Unlocking the Mysteries:
Top Linguistic Issues in Arabic Website Localization(*)

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Abstract

Reputable companies always seek to localize their websites to have a global presence and international customers. However, sometimes the localization process is not done properly which leads to linguistic issues in the localized website. This paper aims at identifying the linguistic issues usually found in Arabic localized websites. It investigates five areas including food, automotive field, economies, medical tools, and flights to highlight general issues, not limited to a specific field. Additionally, it provides solutions to overcome these issues and produce an Arabic site that meets the target audience's demands. The study employs a product-oriented approach, which concentrates on analyzing translations as final products. A qualitative analytical methodology is adopted to identify linguistic issues encountered during localization. Findings reveal that there are significant accuracy issues, including untranslated texts, omissions, and mistranslations. Additionally, terminology translation errors, that have a major impact on the understanding of the text, are found. While there are numerous fluency problems, they do not greatly affect the overall translation. The detected issues highlight that the localization process was not properly followed, and the necessary tools were not used effectively. This paper contributes to the translation and localization studies as it explains how to enhance the localized website quality.

*Keywords***:** websites, localization, computer-assisted translation, TAUS, error typology

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الملخص

تسعى الشركات التي تتمتع بسمعة جيدة دائمًا لتوطين مواقعها محليًا على الويب ليكون لها تواجد عالمي، وللوصول إلى العملاء في جميع أنحاء العالم. ولكن في بعض الأحيان لا تتم عملية التوطين بشكل ملائم؛ مما يؤدي إلى وجود أخطاء لغوية في الموقع الذي تم توطينه محليًا. تهدف هذه الورقة البحثية إلى تحديد الأخطاء اللغوية التي تظهر غالبًا في المواقع العربية. وهي تحلل خمسة مجالات تتضمن الطعام والسيارات والاقتصاد والأدوات الطبية ورحلات الطيران، وذلك لإبراز المشكلات العامة التي لا تقتصر على مجال محدد. فضلا عن ذلك، فهي تعرض حلولاً للتغلب على هذه المشكلات لتقديم موقع عربي يفي باحتياجات الجمهور. وتتبع الدراسة نهجًا يركز على تحليل الترجمات كمنتج نهائي، كما تتبنى منهجية تحليلية نوعية لتحديد المشكلات اللغوية التي ظهرت أثناء عملية التوطين. تكشف النتائج عن وجود مشكلات كبيرة في الدقة، بما في ذلك وجود نصوص غير مترجمة وحذف أجزاء من النص الإنجليزي وأخطاء تتعلق بعدم فهم النص الأصلي. علاوة على ذلك، وُجدت أخطاء في ترجمة المصطلحات التي تؤثر بشكل كبير على فهم النص. وعلى الرغم من وجود عديد من المشكلات المتعلقة بالطلاقة اللغوية، إلا أنها لا تؤثر تأثيرًا كبيرًا على الترجمة الإجمالية. تسلط المشكلات المكتشفة الضوء على أن عملية التوطين لم تُتبع بشكل صحيح، وأن الأدوات الضرورية لم تُستخدم بفعالية. وبذلك، تساهم هذه الورقة البحثية في دراسات الترجمة والتوطين من خلال شرح كيفية تحسين جودة المواقع التي تم توطينها محليًا.

الكلمات المفتاحية: مواقع الويب، التوطين المحلي، الترجمة بمساعدة الحاسوب، TAUS، تصنيف الأخطاء.

In this ever-changing technological world, websites have become very important in achieving global reach, local and international communication, and obtaining information. Since website users may only know their native language, it becomes crucial to render these sites into other languages. Here comes the role of international companies seeking to expand their market presence and drive international growth effectively. Websites include digital content which has specific characteristics as the presence of navigating hyperlinks, buttons, images and more. Consequently, it becomes necessary to adopt a process that covers both the translation and the digital-related aspects. This underscores the significance of comprehensive processes that integrate both translation and technology aspects, leading to the development of the localization processes.

The genesis of localization can be traced back to the 1980s with the emergence of desktop computer technologies. It is the process of adapting certain content to meet the language, cultural, and functional requirements of a target market (Miguel, 2024). In order to consider the cultural nuances, the Globalization and Localization Association (GALA) states that localization focuses on adapting the textual aspects such as date formats, currencies, telephone numbers as well as the visual elements such as images, colors, and layout. As the content includes more than texts, it is given the term "product"; an umbrella term that involves applications, manuals and websites. Since products usually include large volumes to localize, computer-assisted translation (CAT) tools are used to enhance quality and increase the localizer's productivity. In order to evaluate the quality of the localized products, translation and localization international companies establish standardized frameworks to categorize translation errors. In this research, the Translation Automation User Society (TAUS) error typology is applied as it is the most widely adopted nowadays for evaluating localized products.

TAUS Error Typology

TAUS was founded in 2005 aiming to automate the translation processes. Among its innovative software solutions is the Dynamic Quality Framework (DQF), which assesses the translation level using a standardized set of metrics measuring the qualitative aspect. As for the qualitative dimension, the DQF framework allocated six main categories for assessing the linguistic quality: *accuracy, local convention, style, fluency, terminology* and *verity*. Four of these—accuracy, local convention, terminology, and verity—significantly impact the user experience. *Accuracy* errors indicate inaccurate transfer of the source text meaning resulting from mistranslation, omission or addition that alter the intended meaning. Untranslated source text also falls under accuracy errors, as they provide incomplete information. *Local convention* includes incorrect formatting or adaptation of currency, date, time, address, phone number and measurements. For instance, product support contact numbers should be adapted to facilitate calls from users in their specific countries. *Terminology* errors include inconsistent term translations or terms that do not align with the client's glossary or industry standards. For example, in general contexts, "function" is translated as وظيفة, but in mathematics and Excel (xls) software, it should be rendered as دالة.

The other two types of errors are *Style* and *Fluency* which do not impact the user's understanding of the translated text in most cases. *Style* errors involve translation that contradicts the style guide of the client or the conventions of the field. It also includes inconsistent style such as mixing imperative and infinitive verb forms in a bulleted list. Another type of style errors is the awkward stylistic choices that are unacceptable to the target readers. For instance, marketing texts require a promotional tone, so literal translations may fail to engage the target audience effectively. *Fluency* errors relate to language issues, including spelling, grammar, syntax, and punctuation. This category also includes inconsistencies in links, whether in the same page or across different pages. As noted, the TAUS error typology encompasses nearly all potential errors encountered in translation. Therefore, it would be beneficial to analyze issues in localized websites according to these defined error categories.

