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Comparing Human and Specialized Neural Machine Translation for Accuracy and Efficiency

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Abstract

***Objectives**: Advances in neural machine translation (NMT) have generated considerable interest in human-machine translation (HMT) research. NMT is a technology that uses artificial intelligence (AI) and deep learning to translate text from one language to another. Although NMT systems have significantly improved translation quality compared to previous MT approaches, they are not without flaws and can still make mistakes. This study examines the effectiveness of the NMT system for various types of specialized texts. **Methods**: To evaluate the hypothetical role of the NMT system, we carried out a comparative experiment on four types of corpus: medical, financial-economic, legal and techno-scientific documents. These texts were translated by an international organization from English into French and Arabic by a human expert. The English version was chosen as the starting point, as it is often translated directly into other languages. A human expert translator produced the French and Arabic versions, and to evaluate the accuracy of the NMT system in Arabic, we translated the French version into Arabic using the NMT system. Ultimately, for this study, we obtained three aligned texts translated by a human expert (English, French and Arabic), and one other text automatically translated from French into Arabic by using NMT system. We then automatically aligned the four versions and distributed them to different groups of undergraduates in order to identify linguistic and translation inaccuracies in the version produced by the NMT system compared with the human expert's translation. We have also ranked these translations by NMT, from closest to least similar to the expert's translation. **Results**: The results revealed that the NMT system was most effective for financial-economic texts, followed by medical and techno-scientific texts, then legal texts. **Conclusion**: while NMT succeeded in conveying the main ideas, the syntactic structures and terminological Issus posed the most problems. As a result, further improvements in NMT depend mainly on improvements in syntactic studies and terminology.*

***Keywords**: Specialised Corpus, AI, NMT System, Specialised Translation, Terminology, Syntactic Structure, Human Translation.*

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Introduction

Translating sentences from one language to another is a complex task requiring specialized knowledge and expertise. Professional translators devote considerable effort to researching terminological information in relevant databases before producing the final translation.

In recent years, NMT systems have emerged as a useful tool to assist translators in their work. However, the effectiveness of NMT system in specialized fields remains a matter of debate.

In this article, we describe the framework and methodology for comparing the results of an NMT system for specialized documents with the versions produced by an expert human translator from an international organization. Our analysis focuses on translation accuracy. In addition, we submit a post-experimental questionnaire to undergraduate students in the French-English program, to have better understand the effectiveness of the NMT system in different specialized fields. Our results highlight the potential benefits and limitations of this system in professional translation contexts.

Previous studies

NMT and HMT have been the subject of numerous recent studies that shed light on the current state of the field, its limitations, and potential future directions for research. Fiederer and O'Brien (2009) explored the effects of MT on the translation industry and human translators, examining how MT can assist human translators while also highlighting the challenges that arise from its use. Britz et al. (2017) presented an extensive review of NMT and its state-of-the-art. Their research discusses the advantages and limitations of MT and identifies potential future research directions in this area. Kirchhoff et al. (2011) compared HMT with HT in terms of accuracy and efficiency. Their findings suggest that while HMT may be less accurate, it offers greater efficiency, indicating that a hybrid approach combining both methods may be the most effective. Castilho et al. (2018) provided an overview of different methods for evaluating the quality of MT output, discussing their strengths, and limitations, and offering recommendations for future research in this area. Several comparative studies have also been conducted to evaluate the performance of NMT and Statistical Machine Translation (SMT) for translating different languages and text types. For example, Tan et al. (2020) compared NMT and SMT for Chinese-English translation, finding that NMT outperformed SMT in terms of translation quality. Additionally, researchers such as Mousselly-Sergieh et al. (2018) focused on the challenges and opportunities in MT, while Papineni et al. (2002) compared NMT and SMT, concluding that NMT performed better in terms of BLEU scores and training time efficiency. They

proposed a quick, inexpensive, and language-independent method for machine evaluation of MTs, which correlates strongly with human evaluation and has a low marginal cost per run. The authors introduced this method as an automated stand-in for skilled human judges, replacing them when fast or frequent evaluations are required.

Ramírez-Sánchez et al. (2021), Stasimioti et al. (2017), Cao et al. (2019), Alkheder et al. (2023), Zhang et al. (2023) have provided further evidence of the higher translation quality of NMT compared to SMT in various languages and text categories. However, these studies also highlight the importance of recognizing the limitations and challenges associated with NMT. Promising avenues of research include the integration of larger Training Data Sets, the exploitation of contextual information and the use of fine-tuning techniques to further improve the performance of SMT. This study aims to answer the main research questions concerning the performance of NMT in specialized domains and its comparison with translation by human experts. The main questions arising from this question are:

1- Will NMT perform better than HT by experts in specialized fields?

