

## Globalization Effect on Localized Translation of Technical and Scientific Terms

أثر العولمة على توطين ترجمة المصطلحات التقنية والعلمية

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Received: 29/07/2021

Accepted: 24/08/2021

Published: 28/12/2021

**Abstract**

This article aims to investigate some language translation difficulties, mainly English - Arabic translation of technical and scientific terms, that are, mostly, affected by localization and globalizing. It also highlights the main effects of globalization on both translation and localization processes. In fact, due to globalizing, many translators may need to recreate, or “trans-create”, some terms to provide an acceptable cultural demand, that may save them in the process of localization. Yet, the major role played by internet and new technologies, in the worldwide process of communication, leads to a great need for both translation and localization services, notably, in the recent years.

**Keywords:** Globalization; Effects; Localized Translation; Technical Terms; Scientific Terms.

**ملخص:**

يهدف هذا المقال إلى دراسة بعض الصعوبات اللغوية في الترجمة، خاصة ترجمة المصطلحات التقنية والعلمية من اللغة الإنجليزية إلى اللغة العربية، والتي تتأثر في الغالب بالتوطين وكذا العولمة. كما يسلط المقال الضوء على أهم تأثيرات العولمة التي تمس عمليتي الترجمة والتوطين. في الواقع، قد يضطر كثير من المترجمين إلى إعادة إنشاء أو "خلق ترجمة جديدة" مقبولة لبعض المصطلحات بفعل العولمة، وذلك لتغطية طلب ثقافي قد ينقذ المترجمين في عملية التوطين. بيد أن الدور الرئيس الذي تلعبه الإنترنت والتقنيات الحديثة في عملية الاتصال في جميع أنحاء العالم، أدى إلى الحاجة المتزايدة إلى خدمات الترجمة والتوطين، لا سيما في السنوات الأخيرة.

**كلمات مفتاحية:** العولمة، التأثيرات، توطين الترجمة، المصطلحات التقنية، المصطلحات العلمية.

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## 1. Introduction

Globalization affects many aspects of life in several ways: the way people communicate, do business, and educate themselves. Thus, the process of globalizing is, mainly, based on a combination of economic, technological, socio-cultural and political forces. Currently, this process is moving faster than ever before, and its major effects are remarked in the major changes in technology and in the organization of the wide range of economies and societies, at national and international levels. Besides, globalization is associated with English as being a lingua franca: the language that is largely used at conferences and seen as the main language in the new technologies. The fact of using English as a global language is an important trend in the world's communication that gives translation a crucial role to play in inter-lingual communication, notably by allowing knowledge sharing and bringing cultures closer to each other.

Besides, localization is seemed a relatively new field of activity for language users and translators. It is closely linked to digital media and computer products. It is a field of activity, where technology is deeply involved. Actually, localization can be a great opportunity for translators if they have the ambition to go beyond translation to acquire the necessary skills and to take responsibility for the whole process. Yet, if translators insist on doing only text translation, without taking into account the larger picture, their role will be reduced to mere free-lance contributors for localization professionals. Accordingly, translators need to broaden their knowledge and appliance in this field so that they cope with the recent changes occurred in this actual globalizing world.

In fact, globalization has a tremendous impact on translation, or translation studies, and localizing because it necessitated both of them. So, globalizing has always been a significant aspect that affects both translation and localizers. Accordingly, the main purpose of this paper is to discuss the major effects of globalization on translating and localizing technical and scientific terms, and how globalization has gained an increasing importance in different fields. It is also to shed light on the implications of both localization and translation industry in this phenomenon, that spread all over the world owing to the advancements in information technologies.

## 2. Globalization and Translation

By definition, 'globalization' is “the development of an increasingly integrated global economy marked especially by free trade, free flow of capital, and the tapping of cheaper foreign labor markets” as defined by *Merriam Webster's* online dictionary. Despite how old its definition turns out to be, globalization still affects every segment of our lives. In America, the origins of the term can be traced back to social scientists, economists and historians, as it is placed in the context of changes in economics, science, technology, and society. Similarly, Pym (2006) defines globalization as “a consequence of technologies reducing the costs of communication” (p. 744). By this, he refers to the internet creation, as starting a new age named “communication age,

information age or computer age” (ibid.) and bringing the whole world into hands. This fact of reduction has led to both the rise of English as the international lingua franca and the increase in the global demand for translations. What is specific to this period is the “near-instantaneous information flows across the globe” as Cronin (2006, p. 111) stated. In other words, thanks to the internet, information becomes only one 'click' away, which doesn't take a long time to access any more. However, Cronin (2003) argues that any form of global interaction cannot occur without inter-lingual activities, and therefore, globalization denotes translation; nevertheless, countless people are simply unable, or unwilling, to overcome the associated language barriers and, thus, must rely on translation, provided by others, to access information beyond the individual linguistic reach.

