

## Commentary Article

# Enhancing Translation Quality with AI: The Human Element at the Core

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### Bio



**Mr. Robin Ayoub** is a seasoned executive with over 20 years of experience in the language industry. Beginning his career in 2002 as Vice President at Lexi-tech International, he led the company to become a global leader, culminating in its acquisition by CLS Communication in 2009 and integration into Lionbridge Technologies in 2014, where he now serves as Vice President of Sales and General Manager for Canada.

Beyond the language industry, Mr. Robin has a proven track record in transforming tech startups into multimillion-dollar enterprises, excelling in business development, strategic acquisitions, and driving revenue growth. His leadership consistently positions companies as market leaders.

Mr. Robin also contributes as a thought leader through the Localization Fireside Chat podcast, engaging with industry experts on topics like AI and the future of language services. Additionally, as the past and current President of the Canadian Language Industry Association, he continues to influence the industry through innovative strategies and dedication to excellence.

## Enhancing Translation Quality with AI: The Human Element at the Core

### Abstract

As artificial intelligence (AI) continues to reshape the translation industry, the integration of Generative AI (GenAI) models into Computer-Assisted Translation (CAT) tools has become a promising development. However, the journey toward high-quality, culturally sensitive, and contextually appropriate translations remains a collaborative effort between AI and human expertise. This commentary explores the critical role of human involvement in maintaining translation quality, with a particular focus on cultural sensitivity, human-in-the-loop (HITL) frameworks, and human-centric translation memory (TM) systems. By placing humans at the core of GenAI integration, we ensure that translation outputs resonate with cultural nuances and meet industry quality standards.

## **Introduction**

In the realm of translation, technological advancements have opened doors to new possibilities. AI, particularly Generative AI (GenAI) models, is increasingly embedded within Computer-Assisted Translation (CAT) tools to improve translation speed and productivity. However, these advancements introduce challenges, particularly in ensuring cultural sensitivity and preserving translation quality. AI-generated outputs, while impressive, often lack the nuanced understanding of cultural contexts critical to effective communication.

A key principle I emphasized at the Translation Forum 2024 is keeping humans at the core of AI-enhanced translation. One way this principle is operationalized is through the Human-in-the-Loop (HITL) framework, which ensures cultural and contextual nuances are preserved. This collaborative approach bridges the gap between AI efficiency and human insight, creating a workflow that consistently upholds the highest standards of translation quality.

### **The Essential Role of Human-in-the-Loop (HITL)**

Human-in-the-loop (HITL) methodologies are indispensable in GenAI-assisted translation workflows. While GenAI excels at generating text, it cannot interpret or apply the intricate cultural and contextual subtleties that define high-quality translation. In contexts like healthcare or legal fields, this limitation becomes more pronounced and potentially problematic. For example, AI may provide a literal translation of medical dosage instructions but may not account for culturally appropriate phrasing or tone, which could be crucial for patient understanding and adherence.

In the HITL framework, human translators review and refine GenAI outputs, ensuring that sensitive terms are accurately conveyed and culturally appropriate. This process also allows human translators to make adjustments based on ethical considerations, especially in translations involving health, safety, or religiously sensitive material.

### **Human-Centric Translation Memory: A Key to Quality and Consistency**

A human-centric Translation Memory (TM) system transcends traditional approaches by integrating contextual notes, cultural markers, and regional terminology, thereby creating a dynamic resource for AI-assisted translation. Unlike conventional TMs that merely store approved translations, human-centric TMs are designed to account for cultural nuances and linguistic preferences. For instance, in Arabic translations, distinguishing between formal and informal language or specifying gendered pronouns based on the target audience can significantly enhance the relevance and cultural appropriateness of Generative AI (GenAI) outputs.

To implement these systems, tools such as Memsource and Trados Studio have pioneered features that facilitate the creation and maintenance of context-rich TMs. Memsource allows users to include metadata tags that specify regional preferences or cultural notes, such as whether a translation is intended for use in the Gulf region or North Africa. Similarly, Trados Studio provides functionality for custom fields within TMs, enabling translators to append notes on tone, style, or audience demographics. These features ensure that GenAI outputs are informed by the specific needs of the intended audience.