2- What can NMT do to help professional translators with their technical translation tasks?

3- How do researchers evaluate the accuracy of MT documents, and use the results to compare them with expert translations?

Methodology

This article uses a specialized trilingual corpus translated into English, French and Arabic. We have collected passages and texts from various United Nations-affiliated websites offering news translations. The selected content covers four areas: legal, financial / economic, medical and techno-scientific. These selected documents have legal implications, as they come from an international organization, even if they deal with different specialised subjects.

To maintain comparability of content between the three languages, we selected passages with identical translations in each language. This process minimized potential discrepancies between translations and ensured the accuracy of the corpus. The resulting trilingual translation corpus has been used in research to explore linguistic patterns and translations in different fields. Each type of text corpus was carefully selected to include passages with identical translations in all three languages. The assembly of this three-language translation corpus has enabled a comprehensive analysis of linguistic patterns and translations in various fields, providing valuable insights into the nuances of multilingual communication, primarily in the context of an international organization.

Corpus	Topics	Website
financial & economic texts corpora	financial & economic reports Financial news	World Bank (WB) IMF & Central Bank
techno-scientific texts corpora	techno-scientific reports	International Telecommunication Union (IUT)
Medical texts corpora	Pandemic issues	Health World Organization (WHO)
Legal texts corpora	United Nations Charter	United Nations

We collected texts and passages from various web pages in each language and saved them as Word files in plain text format, so that they could be used with automatic language processing software. The texts were then aligned using *YourAlign* software, and the resulting alignment files were saved in *Logiterm format* and tagged before being placed in a designated folder. This made it easy to visualize the alignments between the translations produced by the expert, and then to simply compare two versions, one produced by the expert and the other by the NMT system.

Translated medical parallel corpus

The translated medical parallel corpus was obtained from the World Health Organization (WHO), where we collected several documents relating to pandemics. This section explains some of the following results relating to this corpus.

- **Medical terminology**

NMT system used a number of unknown Arabic terms, resulting in inaccurate translations. We observed that the spelling of certain Arabic terms was affected in the NMT text. For example, the term "***jadarī***" "***smallpox***" caused repeated errors in the NMT system. It sometimes replaced the term " ***jadarī***" with "***jadara***" or "***alif maqṣūrah***". The English term "orthopoxvirus" has been supplied as is, using Latin characters between the Arabic characters, although this is not appropriate for understanding the text. The NMT translation has therefore not used the appropriate Arabic alphabet, particularly for the new techno-scientific term. The English term "***poxviridae***", which was not recognized by the system, was reproduced unchanged in Latin characters. The two previous terms have been taken literally from the English, although the translation has been made from French into Arabic. The entire context of the paragraph was not understood, resulting in a misunderstanding of the entire text.

In addition, the NMT system uses the Arabic term "***nisbah***" for the French term "***taux***", which can be translated as "***percentage***", "*proportion*", "***rate***" or "***ratio***", but the English version uses a more

specific formula: "***mortality rate***". This terminological divergence suggests that the English translation provides a more precise and specific description by using the term "***mortality rate***", which refers specifically to the measurement of deaths in a particular population or group in relation to the total population or to specific cases. This statement underlines the need for consistency and precision in translations. It suggests considering the use of a more specific term, such as "***mortality rate***", in translations into Arabic and French in order to maintain consistency and convey the intended meaning accurately in all languages.

The expert's text was more precise when it came to scientific expressions. However, some expressions were used with the same concepts in both translations: "***talaqa nafsuhu***" and "***talaqa dhātuhu***". In Arabic," ***nafsuhu***" is typically used to refer to a person themselves in an ordinary context, sometimes emphasizing their personal identity or action, while "***dhātuhu*** " is often used in a more formal or literary way to refer to the same person or thing, offering a more distinguished or sophisticated connotation. This distinction between the two lies in their level of formality and context of use, although they both share the same purpose of indicating the same entity or person.