In the light of the above, this research aims to answer the following question: *What are the most common linguistic issues in the Arabic localized websites?* To address this, two subsidiary questions were raised:

Q1. What are the potential causes of these issues?

Q2. What measures can be taken to prevent these linguistic issues?

1. Literature review

Having emerged as a new language industry to handle digital technologies, localization involves multilingual services and complex processes to make content relevant and accessible to the local users. According to GALA "Translation is only one of several elements in the localization process". Linguistic processes include translation, cultural adaptation, quality assurance and testing. Mirna (2017) highlights the importance of testing processes which involve linguistic and functional testing, and online quality control. Linguistic testing includes proofreading the translation to ensure that all text strings are translated properly, menu items, titles, and bulleted lists maintain consistent style, and that the content is culturally appropriate to the target users. Online quality control check that characters and punctuation marks are displayed correctly and that texts do not appear truncated. Functional testing, on the other hand, verifies that interactive elements function properly. As such, without quality assurance and testing, the previous steps may fail to meet user expectations. This ensures that issues are early detected and prevented in various areas of the product.

Due to the large volume of content that needs to be localized, often involving multiple localizers, localization projects for software, help files, websites, and manuals typically require a company-specific style guide. This guide helps standardize the approach to localizing cultural references and the style of digital content for the specific markets where the product or service will be sold. La Cova (2023) argues that the approach of localizing cultural aspects in websites, such as currency, date, time and number formats and units of

measurement in addition to audiovisual elements such as colors, images and sounds, is usually explained in the client's or the product translation style guide. Localization guidelines improve the overall quality, accuracy, and usability of the product. For instance, the WordPress Arabic Style Guide provides detailed instructions on handling measurement formats, temperature symbols, abbreviations, and number separators, such as those for thousands and millions. It specifies that the Celsius symbol should be written out in full, and that thousand separators should be omitted in Arabic (e.g., 1,000 becomes 1000). The Translation without Borders style guide, on the other hand, instructs translators to use simpler terms when translating for public audiences. For example, it recommends using إيدز for "AIDS" instead of the medical term فيروس نقص المناعة البشري المكتسب, and using أمراض instead of اعتلالات for "sicknesses". These guidelines ensure a consistent and cohesive style across all translators and localizers working on the project.

CAT tools have profoundly transformed the translation industry, becoming essential in modern translation workflows. Pietrzak and Kornacki (2021) explore the usage of CAT tools in freelance translation. They view that the core components of CAT tools are the translation memory (TM) and the terminology database (TB). A TM is a repository of bilingual segments, or translation units, consisting of sentences or phrases and their corresponding translations. By segmenting the text, the memory allows translators to retrieve previous translations easily and reuse them when translating a new content. The translators can also use the concordance feature to search for similar phrases and see how they were previously translated. A terminology database stores key terms and their translations, ensuring consistency across the entire product. This helps maintain uniformity in specialized terminology. Another core function is the quality assurance or testing features that check for punctuation accuracy, untranslated strings, consistency of repetitive phrases and terms, and correctness of numbers and other data, depending on the specific tool. These features enhance productivity, improve translation quality, and maintain consistency throughout the product (Bowker and Fisher, 2018; Kornacki, 2018). However, CAT tools have some

downsides as they limit the translator's creativity and potentially affect their understanding of the text due to the segmentation process, which can impact the overall text coherence (La Cova, 2016). Another limitation introduced by Pietrzak and Kornacki (2021) is the ability of the tools to run only on Windows where macOS and Linux users have limited access to these tools.

Localization presents a variety of challenges and complexities. Yunker (2003) proposes that one of the main complexities arises with right-to-left (RTL) languages like Arabic, whose directionality contrasts with left-to-right languages like English. As a result, the direction of text and numbers must be carefully handled when producing the final output. Another common challenge is text expansion during localization, especially in short texts or buttons. This requires reducing text length as well as testing to prevent truncation in the final product. La Cova (2016) examined translation challenges caused by segmentation in translation memory systems and internationalization practices during website localization. For instance, the title "Company System Overview" might be split into two segments: "Company System" and "Overview." A literal translation by an untrained localizer might render these segments as ''نظام الشركة'' followed by ''نظرة عامة,'' resulting in the awkward phrase '' نظام الشركة نظرة عامة'' when the product is published. This highlights the need for adaptation by the localizer which may be blocked due to the segmentation.

Localization quality is affected by various factors, such as lack of context which is a significant cause of errors. In some cases, localizers receive isolated strings without access to the full product content. La Cova (2016) refers to this as "blind localization," a practice that frequently leads to mistranslations, negatively impacting the final product quality. For example, the term "item" on an invoice could be translated as either "بند" or "صنف/منتج," depending on its context within the document. Olvera-Lobo and Castillo-Rodríguez (2018) highlight serious issues that affect the localized website quality including incorrect rendering of the source meaning, nonsensical translations, omissions, and terminology inconsistencies or imprecision. Additionally, language errors include failure to adhere to

the grammar and syntax of the target language, misspellings, and stylistic problems. Cultural issues also play a role, such as not adjusting price currency and financial figures to the local currency or using incorrect formats for numbers, dates, and measurements. They recommend strategies to ensure proper localization, including verifying that the intended meaning is preserved, adapting the text to the stylistic conventions of the target language, maintaining consistent and accurate terminology, using spelling checkers, and addressing cultural considerations. Other factors affecting localization quality include the absence of a terminology database, improper use of CAT tools, and inadequately trained localizers.

As localization is a distinct linguistic field not relying on traditional translation theories, researchers in this industry emphasize the integration of translation and localization. Odacıoğlu (2017) proposes a new theory called "Integrated Localization Theory of Translation Studies". He explains that traditional translation methods are horizontal, whereas the use of CAT tools has transformed the process into a vertical approach, where the text is presented as consecutive strings. Additionally, localizers are required to possess diverse expertise, taking on multiple roles in the localization process, such as project manager, post-editor, and tester. To address this shift, translation and interpretation programs should be updated. Revisiting Holmes' map for translation studies, Odacıoğlu proposed a new category called "Regenerative Theories of Translation," under which his theory should be included. This is because the word "generative" reflects the dynamic and continuously evolving nature of the localization industry.

