

Existence of Arabicization Methods for Naturalising Contemporary Technical Vocabularies into the Arabic Language

Alif Cahya Setiyadi *, Anhar Anhar & Heru Saiful Anwar

University of Darussalam Gontor, Ponorogo, Indonesia

alif.setiyadi@unida.gontor.ac.id

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ABSTRACT

This research aims at studying Arabicization methods to provide counter knowledge for the overuse of transliterated terms and the abundance of Arabic equivalents for a technical term. It further promotes precise methods on how to Arabicize foreign words in the proper way. For this reason, this qualitative research focuses on studying Arabicization methods in traditional and modern Arabic traditions. The data are collected from several Arabic books, journals, and Arabic language academy reports. For the analysis, the inductive analysis approach is mainly employed to drive the general pattern of Arabicization's methods through interpretation made from the previous discourse on Arabicization. The research concludes that the conventional vocabulary expanding techniques, including *al-ishtiqaq*, *al-tarjamah*, *al-qiyās*, *al-naht*, and *al-majāz*, are supposedly less effective and inefficient, while *al-dakhīl* brings only a few advantages but situating the Arabic language contaminated with numerous peculiar terms. Hence, the four methods of Arabicisation, which involve phonetical naturalisation, morphological naturalisation, filtering, and hybrid Arabicization, are fully considered precise methods. These methods play a crucial role in generating new Arabic technical-technological vocabularies that are mainly a product of the West with all its steps. Arabicisation provides more steps of naturalisation properties that arguably can be the best way to accommodate neologism.

1. Introduction

The influence of western languages, especially English and Latin, as the languages of both the traditional and the present dominant civilisation on the Arabic language is more serious and widespread than that of any other language nowadays (Saeed, 2019). With the modern technological and cultural developments that have taken place in the world, and their recent echoes in the Arab world, an urgent need has arisen for transferring numerous technical-technological concepts into Arabic in many fields, including education, technology, health, news, broadcasting, etc. (Al-Athawary, 2016)

In the attempt to abreast with such development, different techniques and methods to construct and expand Arabic vocabularies have been employed by linguists. Linguists must accommodate the challenge of foreign language terms and further protect the purity of the language. To take some instances, it is widely viewed by grammarians some methods on this matter

are; derivation (*al-ishtiqaq*), translation (*al-tarjamah*), compounding or blending (*al-naht*), metaphor or figurative speech (*al-majāz*), Arabicization (*al-ta'rib*), transliteration (*al-dakhīl*), and analogy (*al-qiyās*). (Al-Asal, Sabri and Smadi, 2012). Arabic scholars use all these methods to generate and then introduce new terms that do not exist in classical or modern Arabic.

Early Arabic grammarians developed these methods, which have now been taken into account by linguists to solve the problem of incorporating foreign terms. As a process of word formation at the morphological level, the derivation (*al-ishtiqaq*) results in a new word that derives from the existing Arabic root as a source of creating new terms in Arabic (Elmagrab, 2011). This type of method has a high degree of productivity in creating abstract nouns. For instance, the word *ruhāniyyah* (spirituality) is derived from the root *rūh* (spirit). The word *ruhāniyyah* has a new form and a new extended meaning as a result of this process.

The translation method has, without a doubt, served the development of a language in a larger context. It is the process of transmitting meaning from the source language to the target language. Although this technique is widely employed in creating new vocabularies, some Arabic users often find difficulties, especially when the target and source language are linguistically and culturally distinct and when the text involves a coined term that has never been found in their target language before. For this reason, many languages, including Arabic, may suffer from gaps at the lexical stage and, most likely, will have no words for such concepts (Akan, et al., 2019). *Al-naḥt* is also one of the widely used methods for introducing new vocabularies in the Arabic language. In descriptive linguistics, *al-naḥt* often refers to blending (Ryding, 2005), which means merging two words or more to become one. For example, the word *barmā`i*, which means amphibian, is originally a blended word from *Barr*, which means land, and *mā`* which means water. In this case, these two words are merged to coin a term that refers to an animal that lives in both land and water.

On the other hand, the metaphor or figurative speech (*al-majāz*), and the analogy (*al-qiyās*), are considered to be the less utilised methods in generating new Arabic words. Metaphor unveils a creative aspect of language that points to a basic limitation of truth-functional semantics. It allows the expression of a concept in other terms and meanings based on the similarity between concepts (Pye, 2017). Metaphorical expressions represent a great variety of conventional metaphors, reproduced and comprehended daily, poetic, novel, and Holy Qur'an. The use of metaphor is ubiquitous in natural language text. It is a serious bottleneck in automatic text understanding, and developing methods to identify and deal with metaphors is an open problem in Arabic natural language processing.