- **Literal translation**

The NMT system has shown literal translations in some cases: the English expression "***clinically***" has been translated into Arabic as "***sarīriyān***". Although the translations seem to convey the same meaning, the Arabic translation presents certain problems related to semantic precision. While the translated word "***sarīriyān***" phonetically resembles the English term "***clinically***", it may not encapsulate its precise meaning or the intended context. In English, "***clinically***" often refers to a scientific, methodical or medical context. The Arabic word chosen may not have the same scope or specific connotations, resulting in a loss or alteration of the intended meaning.

If the Arabic NMT used the French order, this is quite normal, since we translated from French into Arabic. Comparing the two Arabic translations, the expert's version and the NMT system's version, we can see that the human expert's translation chose a more direct formulation, focusing on the spontaneous healing process, whereas the machine translation follows the logic of the input text. Both translations share the main idea, but the order and emphasis on specific aspects of the disease vary slightly.

This underlines the need to take into account the context, precision of terms and intent of the original text when translating. HT is often more successful in capturing the nuances and intent of the original text, while NMT can sometimes produce results that, while correct overall,

may differ slightly in the emphasis placed on specific elements of the source text.

- **Translation Consistency**

The Arabic NMT does not contain "***min majmūl al-Isbāt***" (= ***over the total cases***) but "***bayn Al-ḥalāt".*** The first expression was added to the expert's version to ensure consistency with the term English translations "***case fatality ratio***".

"***Min majmūl al-Isbāt***" describes the selection or identification of an element within a specific group.

"***Bayn Al-ḥalāt",*** stands for "between cases". It emphasizes the difference or relationship between different individual cases or points in a given context.

The context indicates that the first expression is present in the English and French translations. The statement stresses the need for consistency between translations. In this case, it recommends including the missing expression in the previous Arabic version to make it more consistent with the English and French versions. In doing so, it ensures that all translations convey the same meaning and maintain consistency between languages. This adjustment is designed to avoid discrepancies or misunderstandings that could result from translation differences.

English (Source text)	**French (Target) - Human Expert Translation**	**Arabic (Target) - Human Expert Translation**	**Arabic (Target) - NMT system Translation**
In recent times, the case fatality ratio has been around 3–6%.	Ces derniers temps, le taux de létalité était d'environ 3 à 6 %.	*Wa fii al-aawna al-'akhira tarawahat nisbatu al-wafayaat* ***min mujmal al-'isabat*** *bayna 3 wa 6 fi al-mai'ah taqriban.*	*Fi al-aawna al-'akhira, kaana ma'dil al-wafaayaat* ***bayna al-halaat*** *hawaly 3-6%.*

The version produced by the NMT system is more concise and uses simpler terms. It avoids more complex terms and expresses itself more directly. In short, the human expert's translation seems more verbose and uses more specific terms, whereas the NMT simplifies the wording without losing the meaning of the original sentence.

- **Syntactic order**

The main differences between the two produced translations (Human expert *versus* NMT system) are in the grammatical construction, the word order and the way in which the information is presented: the

first translation seems to use a more complex structure, with a longer sentence and a less direct syntactic construction.

Differences in the choice of verbs were noted between the NMT and human expert versions. The expert used more expressive verbs in some cases, whereas the NMT system chose more literal translations, which are not always appropriate in the medical field. In addition, the NMT sometimes used for instance verbs related to economic fields instead of medical verbs. The syntactic structure order of Arabic can change the meaning of the sentence, so it is important to note that the noun must come after the verb, which was not respected in many cases.

- **Punctuation**

In addition, the NMT system had shortcomings in displaying short vowels within words compared to expert translation, which used vocalization strategically in some places, such as in gemmulation. This is an example of how NMT can miss essential linguistic nuances.

The NMT text adopted the punctuation of the source in the target text, whereas the expert chose punctuation marks that are more appropriate.

Translated Techno-scientific parallel corpus

Our corpus of technical and scientific data comes from the International Telecommunication Union (ITU). The terminology and syntactic order of the text translated by NMT system pose a number of problems.

- **Techno-scientific terminology**

The English term "***metaverse***" was supplied unchanged in the Arabic alphabet "***mītāfīrs***" during the translation process. This term refers to a virtual reality space where users can interact with a computer-designed environment and with other users. It often happens that newly invented terms, especially those related to technology, concepts or specific cultural references, have no direct equivalents in other languages. Rather than being translated, they are often transliterated, i.e. the sounds of the original term are represented using the alphabet of another language.

- **Syntactic order**

The human expert used the active voice in several places, whereas the passive voice was used in NMT system. The NMT system translated the passive voice literally from source text, resulting in a syntactically poor and discontinuous text in target text.

