Exploring the Possibilities of Enhancing Economic Performance of Algerian Businesses Through the Use of Machine Translation and Artificial Intelligence

Hajir WAHEEDAH

Laboratory of Language and Text Education,
University of Yahia Farès, Médéa, Algeria
hajir.waheedah@univ-medea.dz

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Abstract:

This article examines the role of AI-powered machine translation in enhancing the performance of global economic institutions, with a particular focus on Algeria. It offers recommendations for implementing deep learning and artificial intelligence technologies within Algerian institutions to improve translation quality, speed, and overall efficiency. Using a descriptive and analytical approach and relying on previous reliable studies, the research explains how neural networks can improve translation, especially when resources are limited. The study also reviews earlier research to identify potential challenges that Algerian institutions might face when adopting this technology. Drawing on the experiences of Western organizations, it proposes solutions emphasizing the need for strong organizational frameworks and specialized institutional systems for translation. These measures aim to increase productivity and address the difficulties encountered by Algerian institutions. The study anticipates a noticeable improvement in the quality and speed of machine translation, which will help boost efficiency and support market development.

Keywords: AI-driven automatic translation; Algerian institutions; Deep learning and AI implementation; Neural networks and translation quality; Organizational and structural translation.

1. Introduction

Translation plays a major role in every aspect of a human being's life, including the economy. In ancient times, the need for multilingual communication first emerged in the context of trade. The main reason for this was economic, as people had to interact with others from different linguistic and cultural backgrounds to conduct business.

Today, translation remains essential for international trade, especially with technological progress and globalization. It helps institutions communicate worldwide, secure their place in the global market, and increase profits. For this reason, all institutions, regardless of their field, need to adopt modern translation technology and use it in their work to keep up with ongoing changes at different levels. On the other hand, institutions that ignore these changes risk falling behind in the market and may gradually decline. Recent developments in computer science have transformed many aspects of human life. The rise of deep learning and artificial intelligence, which rely on neural networks and machine learning, has influenced various industries, including translation. Although these technologies cannot fully replace human translation, they have improved the accuracy and quality of machine translation. When used by experts, they can help promote national products in global markets.

This research comes from the urgent need to understand how machine translation supported by artificial intelligence can help improve the economic performance of Algerian institutions. It looks at how these technologies can help institutions overcome language barriers and compete more effectively in global markets. The study focuses on how AI-based machine translation and deep learning can support better marketing in the international market. It also explores how these tools can improve efficiency and increase competitiveness. In addition, the study identifies the main challenges that Algerian institutions face when using smart translation tools. It offers practical strategies to help them use these tools more effectively. This research also highlights the possible economic benefits of using AI in translation and advertising. These include lower costs, better

communication, and easier access to global markets. To achieve these goals and present clear results, the following research questions were developed.

- What are the main challenges that Algerian economic institutions face when adopting AI and deep learning technologies in translation? What are the most effective strategies to overcome these obstacles and maximize their benefits?
- How can the adoption of AI and deep learning technologies in translation impact operating costs and overall revenues for Algerian institutions? To what extent can these technologies help reduce costs and save time?
- To what extent can AI-based machine translation enhance the competitiveness of Algerian institutions at both regional and international levels and improve their access to global markets?
- How can AI-powered translation tools improve communication quality within economic institutions and strengthen interaction and engagement among stakeholders?
- What is the impact of AI-driven translation in marketing content on the quality of advertisements, the accuracy of product translations, and the overall effectiveness of marketing strategies?
- How can AI-based machine translation influence operational efficiency within Algerian institutions? To what extent can it help balance quality and speed in translation processes?

To achieve the study's objectives and answer the previous questions, it is essential to highlight the role of modern translation in increasing productivity within Algerian institutions. Additionally, it is important to examine how AI-based translation enables effective capabilities that enhance global access to marketing content. These capabilities allow companies to expand their digital presence, which positively impacts e-marketing strategies and various business activities. In this context, smart translation tools play a crucial role in improving the quality of marketing content and expanding its reach on a wide scale. These tools include Google

Translate, DeepL, Amazon Translate, ChatGPT-4, Voiceover AI, Hey Gen and Google Lens. They provide advanced solutions for translation, voiceover, and visual recognition, contributing to better engagement between companies and their target audiences at the global level.