A number of researchers promote developing the translator's competences with sophisticated technical skills due to the rapid change in the translation industry and the increase in project complexity. Rodríguez-Castro (2018) calls for updating the traditional translation curriculum to incorporate additional translator competences that bridge the gap between the academia and emerging market needs. He proposes an introductory graduate-level course including a curricular on terminology management, post-editing, and software localization. Additionally, a special emphasis is made on a

curricular for CAT tools and machine translation systems as they are indispensable for any translators (Rodríguez-Castro, 2018; Kenny, 2020; Kornacki, 2018; EMT Board, 2022; Buysschaert *et al*., 2018). In order to maximize the efficiency of learning, researchers propose the importance of practice and task-based learning in a professional context (Buysschaert et al., 2018; Rodríguez-Castro, 2018).

Given the large-scale and the fast-paced nature of the localization industry, teams require diverse skill sets other than language and technology. La Cova (2016) highlights that due to time constraints in localization, translators must utilize their complete skill set to address the challenges posed by the source text and the localization process. Localizers must be able to perform effectively under pressure, making stress management an essential competency in this demanding field. The European Master's in Translation (EMT) network (2022) proposes a comprehensive framework for translation training programs. It suggests that beyond the language and technological skills, translators must develop interpersonal skills including strong time management and task prioritization skills. Additionally, they must use social media effectively. This includes developing strong communication skills to be able to collaborate successfully with team members and clients, ensuring clear and concise exchanges that convey the intended message. Familiarity with communication tools such as Outlook, Skype, Microsoft Teams, Zoom, and Slack is also essential.

In conclusion, localization has evolved since the 1980s into a new industry that transcends mere translation addressing the complex needs of diverse markets and cultures. It involves multifaceted processes that not only include linguistic transfer but also embraces cultural sensitivity, technological integration, digital content, and comprehensive quality assurance procedures. As highlighted, the effectiveness of localization depends on various elements, including the establishment of comprehensive style guides, the utilization of CAT tools, and the management of cultural nuances and visual constraints. The challenges raised—ranging from linguistic ambiguities to technical aspects—underscore the necessity of a skilled staff equipped with both translation expertise and technological

proficiency. This movement towards a completely digitized world entails the training of the translators to be localizers. The demand for continuous learning in the face of evolving technologies is paramount so that the localizers can deal with the intricacies of dynamic content and can work in a fast-paced environment.

2. Methodology and data analysis
2.1 Methodology

Adopting the product-oriented approach, focusing on the translated product in the Descriptive Translation Studies, this paper conducts analysis of the mentioned websites. The primary methodology employed is meticulous observation, as automated tools are insufficient for detecting errors. A comparative analysis of the source and translated texts is utilized to identify differences and shifts, particularly those diverging from Arabic conventions and local standards. The expectations of the professional Arabic users, inferred from Arabic rules and conventions, are also stated. This contributes to a deeper understanding of the nature of issues found. The Translation Automation User Society (TAUS) error typology is applied to categorize the errors and identify where the majority of errors occur across the five Arabic sites. By analyzing these errors systematically, the researcher can identify patterns; root causes, and provides insights to improve the quality.

2.2 Data Collection

To ensure accurate data, various sectors localized in different countries are taken into consideration. Five sites are analyzed namely Mitsubishi Motors, based in Egypt; Localization Action Guide, based in USA, Pekmakina, based in Turkey; QG Medical Devices, based in Qatar, and finally, Emirates, based in Emirates. These sites pertain to the automotive industry, economic enhancement, biscuit and cake production equipment, the medical sector, and tourism, respectively. The sample includes ten pages, focusing on the Home page of each site, as this is the primary landing page for users. In addition, the

About Company or Corporate page is included in the analysis, since users often visit these sections to assess the company's reliability and trustworthiness. Sample screenshots, from each site, are captured to easily illustrate the errors and support the case study. As websites are frequently updated, the access date is mentioned for each site.

2.3 Data Analysis

TAUS error typology is used for error analysis to identify the various sources from which the translation errors stem, such as linguistic differences, context misinterpretations, or fluency and readability issues. Each following section presents errors based on the most prevalent ones observed on the site.

2.3.1 ActionGuide

ActionGuide website is owned by Local Futures, a nonprofit organization committed to revitalizing ecological, social, and spiritual well-being by fostering a comprehensive shift toward economic localization. It provides solutions for individuals, communities and organizations to take actions to improve local economies. An analysis of the Home and About pages reveals the following errors: 5 style, 4 accuracy, 2 terminology, 1 fluency, and 1 local convention error. The section below provides samples of each type of error, accompanied by screenshots where necessary for clarification.

Style Errors

In terms of style, the errors include inconsistent translation and awkward phrasing. For example, the translation of the button "Learn more" as "يتعلم أكثر" sound peculiar as refers to a third person. The verb should either be in the imperative form, such as "تعرُّف على المزيد", or in the infinitive form, such as "معرفة المزيد." Additionally, there is inconsistency in the verbs used under the section "A few examples of Actions." On the source website, all actions begin with imperative verbs like "Join, Start, Move, Reclaim, Organize." However, on the target site, both imperative and infinitive verbs are used, such as "انضم، انقل" (imperative) and "استعادة، تنظيم" (infinitive). Figure 1 below highlights this issue:

