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Traffic Publicity Translation Empowered by Digital Intelligence and International Communication

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Abstract

Traffic publicity translation plays an important role in promoting exchanges and cooperation between different countries and regions. In the era of Artificial Intelligence, the application of digital intelligent technology in traffic publicity translation is increasingly prevalent, and its impact on international communication cannot be ignored. This article explores the relevant research, communication media, digital intelligence empowerment and translation principles of traffic publicity. With the help of digital intelligence technology represented by DeepL and ChatGPT, this paper analyzes the examples of traffic publicity translation, and reveals the strong potential of digital intelligence technology in empowering traffic publicity translation. The research finds that there are obvious advantages for digital intelligence technology represented by DeepL and ChatGPT when translating Chinese ordinary text into English, but when it comes to translating Chinese proper nouns, metaphor, nouns with cultural connotation, homophonic words, syntactic logical coherence, there is still a big gap in accuracy between artificial translation and human translation. The four principles of publicity translation play an important role in the post-translation editing of human translators. This research provides valuable insights for further exploring the impact of digital intelligent empowerment on traffic publicity translation and international communication.

Keywords

ChatGPT; DeepL; empowerment; traffic; publicity translation

"Digital and Intelligent Transportation Empowerment" refers to improving the efficiency, safety, and convenience of transportation systems through digital technologies and intelligent systems, achieving intelligent management and services for urban transportation. This concept integrates various advanced technologies such as information technology, intelligent technology, and big data analysis, aiming to realize the intelligentization, informatization, and networking of transportation systems. With the help of emerging technologies and concepts, transportation-related external communication translation and dissemination have also undergone a new transformation. "Digital and Intelligent Transportation External Communication Translation" refers to using digital and intelligent technologies to empower the transportation sector and translating relevant information and content into other languages for external communication. This translation work aims to disseminate China's innovative technologies and development achievements in the transportation sector to the international market, enhancing the international reputation and influence of Chinese transportation companies. Through transportation external communication translation and dissemination, emerging technologies and concepts can be introduced to the international public, enhancing public understanding and acceptance of intelligent transportation technologies and promoting international cooperation and exchange.

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From the beginning of the 21st century to the present**,** with the deepening of globalization and the development of informatization, transportation external communication translation has become more diversified and complex. New forms of translation such as AI-assisted translation, visual translation, and social media translation are constantly emerging, bringing new challenges and opportunities to transportation external communication translation.

1. Related Research

Over the past two decades, the research paradigm of foreign publicity translation has undergone a major transformation. First, traditional translation theory continues to exert its influence. Translation theory is the theoretical framework for studying the translation process and strategies. In the translation of transportation foreign publicity, researchers have been focusing on how to draw on traditional translation theory, how to select appropriate translation strategies, how to handle the translation of multimodal information and improve translation efficiency, and have proposed more translation methods for the dissemination of multimodal information (Pym, 2023). Second, cross-cultural communication has received attention. Researchers are paying more and more attention to the role of language and cultural factors in the translation of foreign publicity. Researchers have drawn on cross-cultural communication theory, focused on the strategies and challenges of information dissemination in different cultural backgrounds, and explored more deeply how to effectively convey transportation information between different cultures to ensure the accuracy and adaptability of information, so as to promote understanding and communication between audiences of different cultures (Chen, 2013; Chen, 2021; Wu & Sun, 2023). Third, the rise of interdisciplinary research. Research on translation for external publicity has gradually integrated into multiple disciplines such as linguistics, communication studies, and transportation studies. Researchers have explored the role of translation in cross-cultural communication and transportation information dissemination from an interdisciplinary perspective, bringing new perspectives and theoretical support to the development of this field (Zeng, 2018; Alves & Albir, 2024). IV. The integration of digital technology and translation research is becoming increasingly close. With the popularization of digital technology and the rapid development of artificial intelligence and machine translation technology, machine translation, speech recognition and other technologies are playing an increasingly important role in translation for external publicity. Researchers have been exploring how to effectively apply digital technology to improve the efficiency and accuracy of translation (Kenny, 2017; Geng & Hu, 2023; Zhan et al., 2023; Wen & Tian, 2024). Translation corpus (Guan & Lu, 2022), machine translation and cloud translation technologies are widely studied and applied, making the translation process more efficient and accurate, and also providing more resources and support for translators. However, "at present, the focus of domestic translation studies is still literary translation studies, and domestic applied translation studies are relatively lagging behind" (Fu & Yuan, 2022). This to some extent restricts the in-depth development of applied translation studies. Transportation foreign publicity translation belongs to the scope of applied translation studies. Therefore, it is necessary to understand the current situation and future of transportation foreign publicity translation in order to help transportation foreign publicity to "go global" better.