2. Machine Translation and Artificial Intelligence

There are various options available in the market for AI-driven translation, including online services, installed computer programs, and mobile applications. Some of these options rely entirely on machine translation, which uses algorithms to convert text from one language to another without human involvement. Others combine machine and human translation, where human translators review and refine the automatically translated text. Certain options also offer features such as translation memory, which stores previous translations for future use, and terminology management, which helps maintain consistency and accuracy across multiple translations. When selecting an AI-driven translation tool, it is important to consider factors such as accuracy, speed, cost, required level of support, and customization. Several tools provide AI-driven translation in different ways, including:

Google Translate: The most well-known AI-driven translation tool, allowing translation of texts, documents, and websites between more than 100 languages. Google Translate uses deep learning technology to enhance translation quality and reduce the risk of errors. It includes a conversation feature for mobile use. (Bapna et al., 2022)

DeepL: An advanced AI-driven translation tool known for its translation accuracy. DeepL features a user-friendly interface and seamlessly integrates with Windows and iOS. This tool allows for translation customization while preserving the original document format.

Microsoft Translator: A versatile AI-driven translation tool enabling the translation of texts, speech, images, and videos between over 60 languages. Microsoft Translator uses deep learning technology to improve translation quality. It includes a conversation feature for communication with people speaking different languages.

Translation tools have evolved significantly, with Taya, Reverso, and MemoQ showcasing the prowess of deep learning and machine learning technologies. Taya, with its swift, accurate, and user-friendly interface, employs deep learning for translations in over 100 languages, offering instant live translation capabilities. Similarly, Reverso, utilizing machine learning, provides contextually apt translations across 15 languages and features a built-in dictionary for synonym searches and examples. MemoQ, equipped with machine learning, stands out for delivering industry-compatible translations in over 70 languages, enhanced by a translation memory for consistency.

In the realm of multilingual content creation, Systran, Smartling, and Crowdin leverage machine learning for translations. Systran ensures secure translations in over 50 languages, incorporating terminology management for precision. Smartling, excelling in SEO-optimized translations across 150 languages, integrates human translation for quality checks. Crowdin, supporting translations in 40 languages, emphasizes crowd translation for user feedback and edits.

Moving to deep learning-driven tools, Amazon Translate, Smartcat, and Chat GPT provide unique features. Amazon Translate offers natural translations in 70 languages with live translation capabilities. Smartcat, supporting free and unlimited translations across 90 languages, integrates human translation services. Chat GPT, with its creative and funny translations in over 60 languages, includes an artistic translation feature for innovative content creation. Finally, SEO.AI offers SEO-friendly and keyword-optimized translations for web pages in over 80 languages. Its content analysis feature aims to improve rankings and overall performance. These tools collectively highlight the dynamic landscape of translation technologies, catering to diverse needs from live translation to SEO optimization, underscoring their pivotal role in modern language-related applications.

This table illustrates the features of key translation tools that utilize artificial intelligence:

Features	Usage	Usage Rate	Tool
Uses deep learning technology, improves translation quality, and reduces errors	Translates texts, documents, and websites between more than 100 languages	High	Google Translate
Integrates smoothly with Windows and iOS systems, and allows customization of translation	Translates accurately with an easy-to-use interface	High	DeepL
Uses deep learning technology, improves translation quality, and offers a conversation feature for communicating in different languages.	Translates texts, speech, images, and videos between more than 60 languages	Medium	Microsoft Translator
Uses deep learning and machine learning techniques to enhance translation quality and user experience.	Translate quickly and accurately, and provides customized translations	Variable	Taya, Reverso, MemoQ
Manages terminology, optimizes translations for search engines, and supports collaborative translation.	Translates different content using machine learning techniques	In the field of creating multilingual content	Systran, Smartling, Crowdin
Produces natural translations, supports free translations, and employs creative techniques.	Provides unique features using deep learning technology.	Variable	Amazon Translate, Smartcat, Chat GPT
Uses content optimization and performance analysis	Translates and improves web	In the field of	SEO.AI

techniques, and generates keyword-optimized and search engine-friendly translations.	content to achieve better rankings in search engines.	optimizing search engines.	