Yet, it is important to point out that globalization can be seen as an outcome of technological advancements in several fields, thanks to the internet. For instance, securities and exchange traders now follow global trends in trading throughout the day and invest in international markets. Shopping and banking also can be done online due to the spread of the Internet that becomes the digital marketplace for e-commerce and a lot of other activities. Even outside of the professional lives, the effects of globalization can be seen in multilingual broadcasts of sporting events, like soccer championships. Each of these situations illustrates the dependence that the world has for accurate language translation services in globalization.

According to Shiyab (2010, p. 7), the relationship between globalization and technology is that of cause and effect; globalization is a result of technological developments. Thus, the consequence of such globalized technology is the daily translation services seen everywhere. One may say that, in less than two decades, the effects of technology and computing in the field of translation are remarkably witnessed mainly in transforming the translator's resources and making it possible to accelerate the pace of translation. Thus, it is, widely, recognized now that the use of technology in translation is very essential, and the computer-aided translation training is necessary and highly demanded for translators for their profession.

Consequently, globalization, technology and translation, in essence, are jointly benefited from each other. Any product achieves its goal by means of translation to be distributed to other parts of the world via technology. In other words, translation becomes a good tool for marketing. It makes the “foreign” attractive by bringing it closer and making it familiar for the target group, on the one hand, and on the other hand, globalization enables new fields to be integrated into translation area and creates an interdisciplinary environment within the field (also see Ersoy & Öztürk, 2015).

### 3. Language Localization and Translation

Localization (also referred to as "l10n") is defined in *Oxford Dictionary* as: “the process of making something local in character or restricting it to a particular place”; and also as “the process of adapting a product or content to a specific locale or market”. According to Pym (2004), the term “localization” comes from marketing, and

it refers to the processes by which a broad “international” product is adapted to the requirements of a “locale”, a place with a particular combination of cultural and linguistic features. Thus, the aim of localization is to give a product that look and feel of having been created specifically for a target market, no matter their language, culture, or location. Fry (2003) stated that “Localization allows the benefits of globalization to accrue not only to large companies and powerful nations—localization lets speakers of less common languages enjoy access to the same products that those in major markets use” (p10).

In addition, according to Pym (2005), localization process may also include:

- Adapting graphics to target markets
- Modifying content to suit the tastes and consumption habits of other markets
- Adapting design and layout to properly display translated text
- Converting to local requirements (such as currencies and units of measure)
- Using proper local formats for dates, addresses, and phone numbers
- Addressing local regulations and legal requirements

Therefore, localization can be seen in terms of the three interrelated features of the product to be localized: “linguistically as translating a product to suit the target users, technically as adjusting technology specifications to suit the local market, and culturally as following the norms and conventions of the target community” (Chan, 2013, p. 347).

However, some researchers, like Pym, pointed out that translation is only one of several elements of the localization process. Yet, localization is, often, associated with other important terms, like globalization, internationalization, locale and translation in which all need to be defined. These four elements have been abbreviated by the acronym GILT (Globalization, Internationalization, Localization and Translation). Pym (2004) identifies the terms as follows:

1. *Globalization* - Conducts thorough market research and develops a strategy for reaching your target market.
2. *Internationalization* - Considers how your website, software or product need to be developed so that it can easily be adapted to that market and any others.
3. *Localization* - Pays attention to slogans, phrases, images, formats for dates and times and other elements that will need to be modified so that it will be easily understood within that culture.
4. *Translation* - Converts text into your target language and ensures it conveys its intended meaning.

In the context of localization, globalization refers to the business activities related to marketing a product or service in multiple regional markets; while, internationalization describes the "process of enabling a product at a technical level for localization" (Lommel / Ray 2007, p. 17; as cited in Sandrini, 2008), in order to be quickly adapted for a specific market, after the engineering phase. Pym (2004) also added that localization models mostly distinguish two kinds of processes: internationalization (for the centralized preparation of products) and localization proper (for the adaptation of

the product to locales), whereas translation has worked with three spaces for processes: production of the source text, intervention of the translator, and reception of the target text (or translation).