Additionally, Lionbridge offers tailored TM solutions as part of its comprehensive translation services. While not available as standalone software, Lionbridge's TM systems are integrated into their service offerings, providing clients with culturally nuanced and contextually appropriate translations. These systems are designed to capture and utilize client-specific terminology and stylistic preferences, ensuring consistency and quality across all translated content.

Consider a healthcare example: A public health announcement for the North African region might use localized terminology, such as "حوزة" (dose) instead of "جرعة" (dose), to reflect regional vernacular. In contrast, a similar announcement for the Gulf might prioritize Modern Standard Arabic for broader appeal. By incorporating these distinctions into a human-centric TM, translators can ensure that GenAI leverages accurate and contextually appropriate phrases.

The process of implementing such TMs involves collaborative efforts between human translators, linguists, and localization engineers. For example:

**Data Curation:** Translators curate translation units that include not just source and target texts but also detailed notes on context, tone, and audience preferences.

**Cultural Validation:** Linguistic experts from target regions validate entries to ensure alignment with cultural norms and terminological accuracy.

**TM Integration:** Tools like Memsource and Trados Studio facilitate the integration of curated TMs with GenAI engines, ensuring that the AI references culturally enriched data during translation.

Furthermore, advanced platforms such as Phrase offer API integrations that allow for real-time updates to TMs, ensuring that the latest cultural insights are consistently available to AI models. This seamless updating process ensures that human-centric TMs remain adaptable and responsive to changing linguistic and cultural trends.

By integrating these advanced processes and leveraging state-of-the-art tools, organizations not only enhance the adaptability of GenAI systems but also lay the groundwork for delivering culturally sensitive translations that resonate deeply across diverse regions and industries.

### **Cultural Sensitivity: Beyond Translation Accuracy**

Translation is not solely about linguistic accuracy; it also involves conveying meaning in a culturally respectful and contextually appropriate way. Cultural adaptation is especially crucial in industries such as healthcare, where effective communication can impact public trust and behavior. However, cultural nuances are complex and often vary significantly across regions, even within the same language group.

For instance, health communication in Arabic-speaking regions illustrates these complexities. In North Africa, public health campaigns may favor localized terminology and direct messaging to address widespread health issues like diabetes. A message might emphasize, "Maintaining a healthy diet prevents diabetes complications," using regionally familiar terms for "healthy diet" that resonate with local culinary practices. In contrast, campaigns in the Gulf region may adopt a more formal tone, emphasizing family health and community well-being, such as: "A balanced diet safeguards the health of your loved ones," reflecting cultural values that prioritize collective welfare over individual responsibility.

Another example lies in vaccine promotion. In Levantine Arabic-speaking countries, involving religious or community leaders in messaging may be culturally effective to ensure credibility, as their endorsement carries significant weight. Meanwhile, messages might highlight scientific endorsements and global alignment in urbanized areas like the UAE, using data-driven arguments to appeal to a more cosmopolitan audience. These region-specific strategies highlight the importance of tailoring translations to meet diverse cultural expectations, even within the same linguistic framework.

Furthermore, addressing sensitive topics such as mental health requires additional cultural consideration. In conservative societies within Arabic-speaking regions, terms related to mental health may carry a stigma. For example, using a term like "mental disorder" might alienate audiences, while softer, more neutral phrases such as "emotional well-being" or "stress management" can encourage engagement without triggering resistance. In contrast, audiences in Westernized parts of the region may be more open to clinical terminology, requiring a different approach altogether.

By navigating these complex cultural dynamics and leveraging human insights alongside AI-generated content, translation professionals can move beyond a one-size-fits-all approach, ensuring that each message resonates deeply with target audiences while addressing the inherent limitations of GenAI in capturing nuanced cultural contexts.