There were also Issus related to the usage of verbs, where the Arabic verb should have started the sentence, but instead, the verbs followed the subject in NMT system following source text, French language. Some idiomatic verbs were not translated correctly, such as "***expand***

connectivity " ***reforcer la connectivité***", which was translated literally into " ***tawsiʿ al-tawāṣulīyah*** " instead of " ***tawsiʿ Al-istiṣāl***."

The translations for phraselogisms or idiomatic expressions, for example "***Develop a roadmap***"; they convey the same meaning in three different languages. The NMT used statically the verb who is more used.

English (Source text)	**French (Target) - Human Expert Translation**	**Arabic (Target) - Human Expert Translation**	**Arabic (Target) - NMT system Translation**
Develop a roadmap	Élaborer une feuille de route	*insha' kharitat tariq*	*wadu kharitat tariq*

The English expression "***Develop a roadmap***" has been translated into French as "***Élaborer une feuille de route***". The translation from English into Arabic, "***ansha khāriṭat ṭarīq*** ", seems to be a direct translation of the English expression "Develop a roadmap". It may retain the meaning, but may not be the most natural or commonly used expression.

The NMT system entry "***wadhʿ khāriṭat al-ṭarīq***" is an alternative translation proposal to the original. It may be intended to provide a more precise or natural rendering of the intended meaning in Arabic. In translation, it is important to ensure that the final translation actually conveys the intended meaning idiomatically in the target language. The analysis provided indicates a possible improvement of the NMT system over translation by a human expert.

In several places, the human expert translation used verbs whereas the NMT system used nouns: "***yahḍif***" was translated as "***al-gharaḍ min***". The human expert translation has repeatedly avoided repetition to make the sentence clearer.

Syntactically, the Arabic coordinating conjunction "***wa***", "***and***", presented a challenge, as it was repeated and followed the source text. It does not follow the syntactic structure of French or English, as it must be repeated in all coordination positions.

Finally, errors were also made in the use of pronouns, with masculine pronouns being used for feminine words and vice versa.

Translated Legal parallel corpus

The United Nations Charter (full text) has been used to draw up the legal corpus for this comparative study.

- **legal terminology**

The quality of legal NMT system depends on the input information, while expert translation depends on the accuracy of the terminology. The expert provides more effective legal sentences and uses terminology more efficiently. Punctuation also plays an important role

in this type of text. NMT system presents certain terminological problems, particularly in legal texts. For example, the French term "***article***" is translated as "***section***" in Arabic "***al-qism***".

The NMT system allows us to observe a few variations for the same concept, such as "***at-tafāwud*** " and " ***al-mufāwadhah***". The expert can differentiate between these semantic nuances. For example, "***at-tafāwud***" refers to the general activity of discussing and finding solutions, while "***al-mufāwadhah***" expresses the actual, detailed phase of this activity, where opinions and offers are exchanged and a specific agreement is reached.

- **Syntactic order**

The MNT system also presents certain syntactic problems, often producing weak and incomprehensible texts according to our translation experience and corpus observation. Legal sentences in Arabic are often very long, and the human expert uses an abbreviation strategy in legal texts. The expert also uses purely legal verbs, which are commonly used in legal documents, such as " ***yajib 'ala al-aṭraf***" instead of " ***Tus'aa al-aṭrāf*** " used by the NMT. The NMT repeatedly uses verbs related to obligation and possibility, such as "***yajib***" and "***yajuz***", whereas the expert avoids using these verbs. The expert therefore adds elements to clarify the meaning.

A comparative study of NMT and human expert translation based on the UN Charter reveals significant differences. Whereas NMT relies on the quality of input data, human expert translation focuses on the precision of legal terminology to construct clear, effective legal sentences. NMT encounters terminological and syntactic difficulties, often translating legal terms generically and producing incomprehensible texts for long Arabic sentences. Human translators strategically abbreviate long sentences and use specific legal verbs, ensuring accurate and clear translations by avoiding the ambiguous terms common in machine.

Translated Financial & economic parallel corpus

The financial & economic corpus is taken from the World Bank website. Its terminology is distinct from that of other fields.

- **Financial & economic terminology**

We have observed some differences in the use of certain terms: The English term "***historical standards***" was translated as "***al-Ittijahat al-Tariḵiyyah***" by NMT system, while the human expert used "***al-ma'ayir Ittijahat al-tariḵiyyah***", that means : "***historical criteria***", which is more appropriate in Arabic. We also noticed ambiguity in the NMT's usage of the term "***expected declines***", which was translated as "***Al-Tawqo'at al-Hubutiyyah***" (***Bearish forecasts***) while the expert chose "***al- inkhifaḍat al-mutawqi'ah***" (***expected declines***). The first concept refers to expectations of declines in values, prices or other variables.