As per translation, it is granted that a translator has to acquire the necessary language competence and a broad basis of general knowledge, which enables him to be easily familiar with a specific field. Besides, translation skills and a general understanding of cultural issues, basic knowledge about terminology management and translation memories. Other additional requirements can be computer applications that include necessary information about operating systems and platforms, as well as standard software types. New opportunities for translators emerge with some services (like language-specific promotion of websites, building a global gateway, etc.), which require language fluency and cultural knowledge. To take advantage of these new opportunities, new skills and competences must be integrated into translator training curricula; thus, translation tools for localization purposes are strictly viable in the process.

#### 4. Arabic Translation Difficulties in Localizing Technical and Scientific Terms

The last few decades have witnessed an overflow of new scientific, technical and business terms that are created, every year, in various fields. Many of these terms have no Arabic equivalents. This lack of standard terms for commonly used Western terms in several fields is a challenge for translators. Therefore, translators are faced with the difficult task of 'Arabicising' numerous business, scientific and technical terms through coining, transliteration, adoption or translation. Consequently, the translator can choose to find terms from the Arabic scientific heritage (as Arabic provided European languages with terms, like zero or algebra). The translator can also choose among other procedures, such as: transcription, literal translation, calque, cultural equivalent and translation labels. Nevertheless, terminologists do not, necessarily, agree on the different procedures for localizing terms into Arabic. With such different sources of terminology, one of the main challenges for Arab countries is to coordinate and unify the terms. However, two main language sources prevail in the fields of science and technology, which simplify unification, are: French and English. The source language has an influence on the terminology used to translate into Arabic. An example is the use of both Nitrogen and Azote (the French term for Nitrogen) as loans in Arabic.

According to Hassan (2017), the use of foreign words, as productive roots for new derivations to scientific terminology in Arabic, becomes even more controversial at a time of a marked increase in the number of SL technical terms. Also, the question whether the users' opinion, regarding certain translations they find appropriate for the daily use, should be considered in technical translation, is based on the distinction between technical slang and formal terminology. For example, some technical terms, though not accepted as Standard Arabic, are currently used in their Arabicised forms among specialists and non-specialists alike: e.g. "Hardware (هارد)", headphones (هيدفون), format (يفرمت), and "to Facebook (فيسبك)" (Abu Hatab & Lahlali, 2014, p. 90).

In this regard, Bernstein (1995, as cited in Hassan, 2017, p. 237) stated that those in specialized fields have a need to communicate with one another in precise terms and with an economy of expressions; a single word will often convey to a colleague what would require a sentence, a paragraph, or perhaps an even longer description. Whilst, in writing, intended for general reading, the use of jargon terms, whether by a specialist or by a layman, that are not commonly understood, should, at least, be explained when it is introduced. And it must never be forgotten that the function of writing is communication. Furthermore, some phonological changes are used by localizers to translate some of technical words, such as: byte (بايت), cable (كابل), camera (كاميرا), catalog (كتالوج), computer (كمبيوتر), banner (بانر), flash (فلاش), microphone (مايكروفون), modem (مودم), mouse (ماوس), Pascal (باسكال), protocol (بروتوكول), web (ويب), mobile phone (الموبايل), remote controller (الريموت),...etc., which represent a complete phonemic transference.

The table (1) bellow may show some distinguished points between the translated and localized terms.

**Table 1.** Some translated and localized technical & scientific terms (English - Arabic)

English terms	Translated terms	Localized terms
Computer	حاسوب	كومبيوتر
The web	الشبكة / الشبكية	الويب
Microphone	مكبر الصوت / ملقاط	مايكروفون
Mobile phone	هاتف محمول	موبايل
Cold	رشح / زكام	برد
Geology	علم الأرض	جيولوجيا
Biology	علم الأحياء	بيولوجيا

Source: The authors, 2021 (Adapted from Hassan, 2017)

With reference to the table above, during the rendering process, generally translators use the Arabic equivalent for the English terms, while localizers tend to adopt the English version or the Arabicised (transliterated) one. The reason is that localizers, often, find the translated forms unfamiliar to the target readers and may threaten their comprehensibility.