3. Literature Review

3.1 Limitations of Artificial Intelligence Implementation in Economic Institutions:

Algerian economic enterprises face major challenges in business growth and establishing a strong international presence. This research highlights the main difficulties faced by economic institutions in Algeria, based on insights from various studies. Several investigations, including the study by Bennama, N. N. (2023), have explored this issue, focusing on electronic marketing as a strategic way to gain a competitive advantage in Algerian economic entities. A case study conducted at Algerie Telecom – Mostaganem found that institutions in Algeria do not give priority to electronic marketing, even though it is a quick, easy, and cost-effective way to manage all marketing activities. The study's results show the importance of electronic marketing in Algerian institutions, such as Algeria Telecom, in creating new opportunities to promote goods and services and reach global markets. This wider reach helps add value for customers, leading to greater satisfaction and loyalty.Applying electronic marketing strategies in Algerian institutions plays a key role in promoting the institution, its products, activities, and services. It also helps in effective communication with both suppliers and customers by addressing their concerns quickly.

In the field of translation and automatic translation, technology, including AI-driven machine translation, is essential in supporting these marketing efforts. The use of automatic translation tools in electronic marketing platforms helps expand the reach of goods and services by removing language barriers and making content accessible to a wider audience. By using automatic translation, companies like Algeria Telecom can efficiently translate marketing materials, promotional content, and customer communications into multiple languages. This allows them to attract diverse markets and expand their customer base. As a result,

economic performance improves by increasing sales and profits through access to a larger number of customers.

Moreover, automatic translation enables efficient and accurate communication with international suppliers and customers. This helps streamline business operations, improving efficiency and reducing costs caused by language barriers. The use of automatic translation in electronic marketing can also give Algeria Telecom and other institutions a competitive advantage in the global market. Providing multilingual content and engaging with a wider audience helps build stronger customer relationships and loyalty. This sets them apart from competitors who do not use such technology. This shows that automatic translation in electronic marketing can significantly improve the economic performance of Algerian institutions like Algeria Telecom. By using technology to overcome language barriers, automatic translation helps businesses access global markets, increase customer satisfaction and loyalty, boost sales and profits, and gain a competitive advantage in the digital business era.

In their study Hassan et al. (2018), made significant advancements in neural machine translation, achieving human-like performance in translating news articles from Chinese to English. By leveraging deep neural network models and specific techniques, they greatly enhanced translation quality and accuracy compared to traditional methods. Their findings demonstrate that the application of advanced neural models can lead to substantial improvements in machine translation. While the study focused on news articles, its results have broader implications and can contribute to the development of automated translation across various domains. Notably, the automatic translation of Chinese articles into English reached a level equal to human translation. Hassan et al. (2018)'s research highlights the power of deep neural networks and specialized techniques in transforming machine translation. The findings confirm the potential of automated translation and provide a strong foundation for future improvements in this field.

In the effort to increase production rates, Arab's (2011) study highlights the important role of translation in Algerian institutions. It

examines the key requirements that must be properly implemented, including banking, financial, and monetary transactions in both local and international trade. Due to low productivity, these institutions look to Western international regulatory bodies for guidance. As a result, they translate the organizational structures of foreign institutions and attempt to apply them. However, this often creates conflicts with the cultural heritage of the local community and internal stakeholders. The challenge is especially clear in language, which is an essential tool for communication.

In a study by Matrik, M. (2022), the text explores the state of economic intelligence in Algeria and connects the digital transformation of the economy to the need for information, which is its main challenge. The study concludes that despite efforts in economic intelligence and digital transformation, progress is still in its early stages. A lot of groundwork is needed to meet the requirements of digital transformation. It also highlights the importance of promoting a culture of digitization and economic intelligence, not only within economic institutions but at all levels.

The importance of this research lies in examining the impact of institutional translation on improving productivity. It does so by presenting the experience of El-Hajjar Iron and Steel Company, also known as ArcelorMittal (Statista Research Department, 2023), and highlighting the challenges caused by improper implementation. Algerian institutions face difficulties in dealing with foreign languages, accurately translating documents, and managing diverse content. These challenges negatively affect productivity and efficiency. To overcome these issues, deep learning and artificial intelligence offer a powerful solution. These advanced technologies have the potential to improve translation quality and streamline the entire process.

By using AI-driven approaches, Algerian institutions can overcome language barriers, bridge cultural gaps, and unlock their full potential in the global market. The integration of deep learning and artificial intelligence in translation leads to higher productivity, greater efficiency, and a stronger market presence. As translation continues to evolve, Algerian institutions

can adopt these transformative tools to seize new opportunities for growth and success.