Figure 1

Inconsistent verb translation on ActionGuide site
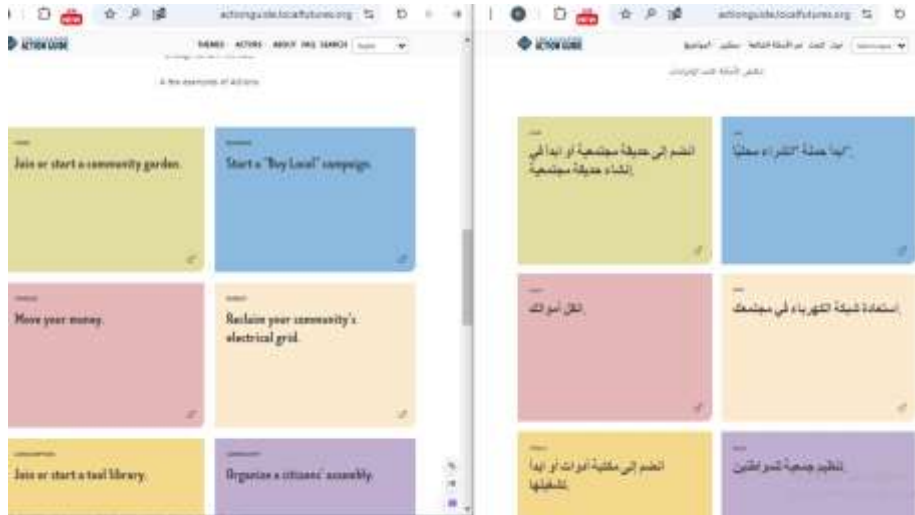
Accuracy Errors

Accuracy errors include mistranslations, unnecessary omissions or additions, and untranslated segments. Such issues are evident from the very beginning of the site, starting with the title "Let's Go Local," which is literally translated as "دعونا نذهب محليًا". This translation appears ambiguous and only becomes clear after reading through the page. The phrase implies "Let's localize our economies," hence; a better translation would be "فلنبدأ بتوطين اقتصاداتنا". Another example of literal translation appears for the sentence: "In the pursuit of never-ending growth and profits, the corporate-led global economy is putting all life on earth at risk." This was rendered as:

في سعيه لتحقيق النمو والأرباح التي لا نهاية لها، فإن الاقتصاد العالمي الذي تقوده الشركات يعرض كل أشكال الحياة على الأرض للخطر.

However, the phrase "In pursuit of" is an idiom defined in Merriam-Webster as "in order to". A more accurate translation would be:

من أجل تحقيق النمو والأرباح الدائمين، يعرّض الاقتصاد العالمي الذي تقوده الشركات كل أشكال الحياة على الأرض للخطر.

Mistranslation issues also appear in the translation of hyperlinks. For example, "Credits" which appears both in the Home page at the very end and in the About page in the sentence "See the Credits page for a list of people who have contributed to making this guide." is translated as "الاعتمادات". However, the page that opens states that "Many thanks to the people who helped bring this guide into existence:" A more fitting translation would be "التقدير" as it better conveys the meaning of acknowledgment.

Other Types of Errors

This section highlights errors with limited occurrences across the examined pages. Terminology errors involve translations that are either inconsistent within the text or with the termbase provided by the client. For instance, the term "theme" is translated inconsistently as both "موضوع" and "سمة," despite referring to the same concept, as shown in Figure 2:

Figure 2:

Inconsistent Translation of "Theme" on ActionGuide
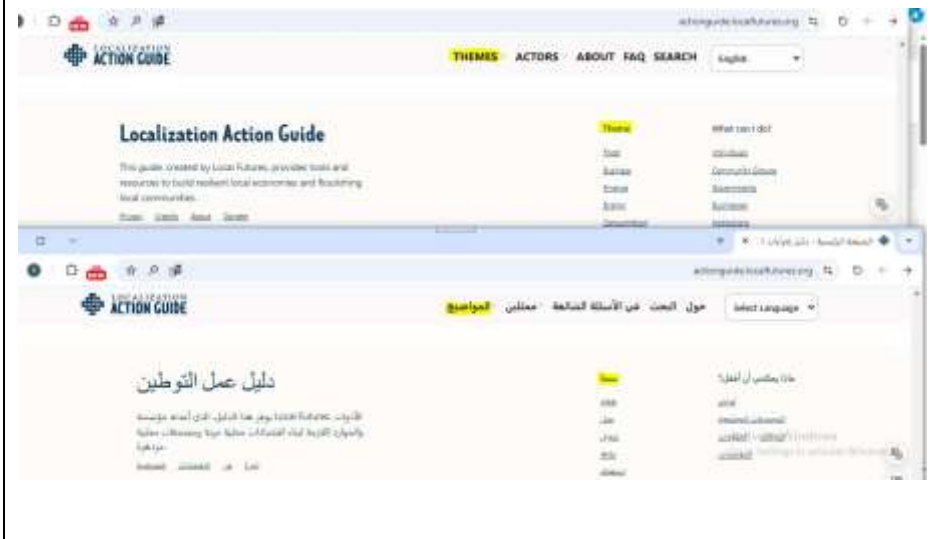
Local convention errors encompass issues related to regional formats, such as those for currency, numbers, and dates. In the Home page, "137 Actions to resist and renew." is translated as "137 خطوة

للمقاومة والتجديد." where the number should be in Hindi format as "١٣٧". As explained by IndustryArabic, the Arabic numerals, developed in the Maghreb in the 10th century, were brought to Europe by Arab scholars in Al-Andalus, giving them their name. Accordingly, in Arabic texts, the numerals to be used should be Hindi format as explained by IndustryArabic in figure 3 below:

Figure 3

Hindi and Arabic format on IndustryArabic site

This chart shows the differences between the Hindi and Arabic numeral systems:

Hindi	٠	١	٢	٣	٤	٥	٦	٧	٨	٩
Arabic	0	1	2	3	4	5	6	7	8	9

Fluency errors include issues such as grammatical, spelling and punctuation errors. This is exemplified in the sentence "They provide opportunities to reject the monocultural ideas and practices that destroy the beauty and diversity of our planet." translated as " وهي توفر الفرص لرفض الأفكار والممارسات الأحادية الثقافة التي تدمر جمال كوكبنا وتنوعه." where "الأحادية" should be "أحادية" according to the Arabic genitive rule.

2.3.2 Mitsubishimotors

Diamond Motors Company, owned by Al Mulla Group since 2010, holds the exclusive distribution rights for Mitsubishi Motors in Egypt. Upon examining the **Home** and **About Diamond Motors** pages, a total of 12 accuracy, 10 fluency, 2 terminology and 1 local convention errors are identified.

Accuracy Errors

Most accuracy errors arise from untranslated phrases such as "Drive your Ambition" or untranslated words like "Sedan" and "Unleaded", as well as acronyms like "SUV" and "MPV". The screen below displays "unleaded" untranslated in one instance and translated as "خالي من الرصاص" in another.

