

THE CONVERGENCE OF HUMAN AND MACHINE

A BRIEF DISSECTION OF MULTILINGUAL METADATA SYSTEMS

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Machine Translation or MT, refers to the process of converting text from one language into another through the use of technology, without any human interference (Ungvarsky, 2024). Although MT has been researched since the mid 20th-century, it is a current phenomenon within the Digital Asset Management (DAM) industry due to a global surge in demand for AI-integrated workflows.

As of 2025, nearly all DAM vendors offer AI-integrated text assistance that can alter the tone of an input message, translate it into another language or even generate a result from scratch based on prompts or images. These tools however are not infallible, as Michael Wilkinson, a communications consultant, points out:

“The issues of built-in AI tools lies in the technology not meeting workflow expectations. To use these tools, users must leave their editing software and switch into the DAM interface. This context switching interrupts focus and slows work. Once assets are exported, version history and metadata are often lost, creating inconsistencies across projects (2025).”

Regardless of whether an asset was created by a human or a computer, it is not discoverable without useful metadata; a quality devised not only by translation, but from localization. In practice, linguistic variables (ex. grammatical structures) are much too complicated for instant replication. “A complete match between one word in one language and its counterpart in another language rarely exists...translation involves additional levels of communication in order to ensure that reproductions elicit a similar response from the reader (ATA, 2018).” In fact, roughly 30% of recent localization failures resulted from excessive use of MT generated content (Bogdan & Zimmerman, 2025).

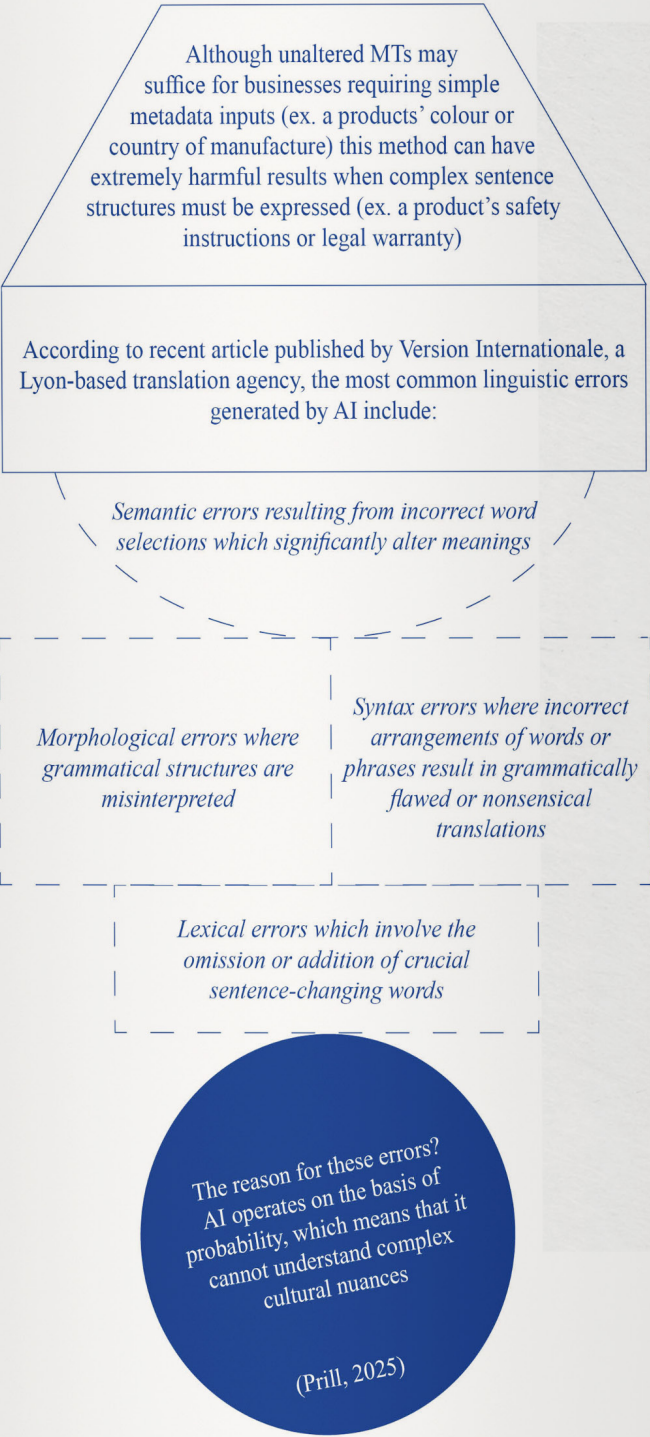
“Translation interprets a message from one language to another while localization revises the content to fit the local culture, regulations, or governance policies of a specified city or region”

(Lowenthal, 2023)

USER EXPERIENCE (UX) STATISTICS

- 49.2% of websites operate solely in English (Tilia, 2025)
- 65% of buyers prefer to view content in their native language, even if it's of low quality (CSA Research, 2020)
- 40% of consumers will not make purchases from digital storefronts that do not support their native language(s) (CSA Research, 2020)
- 66% of consumers use MTs when browsing online (CSA Research, 2020)
- 72% of consumers believe that brands should reflect their values and cultural norms to maintain trust (Bogdan & Zimmerman, 2025)

Linguistic Errors



EXAMPLE

English description:
seamless integration

French AI translation:
intégration sans couture
(integration without sewing)

Correct translation:
intégration harmonieuse

??