2. Media and Digital Empowerment

Having clarified the relevant translation research paradigms at home and abroad and the necessity of research on transportation-related external communication translation, it is necessary to explore the main communication media of transportation-related external communication translation and how digital technology can empower transportation-related external communication translation and help international communication.

2.1 Communication Media

Translation for international communication on digitally empowered transportation can achieve its intended effect through various media, generally including text, images, and videos. Commonly used media in transportation-related international communication translation include: 1. Text: Translators use text to introduce the concepts, technologies, and application scenarios of digitally empowered transportation, conveying professional knowledge and information in written form. Localization is crucial for different countries and regions, making the translated content more relevant to the target audience and improving information reception efficiency. 2. Images: Images are intuitive and attractive. Translators can use images to showcase the application scenarios and technical principles of digitally empowered transportation. Using charts and diagrams to present data and statistics enhances visual appeal and makes the information easier to understand. Accuracy and conciseness are essential when translating text within images. 3.

Video: Video is a vivid form of communication, showcasing the practical applications, workflows, and case studies of digitally empowered transportation. Translators must fully consider the principles of international communication translation when translating video subtitles, enhancing the audiovisual experience for the target audience. Translators can leverage digital technology to proactively participate in the entire process of producing transportation-related texts, images, and videos for external communication, gaining a deep understanding of the relevant production background to better achieve the international communication effect of transportation-related translations.

2.2 Digital Technology Empowers

increasingly important role in transportation publicity translation and international communication. Currently, their application shows the following trends: 1. Artificial intelligence translation. Artificial intelligence translation technology achieves fast and accurate translation through machine learning and natural language processing, which can improve the efficiency and quality of transportation publicity translation. With the assistance of artificial intelligence translation software, translators can quickly translate a large number of documents and materials, thereby supporting wider international communication. At the same time, artificial intelligence translation can also provide translators with reference and proofreading, improving the accuracy and standardization of translation. 2. Virtual reality technology (Zhan et al., 2023). Virtual reality technology can provide the target audience with an immersive communication experience. Through virtual reality technology, translators can participate in creating virtual tours of scenic spots, experience transportation facilities, etc., providing the target audience with real-time "scene embodiment" explanation services, providing the target audience with a more vivid and participatory transportation publicity experience, and allowing the international audience to more intuitively understand the development achievements in the transportation field. 3. Other emerging technologies. In addition to artificial intelligence translation and virtual reality technology, there are many other emerging technologies that play an important role in transportation publicity translation and international communication. For example, speech recognition and synthesis technologies can help translated information spread across languages, increasing the diversity of dissemination channels. Big data analysis and intelligent recommendation systems can customize dissemination based on audience characteristics and needs, improving the accuracy and effectiveness of information delivery. Translators in this stage often encounter transportation-related terminology; therefore, they must keep in mind the basic principles of transportation-related external communication translation.

The application of emerging technologies has brought more possibilities and opportunities to transportation-related external communication translation and international communication, improving communication efficiency, enhancing the communication experience, expanding the scope of communication, and bringing more innovation to cross-cultural communication. Therefore, translators should make full use of emerging technologies and combine them with traditional translation and communication methods to better achieve the goals of information delivery and idea exchange. In addition, the importance of video and interactive media in international communication cannot be ignored in transportation-related external communication translation practice. Translators should make full use of modern technological means to improve translation quality. For example, the domestic large-scale language model "Tongyi Qianwen" not only supports document and webpage content interpretation, but also enables real-time voice interaction, supports speech-to-text, and can also perform simultaneous translation. Rev can achieve global translation, and Beey has advanced subtitle translation functions, easily creating professional-quality subtitles and titles. Using embedded machine translation tools, videos can be played instantly in other languages. NOVA AI can automatically generate subtitles for videos or download subtitles in different formats. By effectively utilizing translation media such as text, images, and videos, and combining them with highly interactive platforms, digitally empowered transportation communication translation can enable different forms of media to work together to more comprehensively showcase technical content and attract audiences, thereby achieving the intended international communication effect.