### **Addressing the Limitations of GenAI Through Human Insight**

While GenAI models offer remarkable capabilities, they have inherent limitations when it comes to handling sensitive or complex topics. AI cannot comprehend the socio-cultural implications of certain phrases, idioms, or health-related terminology that may be considered taboo or require specific handling in various regions. Through human oversight, translators can ensure that these sensitive aspects are treated appropriately.

For instance, mental health terminology often demands particular care in Arabic translations due to cultural perspectives on the topic. GenAI may not discern these sensitivities, leading to translations that are technically accurate but culturally discordant. Human translators can adjust the language to maintain respect and empathy, enhancing the effectiveness and appropriateness of the message.

Implementing human-centric systems such as Human-in-the-Loop (HITL) frameworks and culturally enriched Translation Memories (TMs) comes with significant challenges related to cost, time, and scalability. The cost of maintaining HITL workflows can be substantial, as it involves hiring skilled translators and linguists to oversee and refine AI-generated outputs. Industry estimates suggest that incorporating human oversight can increase translation costs by 30-50% compared to fully automated solutions, with hourly rates for professional translators ranging from \$20 to \$100 depending on language pair and expertise.

Time constraints also present a challenge. HITL workflows inherently involve additional review cycles, which can slow down translation delivery for high-volume projects. For instance, translating a large document of 100,000 words may require several rounds of human review, adding days or even weeks to the project timeline, depending on the complexity and the number of human reviewers involved.

Scalability is another limitation. As organizations expand their content needs across multiple languages and regions, maintaining consistent HITL processes can become resource-intensive. Small and medium-sized enterprises (SMEs) often struggle to justify the investment in human-centric systems due to limited budgets, making these workflows more accessible to larger organizations with dedicated localization teams.

To address these challenges, solutions are emerging that aim to balance quality with efficiency. Training AI models to handle routine, lower-risk tasks—such as repetitive technical translations—can reduce the burden on human translators. For example, machine translation engines like Google Translate or DeepL, when paired with customized TMs, can handle a significant portion of the workload, leaving humans to focus on culturally sensitive or high-stakes content.

Organizations can also adopt phased implementation strategies. For example:

**Pilot Programs:** Testing HITL workflows on smaller projects to assess feasibility and refine processes before scaling.

**Selective Application:** Reserving HITL for critical content, such as healthcare, legal, or branding materials, while automating less-sensitive content like internal documentation or product descriptions.

**Hybrid Workflows:** Combining AI-assisted translation with minimal human oversight for lower-impact projects, gradually increasing human involvement as needed for more complex tasks.

Ultimately, while human-centric systems demand initial investments, their ability to produce culturally nuanced and high-quality translations underscores their long-term value. Over time, as AI models become more advanced and tailored through continuous training, they will gradually lighten the human workload by handling routine and repetitive tasks, enabling human translators to focus on more complex, high-impact content. This evolution paves the way for a collaborative future where AI and human expertise seamlessly integrate to achieve both scalability and excellence.

### **Towards a Collaborative Future: AI and Human Expertise in Translation**

As we continue to integrate AI in translation workflows, it is essential to recognize that GenAI functions best as an aid to, rather than a replacement for, human translators. A collaborative approach—one that combines AI's efficiency with human insights—creates the ideal framework for producing culturally attuned, high-quality translations.

Human-centric practices such as HITL, culturally sensitive TM development, and continuous feedback loops for GenAI improvements are essential. These practices ensure that AI output aligns with the ethical and cultural expectations of diverse audiences, while also reinforcing the role of human expertise in AI-assisted translation.

### **Conclusion**

GenAI has undoubtedly enhanced translation capabilities, yet the pursuit of quality demands a balance between technology and human insight. The workshop at the Translation Forum 2024 underscored this vision: placing "humans at the core" of AI integration in translation. By

fostering a collaborative, culturally aware approach, we can unlock the full potential of GenAI while maintaining the highest standards of translation quality.

In the journey forward, a human-centric approach will continue to guide AI integration in translation, ensuring that each translated message not only conveys the intended meaning but resonates deeply with the cultural and social context of its audience.