3.2 Harnessing the Power of Artificial Intelligence in Economic Institutions:

Integrating AI tools enables economic entities to navigate the evolving global market with precision and adaptability, ensuring long-term success in today's fast-paced business environment. Jason Whittaker, an expert in artificial intelligence, explores the role of major corporations such as Facebook, Amazon, Google, and Apple in developing and utilizing AI technologies in his book *Artificial Intelligence and the Future of Journalism* (Routledge, 2019, p. 190). He highlights how these companies significantly influence both the market and society by applying AI across various fields. Whittaker also stresses the importance of overseeing AI advancements to ensure their responsible and ethical use.

This study builds on previous research to emphasize the importance of adopting AI and deep learning in economic institutions. By leveraging these technologies, businesses can enhance productivity, adapt to modern demands, and drive growth. Many prior studies have examined AI's role in commercial enterprises. One notable study by Chandgude and Kawade (2023) focuses on AI's impact on business decision-making and its relevance in an increasingly technology-driven world. Their research reviews existing literature on AI and machine learning to explore how these technologies enhance products and services. The study underscores the need for a strong understanding of AI techniques to boost productivity and create value for businesses. The key findings of this study are illustrated in Figure (1) by Chandgude and Kawade (2023).

The study has yielded compelling results, showcasing the remarkable impact of AI in various domains, resulting in improved performance, cost reduction, and enhanced operational efficiency. AI implementation in companies has led to a 50% improvement in business and a 60% reduction in costs. As a result, organizations have witnessed a substantial enhancement in their overall productivity and financial stability.

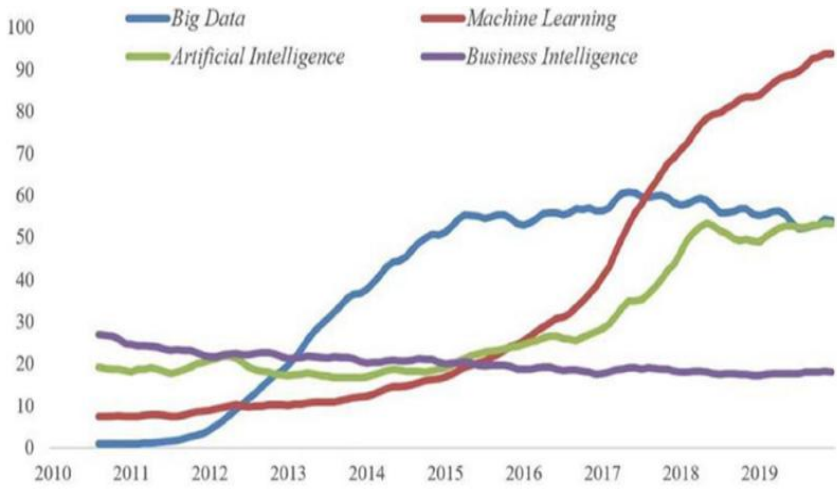


Figure (1) Chandgude and Kawade (2023)

Moreover, AI has proven highly effective in demand forecasting and has enhanced customer interaction through the use of chatbots. This advancement has significantly improved customer satisfaction and engagement, ultimately driving business growth. In marketing, AI has played a crucial role in increasing operational efficiency. By offering deeper insights for decision-making and audience targeting, it has enabled companies to develop more effective marketing strategies. As a result, businesses have achieved better outcomes and strengthened their market position. AI has also streamlined accounting tasks, leading to a growing interest in cloud-based payroll software and AI-powered financial systems. These technologies have simplified financial processes, improved accuracy, and reduced errors. The Human Resources sector has undergone significant changes, particularly in response to the Covid-19 pandemic, as AI-driven solutions continue to reshape workforce management and operational strategies.

AI has played a crucial role in evaluating candidate experiences and skills, leading to more informed hiring decisions and effective business

growth strategies. Additionally, its ability to automate operational processes has transformed the workplace by allowing employees to focus on higher-priority projects. This shift has created a more agile and efficient work environment, enabling companies to address complex challenges with greater precision and dedication. AI has also made significant contributions to cybersecurity. By detecting threats more quickly and integrating technologies such as robotics and blockchain, companies have strengthened information management and enhanced data protection (Chandgude & Kawade, 2023). These findings highlight AI's transformative impact across various sectors. Its successful integration has led to improved performance, cost reduction, and greater operational efficiency, making it an essential tool for modern businesses.