On the other hand, the second concept refers to values, prices or phenomena that are expected to decline relative to the current situation or to a previous value. In addition, it should be noted that the NMT system inaccurately translated in financial context the verb "***decline***" as "***tarāga"***", while the expert chose the more suitable verb '***inkhafaḍa"***.

The expert's translation respected the choice of regional versions for the months system, offering both "abriil" "April" and "nisaan" "April", whereas the NMT system used only one version specific to certain regions of the Arab world.

Discussion

All specialized translations involve terminology and knowledge specific to their respective fields. The main features that differentiate these types of translation are their scope and the choice of language used. **Medical translation** focuses on the translation of medical documents such as clinical trial reports, medical records and patient information. It involves a thorough understanding of medical terminology, procedures and concepts.

Technical and scientific translation refers to the translation of documents such as manuals, user guides and product descriptions. This requires knowledge of technical vocabulary, key concepts and terminology. Technical translation can cover a wide range of fields, including engineering, IT and construction.

Financial and economic translation involves translating documents such as financial reports, investment analyses and economic forecasts. This type of translation requires an understanding of financial and economic terminology, concepts and practices.

Legal translation includes the translation of legal documents such as contracts, court documents and patents. Legal translation requires in-depth knowledge of the legal system and the corresponding terminology in both languages.

Each type of translation involves a specific set of skills and expertise in the field in question.

A number of problems arise when using NMT systems for the automatic translation of different types of text, particularly with regard to terminology. To understand these problems, it is important to start by distinguishing the linguistic components of a text. While phonology deals with the sound aspect of language, semantics is concerned with the meaning of words and terms. Syntax helps us to form meaningful sentences and compound terms that express concepts.

The NMT system faces a major challenge: managing the different terminologies used in different fields. For example, legal and economic

texts contain specific terminology that is not used in everyday language. NMT systems struggle sometimes to translate these terms accurately, resulting in incorrect or ambiguous translations. The same term can have different meanings depending on the context in which it is used. NMT systems may not be able to recognize these nuances and translate the term incorrectly.

Another challenge is the complexity of the language, particularly when it comes to idiomatic expressions. These expressions are often culture-specific and cannot be translated literally. NMT systems may not be able to recognize the meaning of these expressions and produce inaccurate translations.

Different types of text require different levels of formality and style. NMT systems may not be able to recognize the appropriate level of formality or style required for a particular text, resulting in translations that are not suitable for the intended audience.

NMT still faces a number of challenges when it comes to accurately translating different types of text, especially those related to specific fields and terminologies. Although NMT systems are improving, they still require human intervention to ensure accurate and efficient communication.

Conclusions

In this study, we can classify NMT-related issues into six categories: 1) **semantic and lexical accuracy**, 2) **terminological accuracy**, 3) **punctuation and spelling accuracy**, 4) **context understanding**, 5) **syntactic and structural concerns**, and 6) **human expertise concerns**.

Analysis of the various translations provided by the different NMT tools highlighted disparities in grammar, sentence structure and word choice when it came to a particular area of specialization and terminology. Although all translations succeeded in conveying the fundamental meaning of the original text, Microsoft's translation, for example, proved to be the most accurate and consistent. These results highlight the inherent limitations of NMT systems, and emphasize the indispensability of human translators for accurate, clear translations.

NMT has undoubtedly revolutionized cross-linguistic communication, enabling faster and more accessible interaction with neural algorithms and models. However, the accuracy and quality of NMT systems depend on factors such as the quality and size of the corpora used, as well as the linguistic complexity and contextual nuances of the text. Consequently, it is essential to exercise caution when using NMT systems, particularly for complex or specialized content, and to carefully review and edit the translations generated.

Finally, NMT systems are powerful tools that greatly enhance cross-cultural communication. However, it is essential to recognize their

inherent limitations and approach them with caution, ensuring that translations are accurate and contextually appropriate. By combining the strengths of NMT with the expertise of human translators, we can realize the full potential of these technologies to promote accurate and effective multilingual communication.