Figure 4:

Untranslated "Unleaded", "SUV", "MPV" and Numbers inconsistency on Mitsubishimotors
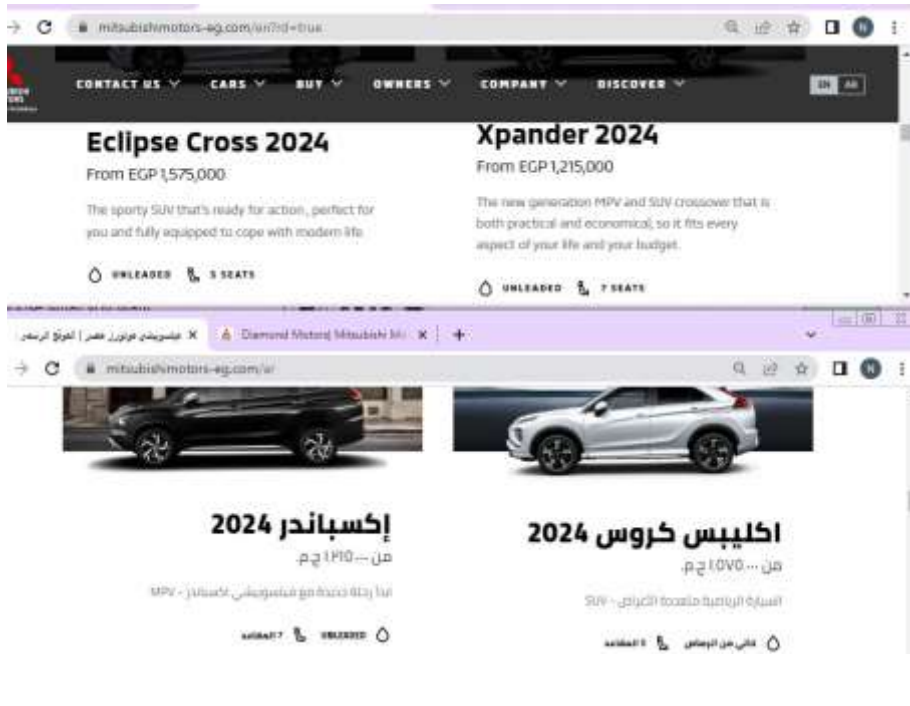
Additionally, there are instances of mistranslations, as in the sentence "The company has continuously and proudly achieved various top rankings in the areas of sales, after sales, service and marketing regionally across Africa and Middle East for Mitsubishi Motors.". This is rendered as " كما حصدت شركة دايموند موتورز باستمرار أعلي الجوائز في مجالات المبيعات وخدمات ما بعد البيع والتسويق إقليمياً في إفريقيا والشرق الأوسط لشركة ميتسوبيشي موتورز." In this case, the word "rankings" was incorrectly translated as "الجوائز", when it should be "التصنيفات", as the source clearly refers to rankings. Another sample of an accuracy error is "Dealer Locator" translated as "عروض خاصة", where the original meaning is completely replaced which could be "موقع الموزع". Another example of omission is "In 2013 we launched the Outlander PHEV,

the world's first plug-in hybrid SUV." translated as "وفي عام ٢٠١٣ أطلقنا أول سيارة دفع رباعي هجينة تعمل بالكهرباء في العالم" where "Outlander PHEV", a key word, is omitted entirely.

Fluency Errors

The most notable language error in Mitsubishi's examined pages involves Hamza in nouns, verbs and adverbs. In the screen below, there are three Hamza errors in "أختار، ايضاً، الاسفل".

Figure 5

Hamza errors on Mitsubishimotors site
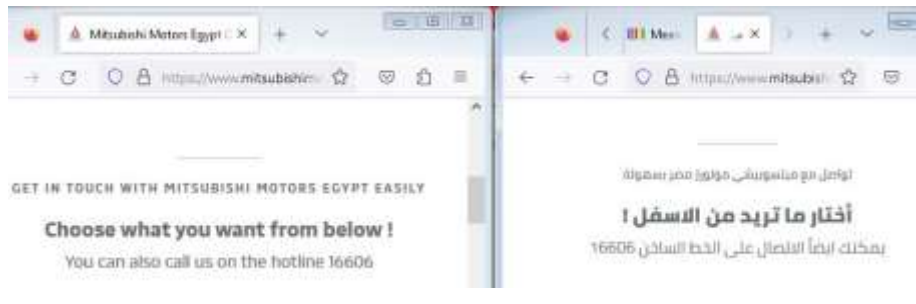
Grammatical issues include violation of the imperative quadrilateral verb rule in "أختار" which should be اختر. Similar examples of incorrect imperative verbs are "إتصل, إنطلق" There is also violations of number distinction rules in "In addition, DMC has a growing network of dealers and more than 20 sub-dealers …." translated as: "والجدير بالذكر، أن شركة دايموند موتورز- ميتسوبيشي موتورز مصر تمتلك أكثر من ٢٠ موزع معتمد ...". The words "موزع معتمد" should be conjugated as "موزعًا معتمدًا" to comply with the number distinction rule. Since "معتمدًا" is an adjective, it should have the same conjugation. Another example of fluency issues is the improper use of punctuation. In the sentence: "Opening Hours of Service and Spare Parts Centers, From 8:30 AM to 5:30 PM, Except for Friday," translated as: "مواعيد عمل مراكز الخدمة وقطع الغيار, من الساعة ٨:٣٠ ص الى ٥:٣٠ م, ماعدا يوم الجمعة", the English comma is incorrectly used, where the Arabic comma (،) should replace it using "Shift + ن" on the keyboard. Additionally, a spelling error occurs in

the translation of "Data Protection" as "حماية البيانات", which should read "حماية البيانات" where the letters ياء and باء were mistakenly switched.

Other Types of Errors

Terminology errors are primarily observed in the inconsistent translation of product names, such as "Outlander Sport," which appears in one instance in English, and in other cases as "اوتلاندر سبورت" and "أوتلاندر سبورت," with inconsistent usage of the Hamza. Similar case includes "Xpander" which appears both with Hamza and without it as in Fig4. Additionally, local convention errors are evident in the use of the improper numeric formats "2024, 16606", as in Fig4 and Fig5. It is notably surprising that both Hindi and Arabic numeral formats are used on the same page.