The study conducted by Soe (2022) confirms that neural machine translation enhances a system's ability to comprehend and analyze text, resulting in more efficient and faster task completion. To examine this, an experiment was conducted with 24 novice translators, who were divided into two groups. The first group relied solely on traditional machine translation, while the second group used AI-assisted translation. The evaluation was based on the Word Error Rate (WER), which measured the number of errors and differences in translation speed. The results showed that the AI-assisted group produced translations more quickly and with greater accuracy. Soe's findings highlight the partial reliance on neural machine translation within institutions, allowing translators to deliver precise and efficient translations that align with the demands of global market competition.

This study underscores the significant impact of using neural machine translation with artificial intelligence assistance in enhancing the translation process. Embracing this technology empowers translators within institutions to deliver high-quality translations efficiently, catering to the needs of the rapidly evolving global market.

The study by Slim, A., Malouah, A., Fakih, Y., and Saheb, K. (2022) strongly supports several key findings. It introduces an innovative approach

to improving neural machine translation for the Algerian Arabic dialect through a transfer learning strategy. The researchers trained Seq2Seq and Attentional-Seq2Seq models on a multi-dialect parallel corpus before fine-tuning them for the Algerian dialect. This adaptation led to a significant improvement in the BLEU score, demonstrating the effectiveness of the approach. The study also highlights the crucial role of artificial intelligence in overcoming translation challenges for low-resource dialects such as Algerian Arabic. These dialects face significant difficulties due to the limited availability of training data, making AI-driven solutions essential for enhancing translation quality.

Peter Maliukov, the CEO and co-founder of YOUS, discusses how global companies can leverage artificial intelligence translation to enhance productivity. He emphasizes that business communication is complex and that AI can help bridge cultural and linguistic gaps. A McKinsey survey reveals that many companies have already integrated AI into various operations, leading to increased revenue. Maliukov also highlights that the application he founded utilizes AI to translate voice and video calls as well as chat messages, demonstrating the practical benefits of AI-driven translation solutions. (Maliukov, P., 2022). In their 2016 study, Sennrich and his team introduced the use of subword units in neural machine translation to address rare or unfamiliar words. By breaking words into smaller components, this approach improves accuracy, particularly when translating complex economic terms. Economic terminology is often technical and precise, posing a challenge for traditional machine translation. However, subword units enhance translation quality by ensuring greater accuracy and fidelity. As a result, AI-supported neural machine translation plays a crucial role in increasing productivity and efficiency within economic institutions. When economic terms are translated with high precision and clarity, managing data and information related to economic activities becomes more efficient and streamlined.

Additionally, this method strengthens international communication, facilitating cross-border transactions and business negotiations. The integration of subword units in neural machine translation demonstrates the

transformative potential of advanced technologies in the field of translation. The findings from this study emphasize the importance of employing innovative techniques to improve the translation of economic terms, ultimately contributing to the global advancement of economic institutions.

A study published in Forbes Advisor (2023) highlights the crucial role of artificial intelligence (AI) in improving translation within international companies. AI facilitates negotiations and meetings between individuals who speak different languages, enhancing global business communication. The study also examines various applications of AI, including email communication with colleagues (46%), website content creation (30%), coding error correction (41%), information translation (47%), and content summarization (53%). Additionally, half of the respondents believe that ChatGPT will play a significant role in decision-making (50%) and enable content creation in multiple languages (44%).

The growing integration of AI not only strengthens communication and understanding but also reduces reliance on live translators. More than 50% of business owners actively use AI in areas such as cybersecurity and fraud prevention, highlighting its diverse applications in business operations. However, concerns remain among 25% of business owners regarding AI's potential impact on website traffic.

The confidence in ChatGPT's value is remarkable, with 97% of business owners recognizing its potential as a valuable asset. Looking ahead, strategic plans are in motion, as one-third of companies consider implementing ChatGPT for website content creation. Additionally, 44% plan to use it for generating content in multiple languages, highlighting its versatility. AI is also reshaping internal communication, with approximately 46% of business owners utilizing it to streamline internal messaging. However, despite these advancements, over 40% of respondents express concerns about potential overreliance on technology due to increased AI integration. From a forward-looking perspective, nearly two-thirds (64%) of business owners believe that AI will not only enhance operational efficiency but also strengthen customer relationships. This widespread adoption of AI

across various business functions underscores its transformative impact, shaping the future of enterprises.