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Samples from corpus

Automatically aligned text: Medical text			
Arabic **(Target) - NMT system Translation**	**Arabic** **(Target) - Human Expert Translation**	**French** **(Target) - Human Expert** **Translation**	**English** **(Source text)**
Vaccines used during the smallpox eradication programme also provided protection against monkeypox. Newer vaccines have been developed of which one has been approved for prevention of monkeypox *Monkeypox is caused by monkeypox virus, a member of the Orthopoxvirus genus in the family Poxviridae.* *Monkeypox is usually a self-limited disease with the symptoms lasting from 2 to 4 weeks. Severe cases can occur. In recent times, the case fatality ratio has been around 3–6%.* *Monkeypox (who.int)*	*La variole du singe est causée par l'orthopoxvirus simien, qui appartient au genre Orthopoxvirus de la famille des Poxviridés.* *La variole du singe est une zoonose virale que l'on rencontre principalement dans les régions de forêt tropicale humide d'Afrique du Centre et de l'Ouest. Elle est parfois exportée vers d'autres régions. Sur le plan clinique, la variole du singe se manifeste généralement par de la fièvre, des éruptions cutanées et un gonflement des ganglions lymphatiques et peut entraîner toute une série de complications médicales.* *La variole du singe guérit en général spontanément et les symptômes durent de 2 à 4 semaines. Certains cas peuvent être graves. Ces derniers temps, le taux de létalité était d'environ 3 à 6 %.* *Source : Principaux repères sur l'orthopoxvirose simienne (who.int)*	*Yatasabba'u fiirus jadari alqirdah fi haduth jadari alqirdah, wa huwa yantami'i ila jins alfiirusah aljadariyah almunhadhirah min salla alfiirusat aljadariyah. Jadari alqirdah huwa maradh fiirusi hayawani almunsha' yuzharu bishakl ra'isi fi manatiq alghabat alistiwaiyah almatarah fi wasat wa gharb Ifriqiya wayantiqu 'ahyanan ila manatiq ukhra. Yatasahab maradh jadari alqirdah 'adatan siriyyan alhumma wal-tafahh aljildi watadhakhkhul alghudud allimfawiyah waqad yu'adi 'ila majmu'ah min almuada'afat altibbiyah. 'Adatan ma yazulu maradh jadari alqirdah min talaq dhatihi watustamir 'a'raduhu min 2 'ila 4 asabian. Waqad yusabbih halat wa-khimah. Wafi al-aunah al-akhira tarawahhat nisbat alwafyat min majmu'i al'isabat bayna 3 wa 6 fi almiah taqriban.*	*Yuhadiru jadari al-qurada bisebab virus al-'awrthubuks al-quradi, al-ladhi yantami 'iilaa jins al-fayrusat al-'awrthubuksy fi Poxviridae 'aayilah. Jadari al-qurud huwa marad fayrusi hayawani al-munsha'u yujadu bishakl ra'isi fi manatiq al-ghabat al-istuwayiyya al-matira fi wasat wa gharb 'ifriqiya. Yatam tassiruh fi ba'di al-ahyan ila manatiq akhara. Min al-nahiyah al-siririyah, yuzhar jadari al-qurud 'adatan bil-humma wa al-tafadh al-jildi wa tadhakkum al-ghudd al-limfa'awiyyah wa yumkin an yu'addi 'iilaa majmu'at min al-muda'afat al-tibbiyah. 'Adatan ma yashfi jadari al-qurud min talaqa' nafsih wa tastamir al-'a'rad min 2 'iilaa 4 asabiq. Yumkin 'an takun ba'du al-halat kharijiyyah. Fi al-'awna al-'akhira, kana ma'dal al-wufyat bayna al-halat hawaliy 3-6%.*

Automatically aligned text : Techno-scientific text			
Arabic **(Target) - NMT system Translation**	**Arabic** **(Target) - Human Expert Translation**	**French** **(Target) - Human Expert** **Translation**	**English** **(Source text)**
Metaverse standardization roadmap *ITU, the United Nations specialized agency for*	*Feuille de route pour la normalisation du métavers*	*Kharitatu tariq taqyis al-meetaveers*	*khāriṭat ṭarīq al-taqyīs Metaverse al-ittihād al-dawlī lil-ittisālāt, wakālat*