??

EXEMPLE

La description en français:
faire du lèche-vitrine

Traduction IA de l'anglais:
window licking

Traduction correcte:
window shopping

Case Study

In 2015, a group of American researchers from the University of Wisconsin-Milwaukee explored the use of MT metadata to digitize their library's Tse-Tsung Chow collection of Chinese scrolls and fan paintings into an English database (Figure 1).

The study – which used Dublin Core standardized vocabulary to compare MT vs human translations – concluded that “standard MT fails to capture linguistic and cultural characteristics of heritage materials...multilingual access thus needs to be considered not only in the context of resource discovery but also as a way of connecting the digitized materials to their respective cultures and traditions (Matusiak et al., 2015).”

Metadata field	Chinese language text	Human translation into English	MT into English
Title	汪中書康鼎銘	Zhong Wang's calligraphic hanging scroll with inscription of Kang Ding	Kangding Ming Wang in the book
Artist Bio	汪中，字容甫(容父)，號頌父，江蘇人，為清朝著名文學家及史學家。汪中熟讀經史百家書籍，擅長駢文，其駢文作品「哀鹽船文」最被後人所推崇。汪中研究墨子，善治學，文學創作豐富，被歸類為揚州學派。	Zhong Wang, known as Rongfu (courtesy name), was born in Jiangsu, China. Wang is a renowned litterateur and historian during the era of the Qianlong Emperor (1711-1799). Wang is interested in classics, history and philosophy. He is an expert of Mozi's philosophy (Mozi, ca. 470 BC – ca. 391 BC, a Chinese philosopher at early Warring States Period) and excelled at research on classics. His style of research is categorized as “Yangzhou School” [an academic school originated from Yanwu Gu (1613-1682)]. He also specialized in parallel prose. His work, “Ai Yan Chuan Wen” was highly praised by Shijun Huang (1696-1773), a well-known scholar specializing in calligraphy, poetry and history.	Wang, the word Fu Yung (Yung father), No. Chung Father, Jiangsu, the Qing Dynasty famous writer and historian. Wang in the familiar classics, history, one hundred books, good prose, its prose work “sorrow salt Boat Man” the most respected posterity. Wang studied Mo, good scholarship, literature-rich, is classified as Yangzhou School
Main Text	唯三月初吉甲戌，王康宮，樂白內右康，王命死辭王家，右幽黃，康拜稽首，敢對揚丙子不顯休，用乍朕文考釐白寶尊鼎，子子孫孫，其萬年永寶用。尊并。	During an era of Western Zhou (1046-771 BCE), the emperor was in his imperial palace on an auspicious day of 934 BCE. Duke, Rong, lead a person, Kang, to his space. The emperor issued an order and said, “I promote you to charge imperial administrative matters and award you a black belt tied with knee coverings and horse muzzle.” Kang knelt down to thank the emperor and eulogize his great virtue. A cauldron cast in bronze is created in memory of Kang's father, Li. The cast would allow his descendants to know the story and respect it forever	Ji Jia Xu Wei early March, Wang Kang Palace, within the right-wing white Kang, Wang Ming Wang died speech, the right secluded yellow, Awn Jishou, dare not significant Hugh Young Rat, at first I used the white paper test PCT Zun Bao Ding, sons and SUN. Its years Yongbao use. Respect bowl

Note: The record is available at: <http://collections.lib.uwm.edu/cdm/ref/collection/scroll/id/132>. The machine translation was performed with Google translate

Figure 1.

“Information retrieval of digital objects is inherently a linguistic endeavor. Monolingual metadata that exists solely in English can create barriers to discovery and use for international users and can inadequately represent the content of complex literary and artistic works”

(Matusiak et al., 2015)

As implored by Matusiak et al., digital archivists must anticipate the possible repercussions of unilingual metadata input, especially when managing assets of cross-cultural value. The inherent function a DAM system is to provide improved accessibility to the archival and circulation of materials; any failure to do so is a detriment to the system's *modus operandi*.

Luckily, there are countless ways to integrate multilinguality within a DAM system, with or without the use extensions. Acquia, a leading DAM vendor that supports multilingual metadata inputs, suggests taking unique taxonomical approach when seeking to improve multilingual content circulation within their platform (Figure 2):

“Dependent metadata fields can be used to make the same asset searchable in multiple languages; you could use the parent field for the English term, and the child (or dependent) fields for translations. These terms function similarly to search filters which narrow results and suggested assets (Roe, 2021).”