Figure (2) presents data from *How Businesses Are Using Artificial Intelligence in 2023* by Katherine Haan, published in *Forbes* (2023).



Figure (2), Forbes, (2023)

4. Methodology

This study used a descriptive-analytical method to carefully examine previous research. This helped identify the key challenges that Algerian economic institutions face when using AI and deep learning for translation. By looking at real examples and past findings, the study gained a clear understanding of the obstacles described in the first research question.

Using an inferential approach, the study followed clear steps to reach conclusions about how AI and deep learning affect costs and productivity. This addressed the second and sixth research questions. By comparing data

from institutions that adopted these advanced tools with those that did not, the study measured possible savings in time and costs, along with improvements in operational efficiency.

The research also reviewed studies about international institutions applying AI translation in global marketing. This supported the third research question by showing how these technologies improve competitiveness and open access to global markets. Additionally, the study looked into research on communication within institutions and interaction among stakeholders. This helped understand how AI-powered translation can enhance communication inside organizations, which relates directly to the fourth research question. Finally, analyzing AI's role in marketing and advertising addressed the fifth research question. It showed that AI-driven translation improves the quality of advertisements, ensures accurate product translations, and strengthens overall marketing effectiveness.

5. Results

Overall, the research points towards the significant role that artificial intelligence, deep learning, and machine translation can play in enhancing the economic performance, communication, and competitiveness of Algerian institutions in the global market. By leveraging these advanced technologies and adopting the best available tools, Algerian institutions can overcome language barriers, improve translation quality, and achieve greater efficiency and productivity.

By applying the methodology presented in this research and carrying out a detailed analysis, the study has identified the key challenges that prevent Algerian economic institutions from adopting artificial intelligence-based translation technologies. A practical solution was proposed, inspired by the experiences of institutions that have successfully used neural translation, AI tools, and deep learning. The main findings are summarized as follows:

- Identification of potential challenges and limitations in implementing this technology in Algerian institutions.

- Exploration of the economic impact of improved translation quality on the Algerian market, including increased trade and foreign investment.
- Increased awareness and understanding of the potential benefits of deep learning and artificial intelligence in the field of translation, contributing to the development of the technology in Algeria.

Figure (3), shows the issues and how it can be improved to credit if the introduction of AI is used in translation in economic institutions:

- Issue 1: Overcoming Language Barriers and Simplifying Translation Process.
- Issue 2: Improving Translation Quality and Speed.
- Issue 3: Handling Complex Economic Terminology.
- Issue 4: Better Customer Reach and Increased Sales.
- Issue 5: Enhancing Institutional Translation and Implementing Foreign Structures.
- Issue 6: Supporting Translators with Machine Translation.

Line with Artificial Intelligence / Line without Artificial Intelligence

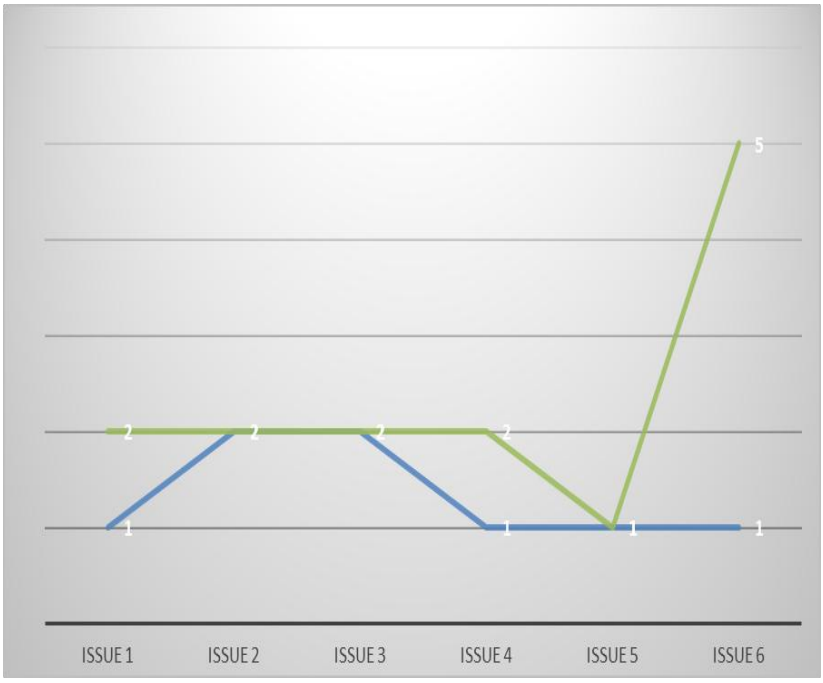


Figure (3), Enhancing Economic Institutions in Algeria through Artificial Intelligence Deep Learning