information and communication technologies, is mandated by governments to expand digital connectivity and promote sustainable digital transformation. *The ITU focus group aims to develop a roadmap for setting technical standards to make metaverse services and applications interoperable, enable a high-quality user experience, ensure security, and protect personal data.* *"Standards development must be driven by everyone that will rely on the resulting standards," said Seizo Onoe, Director of the ITU Telecommunication Standardization Bureau. "This focus group will support our work together to envision technology use cases for the metaverse, determine the associated technical requirements, and develop standards that help meet these requirements on a global scale."* *Press Release (itu.int)*	*L'UIT, l'institution spécialisée des Nations Unies pour les technologies de l'information et de la communication, est mandatée par les gouvernements pour renforcer la connectivité numérique et promouvoir une transformation numérique durable.* *Le groupe spécialisé de l'UIT a pour objectif d'élaborer une feuille de route relative à l'élaboration de normes techniques visant à rendre les services et les applications du métavers interopérables, à offrir aux utilisateurs une expérience de qualité, à garantir la sécurité et à protéger les données personnelles.* *"La normalisation doit émaner de tous ceux qui s'appuieront sur les normes ainsi élaborées", a déclaré Seizo Onoe, Directeur du Bureau de la normalisation des télécommunications de l'UIT. "Ce groupe spécialisé appuiera les travaux que nous menons de concert en vue de réfléchir aux cas d'utilisation technologiques du métavers, de déterminer les exigences techniques qui y sont associées et d'élaborer des normes permettant de répondre à ces exigences à l'échelle mondiale".* *Communiqué de presse (itu.int)*	*Kullifat al-hukumat al-ittihad, wakalah al-umam al-mutahida al-mutakhassisah fi majaal teknulujiya al-ma'lumat wal-ittisalat, bi-tawsie' nitaaq al-tawseelyah al-raqmiyah wata'zees al-tahawul al-raqmi al-mustadham.* *Wayahdifu al-fareeq al-mutakhassis al-tabi'i lill-ittihad ila insha'a kharitat tariq li-wad' ma'ayir teknuyah li-ja'ala khidmat al-meetaveers watatbiqatha qabila lil-tashghil al-bayni wa-ittaha tajribah 'alyah al-jawdah lil-musta'mal wadman al-amn wahifazat al-bayyanat al-shakhsiya.* *Waqal al-sayyid sayzo onowi, mudir maktub taqyis al-ittisalat bial-ittihad "in tatwir al-ma'ayir yajib 'an yadfa'uh kull man ya'tamid 'ala al-ma'ayir al-natijah". Wa-ardaf qaylan "wasayada'mu hadha al-fareeq al-mutakhassis 'amalana ma'an litasawwur halat isti'mal al-taknulujiya min ajl al-meetaveers, watuhdud al-mutatallibat al-taqniyah al-murtabitah bih wa-wad' al-ma'ayir allati tusaeed 'ala talbeyat hadhih al-mutatallibat 'ala al-sa'eed al-'alami."*	*al-ummam al-muttaḥida al-mukhtaṣṣah fī māl tiknūlūjiyā al-maʿlūmāt wal-ittisālāt, mufawwiḍat min qibal al-ḥukūmāt li-taʿzīz al-tawṣīlīyah al-rqmīyah wataʿzīz al-taḥwul al-rqmī al-mustadam. al-ghurḍ min fariq al-tarkīz al-tābiʿ lil-ittihād al-dawlī lil-ittisālāt huwa wuḍʿ khāriṭat ṭarīq litatawir al-maʿāyīr al-tiqnīyah ljalīl al-tashghīl al-baynī, watazwīd al-mustakhdimīn bitajribat ʿāliyat al-jawdah, wadman al-amn wahlamīyah al-bayānāt al-shakhṣīyah. qāla sīzū ʿūnūy, mudīr maktab taqyīs al-ittisālāt bil-ittihād: "yajib an yaʾti altawḥīd al-qiyāsī min jamīʿ ʾulāʾika alladhīna sayabnūn ʿalā almāʿāyīr allatī tamtuqiruhā ʿalā hadhā al-nahw". "satudaʿim mujtamʿat altarkīz hathihi al-ʿamal alladhī naqūm bih maʿan liltafkīr fī ḥālat istiḵdām al-tiknūlūjiyā li-Metaverse, wataḥdīd al-mutatibat al-fanīyah al-murtabitah bihā, watawīr al-māʿāyīr litilbīa tilka al-mutatibat ʿalá nṭāq wāsiʿ. al-ʿālam".*