Apart from the aforementioned methods, the transliteration technique is observed as the most favourable method employed by many Arabic speakers. Such phenomena can be spotted in the overuse of foreign terms by some Arab users who are reluctant to find its Arabic equivalent, which is phonologically, grammatically, and culturally peculiar in the Arabic language system (Elmagrab, 2016).

Previous studies by Hamdan & Al-Salman (2021) and Mivtakh (2019) showed that non-Arabic origin terms had been used daily in Arabic online news and newspapers. Most of these terms are likely to be borrowed; measurement units including *meter*, *mile*, *ton*, *gigabyte*; abbreviations such as SIM, USB, IBM, VR; chemical elements like *Carbon*, *Gas*, *Bromide* and other terms, such as *bank*, *online*, *Congress*, *protocol*, and *genus*. This study concluded that journalists prefer foreign terms rather than Arabic ones. Take *protocol*, *Congress*, and *profile* as instances. All of the mentioned terms have, in fact, their Arabic equivalent, i.e., ميفاق

[*mīfāq*], مؤتمر [*mu`tamar*], and الملف الشخصي [*al-malaf al-shakḥṣiyy*] respectively. The native terms seem to be forgotten, while the foreign ones are freely used, as in بروتوكول [*brūtūkūl*], كونغريس [*kūnḡhrīs*] and بروفيل [*brūfayl*].

There are at least two main causes that presumably lead to the overly use of foreign terms, cultural-linguistic dissimilarity and inconsistently employed Arabic-expanding techniques by Arabic users. Firstly, Arabic and Western languages are linguistically and culturally incongruent. Arabic users face difficulties when the text involves new terms, neologism, and a lack of equivalence. Many technical terms originating from the West are strange and new to Arab cultures and environments, leading to difficulties finding their equivalent in the Arabic language. For instance, the term satellite, while some users translate it as قمر صناعي [*qamar ṣinā`ī*], which means artificial moon, others choose to keep its original form: ستاليت [*satālayt*] since the translation does not seem to have satisfactory equivalents for this term (Shehabat, 2021).

A similar case might be found in the term mobile phone, which has been transferred sometimes as هاتف [*hātīf*] and often as موبايل [*mūbail*], سيلولير [*silūlīr*], موبايل فون [*mūbail fūn*]. Such inconsistency in employing Arabic-expanding techniques somehow leads to the abundance of Arabic equivalents for a foreign technical term (Al-Jarf, 2018). This inconsistency is either within the same translation situation, which leads to multiple Arabic equivalents for a standard technical concept or between similar translation situations, i.e., in using different expanding techniques for similar technical-technological terminologies (Sameh, 2017). As a result, Arabic finds itself in quite dilemmatic situations. On one side, the overly used transliteration technique (*al-dakḥīl*) to abreast with the development of foreign technical and terminological terms will certainly make the Arabic language contaminated by the immense number of foreign terminologies. Applying traditional vocabulary-expanding techniques and translation to maintain the purity of the Arabic language somehow will place Arabic in the occurrence of weirdness and absurdness in technical terminological terms and concepts. (Benkharafa, 2013)

The term Arabicization then appears whenever there is a gap in translational equivalence or equivalent effect in the Arabic language. It can play a crucial role in coping with developing technical-technological vocabularies, mainly from the West. To arabicize a foreign term means to convey it in the Arabic language in its original linguistic shape after subjecting it formally to a process of naturalisation: phonologically, morphologically, and syntactically. Semantically, however, the Arabic meaning of an arabicized term is based on its meaning in the foreign context in which it originally occurs. Worrying about contaminating with peculiar terms and counterpart word meaning issues would no longer exist.

Through those processes, the Arabicization method provides more steps of naturalisation properties that arguably can be the best way to accommodate foreign terms. This method will comprehensively elaborate the whole language parts, starting from the phonetics, morphological, syntax, and semantic sides. So, the construction of the newly generated Arabic word from the foreign terms, especially in the new technical vocabulary, will be in the best form and free of meaning issues. Thus, the current study will examine the Arabicization method, which involves phonetic-morphological-syntactic naturalisation and elaborating each step of the naturalising with the direct sample from the new technical vocabularies.