QG Medical Devices

Qatari German Medical Devices, founded in 2002, specializes in manufacturing healthcare supplies, medical consumables and medical devices in the Middle East. An analysis of the Home and About pages reveals a total of 21 accuracy errors and 5 fluency issues.

Accuracy Errors

The most prominent issue is the omission of parts of the source text, or even entire sections. For example, the sentence "Qject Ultra is an insulin syringe serving as a tool in diabetic care and is a unique combination of ultra fine needle with its tip optimized for," is translated as "عبارة عن حقنة إنسلولين تستخدم كأداة في العناية بمرضى السكر". In this case, the phrase "and is a unique combination of ultra fine needle with its tip optimized for" is omitted entirely. Another similar case is found in "Mr. Amer Abu Shaikha, on the occasion of his appointment as ..," which is translated as "السيد / عامر أبو شيخه ، بمناسبة ت�..". Here, not only is the translation truncated, but strange characters also appear. Additionally, some strings remain untranslated, such as "May-21, 2024" and "April-30, 2024" on the Arabic site. A mistranslation is also present in the hyperlink "What we do," translated as "تعرف علينا" but should be "ما نقوم به" for consistency with the linked page. The translation "تعرف علينا" fails to convey the intended meaning,

particularly since the preceding link is titled "Who we are".

Figure 6

Untranslated text and Omission on QG Medical Devices site
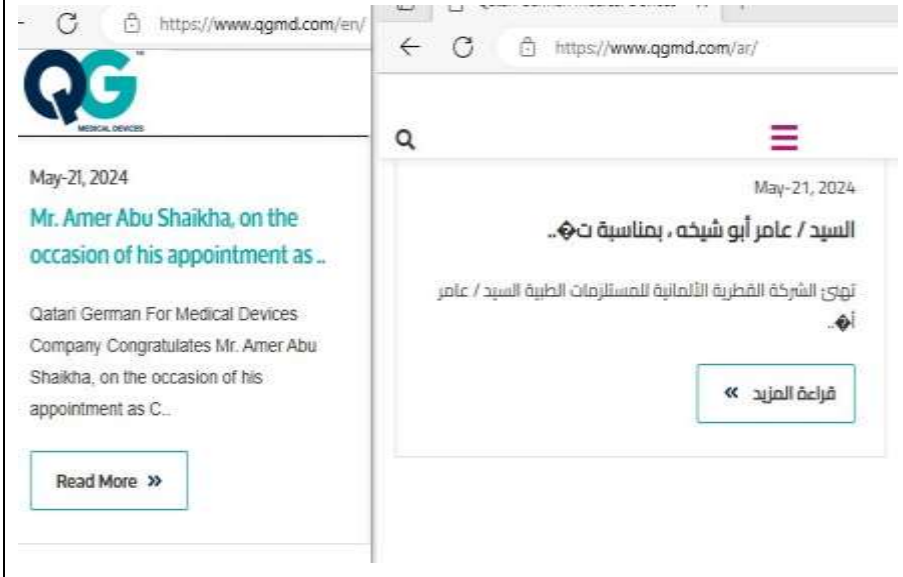
Fluency Errors

The most notable language error in **QG Medical Devices** examined pages is the violation of Hamza writing rules. For example, the word "بإستخدام" contains wrong Hamza Qat' (ء) where it should be wasl (أ) (the elidable Hamza or Hamza of conjunction). Another example is the wrong placement of Hamza wasl in "healthcare markets" translated as "اسواق الرعاية الصحية" where "اسواق" should have Hamza Qat' (the Hamza of disjunction). Similarly, in the translation of "Insulin syringes" as "الأبر الطبية," the Hamza should occur under the Alif. Additionally, the company name itself contains two errors including Hamza wasl and the باء (ب) in "عن القطرية الالمانية".

Figure 7

"What We Do", Hamza, spelling issues in QG Medical Devices
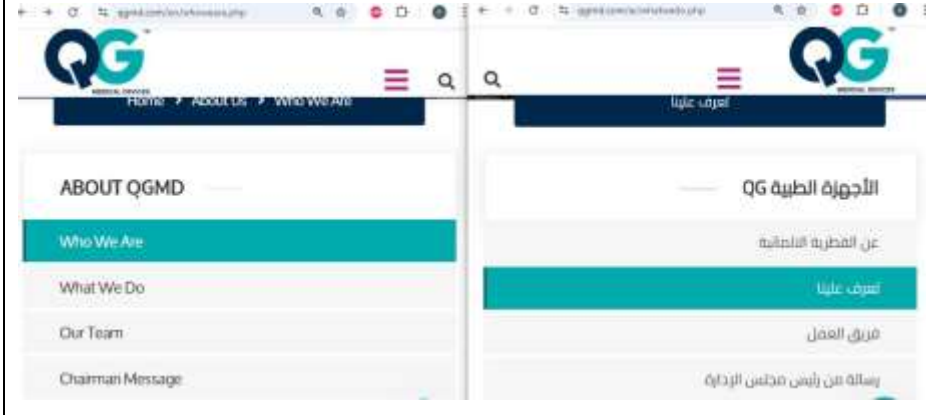
Pek Makina

Pek Makina, established in 1995 in Turkey, specializes in manufacturing a variety of baked products, including hard and soft biscuits, soda crackers, oiled crackers, cookies, tray-molded cakes, and Swiss roll cakes. An analysis of the **Home** and **About** pages identified 11 accuracy, 6 fluency, 4 style inconsistencies, and 1 terminology errors. The following section highlights examples of each error type.

Accuracy Errors

Accuracy errors stem from omissions and untranslated strings. For example, *"Complete Industrial Production Lines and Individual Equipments"* is translated as *"خطوط انتاج كاملة"* where *"and Individual Equipments"* is omitted. Untranslated text is also present, as seen in *"E-Mail : sales@pekmakina.com,"* where "E-Mail" remains in English. There are also mistranslation errors, as for example "The success story of Pek Makina is built on determination, commitment to corporate values, reliability, the continuous application of technological advancements in its products, and a quality policy based

on customer satisfaction." is rendered as

تعتمد قصة نجاح Pek Makina على التحديد والولاء لقيم التعاون والموثوقية و التطوير
التكنولوجي المستمر للمنتجات والسلوك بناءً على رضا العملاء.