3. Translation Principles and Case Translation

Digitally-enabled translation of transportation information for international communication can highlight the differences in expression across languages, which may involve varying cultural backgrounds, terminology, and linguistic structures. To effectively convey relevant transportation information and ensure impactful international communication, this paper argues that translators must consider the target language and cultural background of both the original

and target texts, adhere to relevant translation principles, and select appropriate translation strategies and language options based on the specific context.

3.1 Principles of Translation for External Publicity in Transportation

Translators should adhere to certain principles to ensure the intended communication effect. I. The principle of accuracy (Huang, 2004; Yuan, 2005). Ensure that the translated content accurately conveys the same information as the original text. This includes ensuring the accuracy of information when translating transportation terminology, regulations, etc. II. The principle of conciseness. Keep the translated text concise, fluent, and natural, conforming to the expression habits and logical structure of the target language, and avoid stilted and difficult-to-understand translations. III. The principle of cultural adaptability (Huang, 2004; Chen, 2013; Chen, 2021; Wu & Sun, 2023). Based on the actual situation and cultural habits of different countries or regions, pay attention to cultural differences, and localize the translated content. Appropriately incorporate local customs, language characteristics, and other elements to make it more relevant to the needs and habits of the local population. IV. The principle of discourse integration (Zeng, 2018). The integration of translation discourse refers to taking the target audience as the object and adopting flexible and adaptable translation strategies to meet their established ways of thinking, so as to ultimately achieve the purpose of foreign publicity translation.

3.2 Case Studies of Transportation-Related External Communication Translation and International Communication

In the process of translating transportation-related promotional materials, the specific context and cross-cultural factors of the original text present various challenges to translators. In addition to traditional translation tools, translators need to utilize the latest digital technologies to efficiently address the difficulties encountered during translation. Currently, DeepL Translate is touted as the world's most accurate translation software, and ChatGPT is widely recognized as the world's most intelligent and personalized chat and translation software. This article aims to explore how translators can better leverage digital technologies to provide references, efficiently and quickly handle cultural differences, and produce accurate translations by combining these two translation software programs with specific transportation-related promotional texts.

In the transportation sector, China's high-speed rail has achieved remarkable success through rapid development, and translation in international communications has played a crucial role in this success. Besides high-speed rail, Chinese bike-sharing brand Mobike, ride-hailing brand Didi Chuxing, and new energy vehicle brands NIO and BYD have also achieved considerable success in the international market. Their successful experiences in transportation-related international communications translation can provide valuable lessons for other Chinese transportation companies in their international communication efforts. This article takes the transportation-related international communications copywriting of these brands as examples to explore how digital intelligence can empower transportation-related international communications translation and its international communication effectiveness.

(1) China's high-speed rail

In its international communication efforts, China's high-speed rail ensures accurate translations while taking into account the cultural background of its target audience. Furthermore, it actively incorporates local cultural elements to adapt the translated information to the local context, making it more readily accepted and understood by the target audience.

Example 1: China's high-speed rail, a world miracle

DeepL Translation: China's high-speed rail, the world's miracle

ChatGPT translation: High-speed rail in China, a world wonder.

Commentary: From the "four vertical and four horizontal" railway network in 2008 to the "eight vertical and eight horizontal" network in 2016, and by 2020, China had basically completed a rationally laid out, widely covered, efficient, and convenient railway network and high-speed rail network, making it one of the most modern in the world. The total length of high-speed rail lines nationwide reached approximately 30,000 kilometers, covering more than 80% of major cities. The development of China's high-speed rail is indeed a world miracle. Comparing the DeepL and ChatGPT translations above, it can be seen that both are direct translations of the original text. Given that since 2007, the official translation and abbreviation for China's high-speed rail has been " China Railways High - speed." (CRH) has gained widespread recognition both domestically and internationally. Based on the principle of accuracy, the translation of technical terms in the above promotional material should be consistent with the official translation:

Translated and edited version: China's Railways: High - speed, a world wonder

Example 2: Fast and efficient, the pride of China

DeepL version translation: Fast and efficient, the light of China.

ChatGPT version translation: Speedy and productive, the shining glory of China.