6. Discussion

This paper aims to explore how Algerian businesses can improve their economic performance by using machine translation and artificial intelligence. It seeks to answer the research questions based on the results of previous studies that had similar goals. The key points are as follows:

The first question deals with the challenges Algerian institutions face when using and enabling AI-based translation. This is clearly supported by the findings of a study by Matrik, M. (2022), which confirms that economic institutions in Algeria struggle to use AI tools effectively.

The second question concerns the positive changes that can occur in these institutions and their potential to access global markets by adopting AI and deep learning in translation. This is supported by Hassan et al. (2018),

who showed that machine translation combined with deep learning and AI can greatly improve translation speed and quality. Using advanced neural networks and specialized techniques, translation performance can reach levels close to human translators.

The third question asks about the possibility of accessing international markets through AI-powered translation. This can be achieved by using smart technologies, especially within international companies. The 2023 Forbes Advisor study confirms that AI significantly improves translation quality, making communication across languages easier. It also predicts that AI will boost email communication, website content creation, error correction in coding, translation, and summarization. About half of those surveyed expect ChatGPT to help with decision-making and producing multilingual content, reducing the need for live translators.

Regarding the fourth question, Arab's study (2011) emphasizes the importance of effective translation inside institutions to raise productivity. Learning from Western international institutions, Algerian organizations can improve their use of foreign organizational structures and enhance their translation methods. Moreover, communication tools powered by AI, such as chat and email, help increase interaction and engagement among stakeholders by overcoming language barriers. This is supported by studies from Maliukov, B. (2022) and Forbes (2023), which highlight improvements in communication efficiency and speed. The fifth question focuses on the impact of AI on advertising targeting and customer communication. Research by Chandgude and Kawade (2023) shows that AI analyzes large amounts of data to find patterns and trends beyond human abilities. An IBM report (March 2021) explains how AI improves ad effectiveness and helps companies better target their ads.

Additionally, examples like Copy.ai (October 2023) demonstrate how AI translation tools help companies expand globally by providing accurate translations that preserve the original meaning. Finally, the sixth question deals with the ability of AI translation to save time and effort,

which leads to significant cost reductions. This is confirmed by studies from Soe (2022), Forbes (2023), and Maliukov, P. (2022).

7. Recommendations

This study highlights the importance of machine translation based on artificial intelligence and deep learning in improving the productivity and efficiency of Algerian economic institutions. To achieve these benefits, we suggest the following actions:

- Expand training by organizing regular workshops and online courses for translators and staff on the latest AI and deep learning translation techniques.
- Increase support through allocating funding and technical resources for applying and maintaining machine translation systems.
- Enhance collaboration by creating forums between institutions to exchange best practices in AI-supported translation projects.
- Target vital sectors such as focusing on translation in legal, medical, and scientific fields, and developing smart solutions tailored to these sectors.
- Adopt English as a communication bridge since using English in exports and external communication can help reach wider markets; English is an official language in 67 countries (Ethnologue, 2021).
- Simplify workflows by integrating AI tools into existing translation processes to speed up performance and reduce manual effort.
- Break language barriers by using machine translation in emails, chats, and reports to improve relations with international partners.
- Enhance e-marketing by incorporating machine translation into digital marketing platforms to reach a global audience and increase customer satisfaction and loyalty.

- Use neural models such as applying advanced neural networks and subword analysis techniques to accurately handle complex economic terms.
- Apply structural and organizational translation by benefiting from successful Western experiences in structured translation without conflicting with local culture.
- Address institutional challenges by using machine translation to deal with low productivity, multilingual difficulties, and varied content types.

Applying these recommendations will improve translation quality and speed, reduce costs, and strengthen Algeria's position in global markets.

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