Obviously, the translation contains multiple accuracy issues. The word
"determination" should be "الإصرار or العزيمة", "corporate values"
should be "قيم الشركة", "quality policy" is entirely omitted in the
translation and "والسلوك" is added. Another mistranslation error is
exemplified in the sentence "Behind Pek Makine's quality is the
employment of qualified personnel, as well as the advanced
technology production methods and material quality it uses." which is
translated as

يكمن وراء جودة Pek Makine توظيف أشخاص مؤهلين ، بالاضافة الى أساليب إنتاج
التكنولوجيا المتقدمة وجودة المواد التي تستخدمها.

This translation erroneously suggests that the technology itself is
being produced. In addition, the source does not clarify whether
"advanced" refers to "technology" or "methods". Hence, A more
precise and coherent translation would be:

يكمن وراء جودة Pek Makine توظيف أشخاص مؤهلين، بالإضافة الى الأساليب
المتطورة للإنتاج بواسطة التكنولوجيا المتقدمة وجودة المواد التي تستخدمها.

Fluency Errors

There are several spelling errors, primarily related to issues with the
Hamza. For example, "انتاج، بالاضافة، الاعلانات" omits the bottom
Hamza. Additionally, there are punctuation issues concerning spacing.
For instance, there are double spaces between words, such as in
"البسكويت الناعم، البسكويت الصلب والناعم، البسكويت الصلب والناعم والكراكر".
Another issue is the space before commas, as seen in "يكمن وراء جودة"
Grammatical errors "توظيف أشخاص مؤهلين ، بالاضافة الى Pek Makina
appear in the incorrect use of the definite article, as in " هدفنا للتخطيط
المتوسط الأجل", which violates the genitive rule.

Other Types of Errors

Local convention error occurs in the use of Arabic number formatting,
such as in "منذ ١٩٩٥". Stylistic issues arise from the literal translation
of "Superior product quality with worldwide standards" as " جودة المنتج

"جودة + متفوقة" First, the collocation of "متفوقة مع المعايير العالمية." does not sound natural in Arabic. Second, "جودة + مع المعايير العالمية" feels incomplete and lacks fluency. A more accurate and fluent translation would be: "جودة عالية للمنتجات تتوافق مع المعايير العالمية."

Terminology errors are evident in the mistranslations of terms and inconsistent term usage. For instance, "deposited cake" is translated both as "الكيك المودع", which appears to be the result of machine translation like Google or unprofessional translators' work, and as "الكيك بطريقة الحقن". The term is explained on the site as "Choco Pie Cakes, dough is deposited directly onto the oven's solid steel conveyor belt in a round shape," which is translated as "يتم صب العجين مباشرة على سير النقل الفولاذي الصلب للأفران بشكل دائري وبعد الخبز يتم تغطيتها بعضها البعض بواسطة معدات خاصة." Hence, a better translation for "deposited cake" would be "الكيك المصبوب".

Emirates

Emirates is a leading international airline, founded in 1985 in Dubai under the leadership of Sheikh Mohammed bin Rashid al Maktoum. It is the first airline to offer an entertainment package on its flights. An analysis of the **Home** and **About** pages identified 3 accuracy, 4 style, and 1 local convention errors.

Accuracy Errors

The accuracy errors on the Emirates website include mistranslations, an untranslated word, and one omission. For example, the phrase "From EGP 16,224" is translated as "ابتداء من EGP 16,224," where "EGP" is untranslated. The phrase "Dubai Stopover" is omitted entirely in the Arabic site. A mistranslation occurs in "What's on your flight," which is translated as "رحلاتكم المقبلة." This link opens text boxes where users can choose their destination and travel dates to start the search. The results display the available services for each flight. For example, a flight to Guangzhou, China, includes an onboard shower spa, which is not offered on a flight to Ahmedabad, India. A more accurate translation would be "الخيارات المتاحة للرحلة." This translation aligns with the red button "see what's on," which is

correctly translated as "شاهدوا ما هو متوفر على". Figure 8 illustrates the issue:

Figure 8

*"See What's on" on Emirates site*

Style Errors

Style errors primarily stem from the inconsistent translation of the same phrase or the imperative verb. For example, "Learn more" is translated as "معرفة المزيد", "تعرفوا على المزيد" and "اقرأوا المزيد". Though all the translations are correct, it is recommended to use the same translation consistently for the hyperlink, especially when they appear on the same page. Inconsistent translation of the verbs is also evident in the use of both infinitive and imperative forms within the same list. For example, "Log in to Emirates Skywards" is translated as " تسجيل الدخول إلى سكاي واردز طيران الإمارات", while "Join Emirates Skywards" is rendered as " انضموا إلى برنامج سكاي واردز طيران الإمارات" even though these two phrases appear consecutively.

1. Results

When analyzing the issues across all the five sites, a total of 96 errors are identified, encompassing accuracy, fluency, terminology, local convention, and style. The table below categorizes the errors by type for each website:

Table 1

Count of errors per site

Error Type/Website	Mitsu bishi	Actiong uide	QG Medical Devices	Pek Makina	Emir ates	Tot al
Accuracy	12	4	21	11	3	51
Fluency	10	1	5	6		22
Terminology	2	2		1		5
Local Convention	1	1	1	1	1	5
Style		5		4	4	13

The pie chart in Figure 9 illustrates the percentage distribution of each error type.

Figure 9

Error types percentage
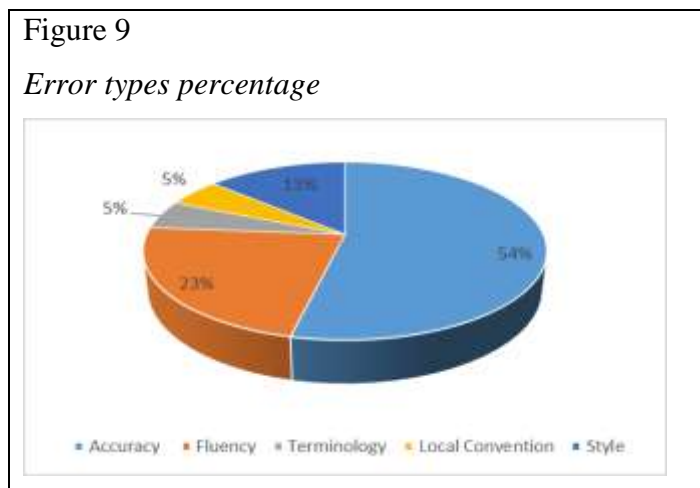
As the pie chart displays, accuracy errors constitute the largest percentage while terminology and local convention errors occupy the smallest percentage. Understanding the root causes of errors is essential for developing a systematic approach to proper localization and fosters continuous improvement.