Hassan (2017) concluded that though the Arabic language is able to cope with the dramatic increase in English technical, as well as scientific terms, by means of derivation, compounding and semantic extension, it is more appropriate to use translation (mainly at semantic level) to provide Target Language (TL) equivalents for Source Language (SL) technical terms derived from common linguistic roots.

However, transliteration should only be used with SL technical terms used, as proper nouns, such as names of programming languages, websites, operating systems, hardware brands, software brands, and standard measurement units. It is also possible, Hassan (2017) added, to translate SL proper names of accessories or essential applications that are included within all versions of Microsoft Windows and brand names of electronic devices.

A translator, usually, encounters different problematic areas in which he has to deal with in his work, mainly lexical-semantic problems, grammar, syntax, rhetoric, cultural and pragmatic problems; not to mention administrative issues, computer-related problems and stress. Cultural issues may arise from differences between cultural references, such as names of food, festivals and cultural connotations, in general. The translator, then, will use language localization to correctly adapt the translation to the culture targeted. A very simple example is a financial translation, which includes dates. If the text is in English, it is most likely that 05/06/2015 will mean June 5. However, the same sequence in another language refers to May 6<sup>th</sup>. Another example can be related to language specificity, like the case of Arabic language. The wide majority of Arabs are Muslims; thus, cultural and religious sensitivity must be taken into account (especially in graphics and images in localization). Translators may also have restrictions concerning the content of the material they are willing to translate due to shortage of native scientific and technical terminology that may cover all fields of a certain language.

Hence, terminology management is essential in the localization process into Arabic. One of the first steps for any Arabicisation of scientific and technical data should involve solving the issue of terminology. Only an experienced Arabic translator with an expert knowledge of the field can, accurately, create ritual Arabic terms, which will be understood by the target market. Furthermore, when necessary, a glossary, describing the source terms, can be “transcreated” for the reader. Some localization experts not only adapt web content to cater to national or regional market preferences, but may also recreate or “trans-create” advertising and marketing campaign messaging to maximize cultural appeal—and avoid potentially embarrassing or offensive communications. Additionally, localization is a business orientated activity in which a translator requires, at least, some insight into business practices and procedures. A good localizer can have a basic knowledge of Machine Translation, Controlled Languages, writing for an international audience and International Marketing. Trained localizers must also be able to provide consultancy services to companies, who want to operate internationally. In doing so, they must be able to communicate with managers in companies, using their language regarding costs and benefits of localization projects.

Thus, localization process can deeply be observed in the translation field, just like other fields. Translators, then, should be aware of translation difficulties that are mostly affected by localization of contents, mainly due to the increasing demand on translation and interpreting services, as a result of the frequent global changes of the

world. Therefore, particular roles should be played by translators and everyday users of translation in such increasingly technology-dependent globalized society in order to improve daily used localized outcomes on international and intercultural communications for all stakeholders, including buyers and sellers of translation services, and most of all, the everyday user of networks.

## **5. Effects of Globalization on Both Translation and Localizing**

When information crosses borders via translation, the effects may be varied. This diversity can probably help us to explain why translation is still very necessary in our globalized world.

### **5.1 Positive Effects**

Basically, globalization allows everything to be produced everywhere. Products have to be moved from the specialized places in which they are produced. So, their information has to cross linguistic and cultural borders, and ,thus, documents have to be translated.

One of the positive effects of globalization on translation, mainly English language translation, is allowing people to achieve a higher education and embark on a high-level career. When they speak several popular languages, mostly English,they are empowering themselves through work and education. In fact, English language is becoming even more important in universities and job opportunities, like: medicine, diplomacy, entertainment, and computing. Furthermore, globalization and technology are very helpful to translators in that translators have more access to online information, such as dictionaries of lesser-known languages.

At the level of cultural identity, though Venuti (1994) has pointed out that translation does not always enhance cross-cultural understanding, and does not always narrow the gap between different cultures, Schäffner (1999) and others stated that the local culture may use translation to re-identify itself, or to delimit itself from other cultures and, thus, to evaluate itself higher or lower, or other common and different aspects may become obvious, therefore achieving mutual understanding in the sense of a growing awareness of differences. In this respect, one cannot deny that translation can play a decisive or supportive role. It can present to a target culture an image of a source culture, or contribute in the formation of cultural identities.