Commentary: Text analysis is a traditional translation research method. This method reveals the problems and characteristics in the translation process by conducting in-depth analysis of the language features, structure and cultural connotations of the original and translated texts. It can help researchers understand the language phenomena and cultural differences in translation and provide guidance for translation practice. By comparison, it can be seen that the DeepL version is a literal translation, but it does not fully convey the metaphorical connotation of the original text "China's Light". In Chinese, "light" means not only sunlight and light rays, but also glory and a moment of glory. The original meaning of this slogan is that the high-speed rail is very fast and the Chinese people should be proud of it. It can be seen that the ChatGPT version 's interpretation is more accurate in understanding "China's Light". The translation should take into account both the concise and insightful characteristics of the advertising slogan and the metaphorical connotation of the original text (Sun & Zhou, 2024). It is recommended to modify "China's Light" to the following version:

Translated and edited version: Swift and efficient, the pride of China.

(2) Mobike shared bicycles

Mobike utilizes digital intelligence technology and big data analytics to provide intelligent bike-sharing services, meeting users' needs for convenient travel. Through multilingual advertising and promotion, it has gained considerable brand awareness in overseas markets, enhancing its competitiveness in the international market and attracting a large number of users.

Example 3: Riding can be more comfortable

DeepL 's translation: Riding can be more relaxing.

ChatGPT translation: Cycling can make things easier.

Commentary: The original phrase "骑时" (qí shí) is a homophone for "其实" (qí shí). Translating Chinese homophones into English is indeed a challenge, as cultural differences make it difficult to perfectly translate creative and humorous Chinese homophones into their English equivalents. To allow the target audience to appreciate the charm of the Chinese language, several methods can be used to preserve the original humor and creativity as much as possible: literal translation with annotations (foreignization), retaining the original Chinese homophones and providing explanations (foreignization), finding homophones for English synonyms (domestication), and creating new humorous metaphors (domestication). Regarding whether to use a foreignization or domestication strategy, based on the principle of cultural adaptability in translation for external communication, translators should try to use a domestication strategy. Therefore, the DeepL version is more accurate, and the words "riding" and "relaxing" rhyme, facilitating dissemination. Thus, the translator can directly use the DeepL version.

Example 4: People, people, cars; cars, people, people.

DeepL 's translation: All for car, car for all.

ChatGPT version translation: A car for everyone, everyone for the car.

Commentary: This advertising slogan contains an interesting linguistic phenomenon: First, it cleverly uses homophones. "人人" (rén rén) Both "chē" (车人人) and " chē rén rén " (车人人) utilize homophones, creating a phonetic correspondence and echo. Secondly, they create contrast and reversal. The first half, " rén rén chē " (人人车), emphasizes that everyone rides a bicycle, while the second half, " chē rén rén " (车人人), reverses this, emphasizing that every vehicle can carry people. This contrast and reversal adds to the advertising slogan's appeal. Thirdly, it is concise and clear. The entire slogan consists of only six characters, concise yet rich in meaning, making it easy for the public to understand and remember. However, both of the above direct translations misunderstand the Chinese character "车" (chē), translating it as "car." This involves cultural differences between Chinese and English. In English, "车" generally refers to automobiles, while in Chinese, "车" has a broader connotation, encompassing all kinds of vehicles. The actual context of the original text is Mobike shared bicycles, so the "车" in the original text clearly refers specifically to shared bicycles. According to the principle of cultural adaptability, the target audience 's acceptance should be fully considered during the translation process, and necessary cultural adjustments and transformations should be made to the translation. In cross-cultural communication, cultural adaptability and translation accuracy are essential. By modifying the structure of the DeepL version translation above and adding creativity and

humor to the advertising slogan, we obtain the following translation:

Translated and edited version: All for bikes, and bikes for all.

Example 5: A small step in cycling is a giant leap for civilization.

DeepL version translation: A small step in cycling is a big step in civilization.

ChatGPT version translation: A minor move on the bike, a major advancement for society.

Commentary: The original text conveys the idea that every small ride by a cyclist has a significant impact on social civilization, and the translation should strive to convey this meaning. The DeepL version's literal translation basically conveys the meaning of the original, but the form doesn't correspond to the original. The ChatGPT version basically conveys the form and spirit of the original, with a clear contrast between "minor" and "major." So, can this translation be further improved? When American astronaut Neil Armstrong successfully landed on the moon, he famously declared, " This is one small step for a man. This is one giant step for mankind." According to the principle of fluent translation, translators should consider cultural differences in content expression and presentation, appropriately incorporating local cultural elements for localization. They should use easily understandable language to disseminate the original information, resonating with the audience and increasing their sense of identification, thus achieving the intended international communication effect. Therefore, the revised translation is as follows:

Translated and edited version: One small step for cycling. One giant step for civilization.