Accuracy errors can be easily detected through testing the website before publishing it online to avoid missing parts, truncated texts and odd characters. Using a CAT tool also helps detect untranslated segments. Going deep to the root cause of mistranslation errors, one can notice there are several reasons. First of all, segments are translated without understanding the whole text which results in incomprehensible translation. Secondly, a literal translation approach is adopted leading to illogical translation. Applying the revision phase is important as professional revisers can fully grasp the context and choose the best translation for words with multiple meanings and manipulate the complex and compound source structures to produce fluent Arabic. Thirdly, hyperlinks are often localized without accessing the corresponding pages. This issue likely arises from the use of CAT tools, which fragment the content into isolated segments, removing context. Accordingly, localizers should be trained to effectively localize isolated segments opening each hyperlink in the relevant product.

In terms of Fluency errors, they are mostly spelling or grammar, with few occurrences of punctuation errors. Grammatical errors include the violation of the Arabic genitive rule using "ال" in the first part of the genitive construction "المضاف" and the number distinction rule. Numerous issues have been identified concerning the incorrect use of Hamza, which is either omitted or improperly placed above letters. To address this, translators should be trained on Arabic language rules and get access to easily searchable Arabic references. Additionally, implementing review can help prevent such errors. Punctuation problems, such as spaces before periods or commas and double spaces, can be easily identified using the quality check features in CAT tools. To adhere to the spacing rule for the conjunctive "و," translators can search for "space+و+space" and replace it with "space+و".

Stylistic issues include improper collocation usage and awkward sentence structures. These can be easily resolved through proofreading by a professional translator or reviser. Another common issue is the inconsistent translation of identical segments. While this may not significantly affect the overall translation quality, it can make the website appear unprofessional. Using a CAT tool can address this by automatically applying the same translation to repeated source text. As for inconsistencies in translating imperative verbs, the localizer can avoid them if provided with links to the source site from the outset of the project or during the testing phase. In addition, localizers should be instructed in the style guide whether to use imperative or infinitive form.

Although terminology and local convention errors represent small percentages, their root causes merit attention. Terminology errors arise from improper term translation or inconsistent translation of the same term. Creating an accurate translation requires localizers and revisers with a deep understanding of the target language and a rich vocabulary. To address inconsistency issues, a termbase within CAT tools should be used which allow localizers to quickly access the correct translation of a term or a product name. Additionally, the testing features in CAT tools can identify terms that have been inconsistently translated. Regarding local convention errors related to the number format, it is important to follow the Hindi style. This issue can be resolved by clearly instructing localizers from the outset to use the Hindi format and thoroughly testing the website before publishing it.

Discussion and Conclusion

The current research explores the localization of five websites from different countries, likely localized by various localization providers. Analysis of the identified errors suggests they can be addressed by adopting a number of procedures. To begin with, potential issues can be minimized by providing localizers with the reference product, which helps understanding the context and resolve ambiguities arising from words with multiple meanings or idiomatic expressions. The significance of context is emphasized by La Cova (2016) as it reveals

the location of each segment which enables the localizers to select the most appropriate translation if it is a title, button, or hyperlink.

Secondly, websites must undergo thorough revision and testing. Revision is a vital step to ensure that the whole text has been accurately translated within the CAT tool. This task should be assigned to a professional and experienced reviser to avoid issues such as mistranslations, linguistic errors, and inaccuracies in term translation. Testing, on the other hand, helps identify untranslated texts and unusual characters, truncated texts or misaligned numbers in right-to-left (RTL) languages like Arabic, as Yunker (2003) points out. This aligns also with Mirna's perspective (2017) which emphasizes the importance of testing in localization.

Thirdly, utilizing CAT tools can effectively address accuracy issues related to untranslated strings, while also ensuring consistency in term translation. This aligns with Pietrzak and Kornacki (2021) assertion that CAT tools facilitate consistency in the style of repetitive segments and localizing recurring content. Additionally, termbases promote uniformity in specialized terminology. Lastly, the built-in quality checks in CAT tools help identify punctuation errors, which enhances the overall quality of the product. This also reinforces Bowker and Fisher's (2018) and Kornacki's (2018) view on their importance in improving the product quality.

Fourthly, establishing a style guide for localizers is essential to provide clear guidance on the preferred style for localizing specific elements, such as imperative verbs. Moreover, it helps standardize the approach to translating product names, features, acronyms, and local items like numerical formats. The significance of a style guide is emphasized by La Cova (2023), who affirms that such guidelines enable localizers to avoid many linguistic challenges effectively.

Lastly, the growth of an industry encompassing diverse activities and content types highlights the need to train translators to become skilled localizers. This aligns with Odacıoğlu (2017) who promote for "Integrated Localization Theory of Translation Studies", Rodríguez-Castro (2018), Kenny (2020), Kornacki (2018) and Buysschaert's *et al*., (2018) perspective on the importance of adapting

to new technologies in localization and equipping translators with the necessary training. This training includes technical aspects, such as mastering CAT tools as well as understanding the localization processes and methodologies. Linguistic training is equally essential to prevent issues like spelling and grammatical errors, mistranslations and inappropriate translations of specialized terminology. Furthermore, business skills are essential to deliver high-quality translations within strict deadlines and collaborate efficiently in ongoing workflows, as highlighted by the EMT Board (2022) and La Cova (2016).

In conclusion, this study examines the linguistic issues in localized websites. Issues highlighted resembles those identified by Olvera-Lobo and Castillo-Rodríguez (2018) including mistranslations, omissions, language issues and inaccurate terminology rendering. The study offers recommendations based on a root cause analysis of the detected issues. Providing the localizers with the product to be localized, alongside comprehensive training and using CAT tools can effectively address many challenges. Additionally, adhering to the localization processes recommended by experts and establishing clear guidelines can resolve remaining issues, ultimately resulting in the publication of a high-quality product. Overall, the study proposes various ways to enhance the quality of Arabic localized websites.

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