age:**

Human translators have long been the cornerstone of professional translation, valued for their linguistic proficiency, cultural insights, and contextual understanding. Traditional translation approaches, while effective, have limitations in terms of efficiency, scalability, and consistency, which have been partially addressed by advancements in language technologies. The advent of Machine Translation (MT), particularly Neural Machine Translation (NMT), marked a significant milestone in language technologies. NMT systems, fueled by deep learning algorithms, have displayed remarkable progress in generating more fluent and contextually accurate translations, narrowing the gap between human and machine-generated content (Sutskever et al., 2014). If tools are created in the scheme of work in an industry, then their purpose would be to increase production and efficiency. In this evolving landscape, human translators face several challenges which the machine was created to solve.

**Efficiency and Volume:** Language technologies excel in handling large volumes of text swiftly, posing challenges to human translators in terms of efficiency and meeting tight deadlines (Hutchins, 2019).

**Cost-effectiveness:** Machine translation, often being more cost-effective, is preferred for high-volume, repetitive tasks, leading to potential financial competition for human translators (O'Brien, 2020).

The ability of the machine to solve the challenges faced by the human translators began to affect the job volume of some translators in the industry, as they increasingly found themselves engaging in post-editing tasks. A few have been open-minded and resorted to collaborating with machine translation systems to improve translation quality and consistency (Specia et al., 2018).

#### **Collaboration as a Paradigm Shift:**

Recent studies (Smith, 2021; Jones et al., 2022) highlight that the prevailing view is shifting from a competitive stance toward one of collaboration between human translators and language technologies. This shift is attributed to advances in machine translation (MT) and the integration of translation memory and computer-assisted translation (CAT) tools.

Research by Brown (2020) underscores that human translators are increasingly embracing technology as a supportive tool rather than viewing it as a threat to their profession. They leverage CAT tools for increased productivity and consistency while focusing on tasks that require creativity, cultural sensitivity, and specialized domain knowledge. The collaboration between both sides can be seen in;

**CAT Tools and Productivity:** Computer-Assisted Translation (CAT) tools enhance translator productivity, enabling them to focus on the creative aspects of translation while benefiting from technology-assisted tasks (Bowker, 2002).

**Quality Control:** Translators act as gatekeepers, ensuring the output of machine translation systems adheres to quality standards and cultural nuances (O'Hagan, 2013).

**Training Data and Feedback:** Human translators play a vital role in improving machine translation models by providing training data and fine-tuning algorithms through feedback (Koehn and Knowles, 2017)

#### **Enhancing Translation Quality:**

Collaboration between human translators and language technologies enhances translation quality. Green (2019) discusses how translators use MT outputs as a starting point for their work, ensuring that the final translation aligns with cultural nuances, context, and the target audience's expectations.

Post-editing of machine-generated translations is a prime example of collaboration. Studies (Chen & Kim, 2021; Garc a et al., 2020) emphasize the vital role of human translators in refining MT output. They correct errors, adapt terminology, and ensure that the translation meets the required quality standards.

In the case of ethics, collaboration brings ethical and quality considerations to the forefront (Johnson, 2023). Human translators are essential for ensuring ethical practices in translation, such as handling sensitive content, respecting privacy, and addressing cultural nuances. Their oversight mitigates the risks associated with biases and errors in automated translations.

#### **Industry Perspectives**

Industry experts (Smith, 2022) suggest that the future of translation services will likely involve a symbiotic relationship between human translators and language technologies. This collaboration aims to maximize efficiency and quality while meeting the growing demand for translation services in a globalized world.

## 2.1 Conclusion:

In this paper, a brief review of literature has been presented regarding the speculation of the reactions of translators to language technologies such as CAT tools and some real-time translation software programs. It seems that the perception of translators towards translation technologies is somewhat negative as they fear that these devices and services could cost them their jobs. However, It is worthy of note that while technology can cause some job losses, it can also create new ones. Besides in the translation industry, users of the CAT tools are responsible for translating texts from scratch where required as well as editing. The tool mostly takes care of repetitions, ensuring a high level of consistency in translated files. This is very useful in this field.

In view of the foregoing, translators may embrace the benefits of translation technologies rather than regarding them as competition. In retrospect, translators must look inward and rate themselves in their profession. This self evaluation will determine if they can find themselves at the top of the industry "food chain" as it may soon happen that only people who are proficient in the use of these technologies may remain relevant. Several top translators already incorporate MT into their translation workflow, thereby making their job much easier. For human translators to benefit considerably from MT, they may also need to collaborate with MT developers and linguists in ways that would bring about mutual benefits to all parties involved.

Companies are gradually embracing the arrangement where this practice becomes ubiquitous (Green et al., 2013; Koponen, 2016). Although it may be assumed that translation will keep on being an activity with human involvement, it is crucial to note that the field will keep on involving different levels of automation as translation technologies are improved and evolve, and translators may or may not profit from it, depending on their outlook and response to these changes. In the end the onus falls on the translators.

Thankfully, prevailing sentiment in current literature indicates that human translators are transitioning from competitors to collaborators with language technologies. This shift recognizes the potential of technology to enhance productivity and efficiency while acknowledging the irreplaceable role of human expertise in ensuring translation quality, cultural sensitivity, and ethical standards. The relationship between human translators and language technologies is a dynamic interplay of collaboration and competition. While technology has disrupted traditional translation practices, it also presents opportunities for translators to leverage their expertise and collaborate with machine translation systems.

The future of translation appears to lie in a symbiotic relationship between translators and technologies (both assistive technologies such as CAT tools and real-time translation technologies). This relationship will involve harnessing the strengths of both to meet the diverse and evolving needs of the digital age by ensuring the delivery of high-quality, culturally sensitive translations that can cater to a globalized world.

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