Shiyab (2010) also argued that “globalization has helped translators become significant mediators among cultures through a better understanding that can be accomplished” (p. 9). In fact, people may develop a deep interest in familiarizing themselves with other cultures as a result of globalization through both translation and localization. Furthermore, it had a tremendous linguistic and social impact on translation or translation studies simply because globalization necessitated translation. Accordingly, currently, there are more demands on translation services requested by educational institutions and private companies than any other time. Thus, many parts of the world are interested, nowadays, in one another due to different reasons, such as:



world conflicts and clashes, world economic crisis, shared concerns, common interests, etc. (ibid, p. 7).

Besides, globalization has paved the way for the development of “localization” industry. Localization can be regarded as “the adaptation of products made on the global scale to the local societies”. Accordingly, Graddol (1997) stated that “the logic of globalization is to sell more widely by localizing products” (p. 47). Similarly, Stoll (2000, p. 243) confirms the slogan: “Think globally, act locally”. These statements reveal that globalization is, after all, a bi-dimensional process as global and local. Translation is, undoubtedly, one of the key facilitators of the localization process, as there has been a mutual interaction and exchange between them, mainly Computer-Assisted Translation (CAT) tools, which play a central role in accelerating the process of localization. Just like the emergence of simultaneous interpreting, the interest in machine translation attracts the attention to the increasing importance of World Wide Web, which has shifted Project-based localization to Program-based localization requiring the translation of continuously updated and revised content since non-English speakers choose to use contents from the web in their own languages (Cronin, 2006, p. 126). In this regard, the rapidly-increasing economic growth of localization sector has opened new doors for translators.

### 5.2 Negative Effects

Despite how globalized knowledge is, the way it is perceived and interpreted is different, depending on the background of the receiver, the fact which results in negative outputs at translation level. Snell-Hornby (1988) illustrated how recent trends, notably globalization and advances in technology, have influenced international communication, translation and the translator’s job. For instance, when the target text becomes a challenge for a reader, the Internet can be a very helpful tool to the reader so as to understand foreign elements in target text; but, the text can also be written in a more foreignizing / exoticizing manner by which false information might be transmitted. As stated by Karl Otto Hondrich (1999), “shared knowledge of an event is always supplemented by culture-specific background knowledge, pre-suppositions, and prejudices, resulting in different interpretations. In other words, everything which reaches an audience in some globalised way, is filtered, interpreted, and localized” (Hondrich, 1999, as quoted in Schäffner, 2000, pp. 4-5).

Undoubtedly, connections between different countries and cultures of the world require the translation of texts and terms from English, primarily. Yet, translators often find themselves having to make use of all their scientific and even artistic resources to come up with the most appropriate terms and structures in the target language. For example, to paraphrase the traders’ motto ‘cash is king’, in translation ‘content is king’; in other words, no technique can substitute for accurate knowledge, and there can be no translation without understanding of meaning. Likewise, no software can provide a ‘camera-ready’, edited document; hence, unless the translator, or writer of the target text, possesses the necessary skill or awareness of both content and context,

the translation output will be not only disappointing but also probably dangerous, depending on the information conveyed by the target text (also see Tagkas, 2014).

Furthermore, the speed at which 'Google translate' can create the false impression of 'transfer' into another language, or another world, makes the illusion that translation is an easy task. Naturally, every modern 'gadget' that provides speedy solutions is welcomed with enthusiasm, particularly at the present time that technology has reduced the dimension of time to such an incredible extent.

## **6. Conclusion**

In fact, the major role played by internet and new technologies, in the worldwide, has entirely affected translation. Due to the growing awareness of the need of communicating through a translated language, the demand for both translation services and localization becomes an indispensable fact in globalization. This is largely because of the recent increase in international trade in the post globalization period. Therefore, specific translated outputs, terms and concepts with specific purposes and objectives may give a misleading message owing to the effects of both localizing and globalization. Hence, the effects of globalization on translation and localization outcomes were deeply felt in translation, mainly in technical and scientific fields. Accordingly, the demand on translation and localizing services has increased as a result of global changes. Thus, particular roles should be played by translators, localizers and everyday users of translation in such increasingly technology-dependent globalized societies in order to raise awareness of the impacts on international and intercultural communications for all stakeholders, including buyers and sellers of translation and localization services, and most of all, the everyday user, who is the most unaware and vulnerable.

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