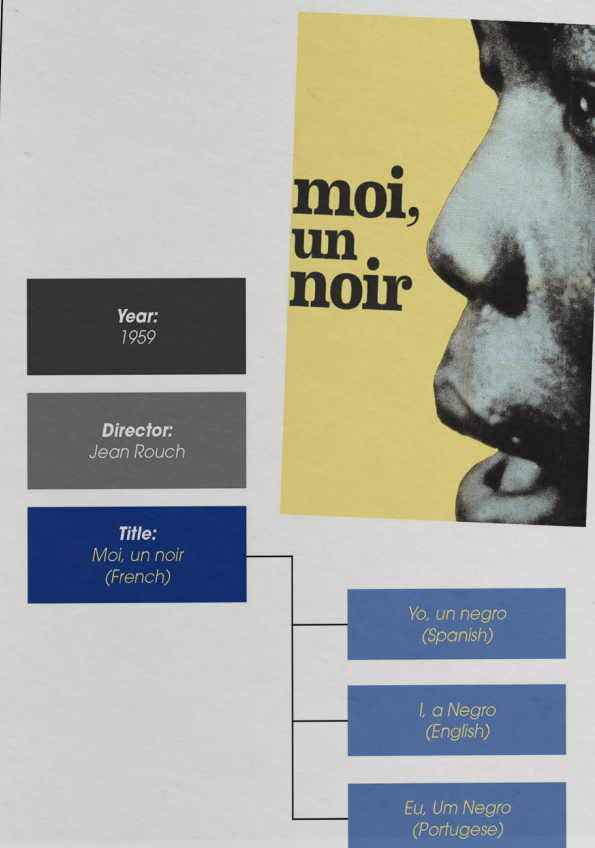


Figure 2. Using film metadata

"While AI can translate language quickly, it lacks the human touch and understanding needed for accurately translating complex and nuanced content"

(Propio, 2024)

Complex linguistic affairs require the expertise of *human* specialists to verify the genuity of MTs. However, this doesn't mean that the two translation methods shouldn't mix – in fact, they should!

Post-editing is the hybrid process of converging people with machine translators, reaping all the timely benefits of workflow automation, while ensuring that internal governance and cultural policies are suitably upheld.

On average, companies that utilize post-editing workflows report 40-60% cost savings compared to traditional translation services, while maintaining accuracy rates above 95% (Crangasu, 2025).

Although current multilingual metadata systems have not yet been optimized, the success of its future lies within the mutually coordinated efforts of man and machine, together.

References

- American Translators Association. (2018, August 14). ATA Position Paper on Machine Translation: A Clear Approach to a Complex Topic. American Translators Association. <https://www.atanet.org/client-assistance/ata-position-paper-machine-translation-a-clear-approach-to-a-complex-topic/>
- Bogdan, S., & Zimmerman, M. (2025, October 2). AI Can't Translate Culture — Here's Why Human Oversight Still Wins in Localization. Entrepreneur. <https://www.entrepreneur.com/growing-a-business/ai-cant-translate-culture-heres-why-human-oversight/497048>
- Crangasu, A. (2025, September 25). The AI Translation Accuracy Gap: Why Professional Localization Outperforms ChatGPT and Similar Tools. Blend. <https://www.getblend.com/blog/ai-translation-accuracy-gap/>
- CSA Research. (2020, July 7). Survey of 8709 Consumers in 29 Countries Finds that 76% Prefer Purchasing Products with Information in their Own Language. CSA Research. <https://csa-research.com/Blogs-Events/CSA-in-the-Media/Press-Releases/Consumers-Prefer-their-Own-Language>
- Lowenthal, G. (2023, September 25). Exploring Drupal's Multilingual Capabilities. Acquia. <https://www.acquia.com/blog/drupal-translation>
- Matusiak, K. K., Meng, L., Barczyk, E., & Shih, C. (2015). Multilingual metadata for cultural heritage materials: The case of the Tse-Tsung Chow Collection of Chinese Scrolls and Fan Paintings. The Electronic Library, 33(1), 136-151. <https://doi.org/10.1108/EL-08-2013-0141>
- Prill, M. (2025, September 3). Worst AI (and human) translation mistakes spotted by localization pros. Version Internationale. <https://www.versioninternationale.com/en/blog/worst-ai-and-human-translation-mistakes-spotted-by-localization-pros/>
- Propio. (2024, December 2). Accuracy vs. Efficiency: The AI Translation Dilemma in Compliance-Heavy Sectors. Propio. <https://propio.com/2024/12/02/accuracy-vs-efficiency-the-ai-translation-dilemma-in-compliance-heavy-sectors/>
- Roe, C. (2021, January 15). Optimizing DAM Processes for Global Teams. Acquia. <https://www.acquia.com/blog/global-approach-to-dam>
- Tila, C. (2025, November 19). Languages most frequently used for web content as of October 2025, by share of websites. Statista. <https://www.statista.com/statistics/262946/most-common-languages-on-the-internet/>
- Ungvarsky, J. (2024). Machine translation | Research Starters. EBSCO. <https://www.ebsco.com/research-starters/language-and-linguistics/machine-translation>
- Wilkinson, M. (2025, September 2). How AI in Digital Asset Management Simplifies Complex Workflows. CI Hub. <https://ci-hub.com/blog/ai-in-digital-asset-management-simplifies-workflows>