(3) Didi Chuxing

Didi leverages intelligent technology and big data analytics to provide users with smart travel services, improve service quality, adapt to the needs of audiences from different cultural backgrounds, and enhance its competitiveness in the international market.

Example 6: Didi, a better travel experience

DeepL Translation: A drop for a better trip

ChatGPT version translation**:** Tap once, for a wonderful journey.

Commentary: The key to translating transportation-related public relations materials lies in preserving the linguistic charm and cultural connotations of the original text as much as possible, while ensuring that English readers can understand and resonate with it. The two versions above treat "Didi" as a quantifier, which is a misunderstanding. The DeepL version translates "Didi" directly as a quantifier, while the ChatGPT version 's understanding of "Didi" is somewhat ambiguous, and its direct translation is also rather vague. In the original Chinese text, "Didi" is actually a verb, referring to clicking the "Didi Chuxing" app to enjoy a pleasant travel experience. Specifically, it means that after clicking the "Didi Chuxing" app, consumers receive more than just a ride; they also receive additional emotional value—this is the implied meaning of "pleasant." Based on the principle of discourse integration, "Didi" can be weakened to convey its connotation, resulting in the following reference translation:

Translated and edited version: More than a journey.

(4) NIO New Energy Vehicles

NIO is a Chinese brand with its own successful experience in international communication, and transportation-related foreign communication translation has played an important role in this process.

Example 7: Leading the change, NIO has arrived.

DeepL version translation: Leading the change, Azure is here.

ChatGPT version translation**:** Driving the revolution, N IO has come.

Commentary: The company name NIO is a proper noun, and the DeepL translation misunderstands it, rendering it as "azure blue." While the ChatGPT translation accurately translates the company name, there is still room for improvement. The name NIO is a double entendre in Chinese. On one hand, NIO is a homophone for "future," expressing the company's vision of pursuing a better tomorrow and blue skies, and creating a joyful lifestyle for its users. On the other hand, NIO is a new energy vehicle, and owning a NIO car embodies consumers' hopes for a better future and clear skies. In transportation-related external communication translation, in addition to the principle of accuracy, the principle of fluent expression must also be considered. Therefore, the translation is revised as follows:

Translated and edited version: Leading the way, blue sky is coming.

Example 8: Dare to think, be proactive

DeepL's translation: Dare to think, do something

ChatGPT version translation**:** Dare to dream, take action.

Commentary: The slogan " Dare to Think " encourages people not to be complacent, but to dare to break with convention and explore new possibilities. " Achieve " embodies putting ideas into action, not just empty talk , and

striving to achieve one's goals and dreams . The entire slogan conveys a spirit of positive progress, highlighting positive values and inspiring and encouraging readers. The DeepL version translates "Achieve" too broadly, merely stating "do some things," which doesn't match the original. The ChatGPT version is closer to the original's meaning. A predicate nominative structure could also convey the same intention, such as " Ambitious in vision, determined in action " or " Courageous in thought, resolute in deed." However, considering that advertising slogans must be concise, catchy, and memorable to achieve a powerful impact, based on the principles of accuracy and brevity, and to ensure the translation remains as faithful to the original as possible, the following modifications are made:

Translated and edited version: Have a goal, and just do it.

(5) BYD New Energy Vehicles

As a leading enterprise in China's new energy vehicle industry, BYD Auto actively advocates the concept of sustainable development and enhances users' awareness and acceptance of new energy vehicles. It has also achieved success in digitally empowering transportation-related external publicity translation and international communication.

Example 9: Intelligent Electric Vehicles, Intelligent and Joyful Future.

DeepL's translation: Smart Leader Electric, Smart Future.

ChatGPT version translation**:** Lead the way with electric, enjoy the future.