Automatically aligned text : Legal text

Arabic **(Target) - NMT system Translation**	**Arabic** **(Target) - Human Expert Translation**	**French** **(Target) - Human Expert** **Translation**	**English** **(Source text)**
Article 33 *1.The parties to any dispute, the continuance of which is likely to endanger*	*Article 33* *1.Les parties à tout différend dont la prolongation est susceptible de*	*al-māddah 33 1 - yajib 'alā 'aṭrāf 'ayy nazāʿ min sha'n istimrārih 'an yuʾrad ḥifẓ al-silm wal-amn al-dawlī lil-khaṭar 'an yaltamisū huluhu bādhi dhī bid'in*	*al-Qism 33 -1 - Tus'aa al-aṭrāf fī ayy nizāʿ min al-muḥtamil ʾan yahdud ʾistimrārah al-ḥifẓ ʿalā al-silm wal-ʾamn al-dawlīyayn,*

the maintenance of international peace and security, shall, first of all, seek a solution by negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of their own choice. *2. The Security Council shall, when it deems necessary, call upon the parties to settle their dispute by such means.* *Article 34* *The Security Council may investigate any dispute, or any situation which might lead to international friction or give rise to a dispute, in order to determine whether the continuance of the dispute or situation is likely to endanger the maintenance of international peace and security.* *United Nations Charter (full text) | United Nations*	*menacer le maintien de la paix et de la sécurité internationales doivent en rechercher la solution, avant tout, par voie de négociation, d'enquête, de médiation, de conciliation, d'arbitrage, de règlement judiciaire, de recours aux organismes ou accords régionaux, ou par d'autres moyens pacifiques de leur choix.* *2.Le Conseil de sécurité, s'il le juge nécessaire, invite les parties à régler leur différend par de tels moyens.* *Article 34* *Le Conseil de sécurité peut enquêter sur tout différend ou toute situation qui pourrait entraîner un désaccord entre nations ou engendrer un différend, afin de déterminer si la prolongation de ce différend ou de cette situation semble devoir menacer le maintien de la paix et de la sécurité internationales.* *Charte des Nations Unies (version intégrale) | Nations Unies*	*biṭarīq al-mufāwadhah wal-taḥqīq wal-wasāṭah wal-tawfīq wal-taḥkīm wal-taswiyah al-qadāʾiyah, ʿaw ʿan yaljāʾu ʿilā al-wakālāt wal-tanẓīmāt al-iqtilāmīyah ʿaw ghayrihā min al-wasāʾil al-salmīyah allatī yaqʿu ʿalayhā ikhtiyāruhā. 2 - wa-yadʿū majlis al-ʿamn ʿaṭrāf al-nazāʿ ʿilā ʿan yaswū mā baynahum min al-nazāʿ bi-tilk al-ṭurūq ʿidhā raʾā ḍarūrah dhālik. al-māddah 34 li-majlis al-ʿamn ʿan yufḥam ʿayy nazāʿ ʿaw ʿayy mawqif qad yuʿaddī ʿilā iḥtikāk dawlī ʿaw qad yuthīr nazāʿan li-yaqdir mā ʿidhā kāna istimrāru hādha al-nazāʿ ʿaw al-mawqif min shaʿnih ʿan yuʿrad lil-khaṭar ḥifẓ al-silm wal-amn al-dawlī. mīthāq al-ʿumam al-mutahidah (al-nas al-kāmil) | al-ʿumam al-mutahidah (un.org)*	*ʾilá ḥull, ʾan ṭarīq al-tafāwidh wal-taḥqīq wal-wusāṭa wal-tawafuq wal-taḥkīm wal-taswīyah al-qaḍāʾīyah wal-lajwʾ ʾilá al-munẓamāt al-ʾiqlīmīyah. ʾaw al-tartībāt, ʾaw al-wasāʾil al-salamiyah al-ʾukhrá allatī yakh-tarūnahā. 2. Yadʿū Majlis al-Amn al-aṭrāf, ʾiḍā raʾá ḍarūrah liḍalik, ʾilá taswiyat nizāʿihim bi-hādhih al-wasāʾil. al-Qism 34 - Yajūz li-Majlis al-Amn al-taḥqīq fī ayy nizāʿ ʾaw mawqif qad yuʾdī ʾilá al-khilāf bayn al-dawl ʾaw yuʾdī ʾilá nizāʿ, min ʾajli tahdīd mā ʾin kāna ʾistimrār hādhā al-nizāʿ ʾaw al-mawqif yabdu ʾanna-hu min al-muḥtamil ʾan yahdud al-ḥifẓ ʿalā al-silm wal-ʾamn al-dawlīyayn.*