Commentary: The core meaning of this advertising slogan is that BYD possesses leading intelligent technology in the electric vehicle field, bringing users a smart, environmentally friendly, and enjoyable future travel experience. This time, the DeepL version of the translation is somewhat unsatisfactory and not very fluent. The ChatGPT version is also not ideal. To accurately retain the core concepts of " intelligent leadership " and " intelligent enjoyment " in the original text, and to convey BYD 's technological advantages in the electric vehicle field, as well as its ability to provide a satisfactory experience for future travel, the key is to accurately convey both the implied and implied meanings of these two verbs. Based on the principle of translation fluency, the translation is revised as follows:

Translated and edited version: Pioneering the intelligent e lectric al vehicles, embracing the smart future

Example 10**:** BYD Auto, let's ride together all the way!

DeepL version translation: BYD cars, all the way with the ride!

ChatGPT translation: With BYD cars, let's race forward together!

Commentary: The core message of the translation should be that BYD Auto and its consumers are working hand in hand towards a shared future, showcasing the company's and its products' strong momentum and enterprising spirit, and emphasizing the close connection between the company and consumers in creating a better future together. The original slogan emphasizes that BYD and its consumers are a community of shared destiny. Furthermore, if the slogan were presented with a combination of text and images or text and video, it would undoubtedly create a strong visual impact on the audience. Based on the principle of effective communication, the translation is revised as follows to highlight the shared destiny:

Translated and edited version: BYD c harg es a head as one!

Example 11**:** Electricity is cheaper than oil, and Honor strikes.

DeepL version translation: Electricity is lower than oil, and glory strikes.

ChatGPT 版译文：Electricity is cheaper than oil, honor strikes. / Electricity is more affordable than oil, glory sets out to make another impact. /Electricity is cheaper than oil, glory makes its move. /With electricity being more affordable than oil, glory sets out to take action. / As electricity costs less than oil, glory marches into battle. / Electricity is more cost-effective than oil, Honor takes the offensive.

Commentary: The original advertising slogan highlights the advantages of BYD electric vehicles, namely their superior performance compared to traditional gasoline vehicles. "Glory" refers to the high-end products of BYD's Dynasty and Ocean series electric vehicles; it's a proper noun. The DeepL translation is a literal translation, treating "Glory" as a common noun, essentially conveying the literal meaning but failing to capture its deeper meaning. ChatGPT provided six different translations; each version's first half is accurate, but the second half suffers from various logical inconsistencies. Therefore, based on the principles of translation accuracy and fluency, translators should carefully handle the translation of proper nouns when revising the text, avoiding errors in logical coherence.

Translated and edited version: Electricity beats oil, and Glory charges ahead.

4. Conclusion

From the above comparison of translation cases in transportation outreach, it can be seen that digital technologies, represented by DeepL and ChatGPT , surpass human translators in accuracy and speed when translating ordinary

Chinese texts into English. However, if the original Chinese text involves proper nouns, Chinese metaphors, nouns with culturally different connotations, homophones, puns, and logical coherence, digital technologies like DeepL and ChatGPT still have limitations. They cannot fully and accurately identify the profound connotations of the original Chinese text, and the accuracy of translations assisted by digital technologies differs significantly from human translations. Such translations still require human translators to edit them in conjunction with the specific context. The four principles of outreach translation provide clear guidance for human translators' post-editing. In the future, digital empowerment of transportation outreach translation and international communication will face many challenges and opportunities. The future development trend in the field of transportation outreach translation mainly manifests in: 1. Cross-cultural multimodal communication. With the acceleration of globalization, cross-cultural multimodal communication will help improve communication effectiveness. Translators need to strengthen their cross-cultural communication skills, adopt translation and communication strategies that are closer to the target audience, and innovate the form of translated content. Second, digital technology will drive the process. Data analysis and mining will become important bases for decision-making in transportation-related external communication translation and dissemination. Translators should master data analysis skills and apply them to optimize the effectiveness evaluation of transportation-related external communication translation and dissemination. Third, intelligentization will occur. With the continuous development of technologies such as artificial intelligence, big data analysis, and machine learning, their application in transportation-related external communication translation is becoming increasingly frequent, and intelligent translation software will become more mature. Translators should actively learn new technologies to improve translation efficiency and quality. Fourth, translation of unconventional transportation forms will emerge. Current research mainly focuses on traditional transportation forms such as aviation, railways, and highways, while research on the translation needs and characteristics of emerging transportation forms such as subways and autonomous driving is not yet in-depth. Faced with challenges and opportunities, translators should actively learn digital technologies, leverage digital intelligence to empower transportation-related external communication translation, and promote the sustainable development of the language service industry.

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