Based on the aforementioned gaps, this study promotes two research questions. First, what are the techniques and procedures of Arabicization in comparison between this technique and the others such as *al-dakhil* and *al-tarjamah*. Second, how are the detailed steps of the Arabicization process within the contemporary technical vocabularies?

2. Literature Review

Numerous studies have been conducted in an attempt to explain the Arabicization technique. For instance, Elmagrab (2016) on *The Creation of Terminology in Arabic* where proposed derivation (*al-ishtiqaq*), Arabicization (*al-ta'rib*), blending-coining (*al-naht*), and metaphor (*al-majaz*). With respect to Arabicization, a clear definition has been highlighted in this research. However, a question remains as to what procedures translators should employ in the Arabicization process, which is not clearly elaborated on in this study (Elmagrab, 2016).

Another was Awang and Salman (2017), who studied the *Translation and Arabicization Method of Scientific and Technical Terms into Arabic*. Nevertheless, the study only covered a general understanding of Arabicization procedures as a phonetic borrowing via transliteration. Arabicization as a process of naturalisation of foreign technical-technological terms morphologically seems to be ignored in the study (Rokiah and Ghada, 2017).

The recent research by Hasan (2017) on *Translating Technical Terms into Arabic* shows the clear distinction between Arabicization, translation and Arabic expanding technique was highlighted. However, he is still considering the terms Arabicization refers to both *al-ta'rib* and *al-dakhil*. He argues that translation is decoding source language text and finding equivalents in the target language. In contrast, Arabic-expanding techniques, including derivation, compounding, blending, etc., aim to solve problems of non-equivalence at the word level between Arabic as the target language and other source languages. The term Arabicization is a process of "transliteration and naturalisation". (Sameh, 2017).

Ghada (2018) also studied translation and Arabicization strategies of English scientific and technical terms into Arabic and their dissemination in the Arab press. However, in this study, there is an overlap between Arabic-expanding techniques, Arabicization, and translation concepts. As he argues: "Arabicization in this study... refers to direct and oblique translation strategies... Arabicization also refers to Arabic word-formation methods...". Such a definition ignores the fact that Arabicization, translation, and Arabic word-formation are different terminologies that refer to different denotations.

Based on the aforementioned gaps, this study focuses on two major studies, firstly explaining the complex concept of Arabicization, particularly the comparison between this technique and the others, such as *al-dakhil* and *al-tarjamah*, which are often used by previous researchers as if it is a similar concept that can be used interchangeably. The second highlights the detailed steps in the Arabicization process within the contemporary technical vocabularies.

To begin with, the term *al-ta'rib* is etymologically derived from *'arraba*, an Arabic verb that denotes a quotation of a foreign term to the Arabic language. According to *the al-Mawrid* dictionary, *'arraba* means to arabicize or to give an Arabic form to a foreign term (Al-Balbaki, 1996). In the *Lisān al-'Arab*, "*ta'rib al-'ism al-a'jami*" refers to: "a foreign term used by Arabs on their pronunciation rules".

The discussion of whether *al-ta'rib* denotes both Arabicization (*al-mu'arrab*) and transliteration (*al-dakhil*) has been an endless dispute among Arabic linguists over the decades. Abdu al-Qadir al-Maghrib, for instance, said: "*al-mu'arrab* (arabicization) is also known as *al-dakhil*" (El Maghrib, 1908). The other was Al-Jawaliqi, who used both terms to describe his work, "*Al-Mu'arrab min al-kalam al-a'jami 'alā hurūf al-mu'jam*" as if both refer to the same connotation. In brief translation: "*In this book (al-Mu'arrab...) we recall the foreign words that were spoken by the Arabs to let them know al-dakhil clearly*" (Al-Jawaliqi, 1990).

Yusuf (2003) argues that both terms, *al-ta'rib* and *al-dakhil*, are completely distinct techniques. The difference lies in the change and submission to the Arabic structure. He said, "*the foreign words that made the fabric of the Arabic word is al-mu'arrab, while words that penetrated the Arabic language and remain in its original image are al-dakhil*" (Yusuf, 2003).

Similarly, the Arabic Language Academic of Cairo also specifically distinguished *al-mu'arrab* and *al-dakhil*: "*al-mu'arrab is a foreign term that changed by decreasing, augmenting and altering its letter. Al-dakhil, however, is a foreign term that penetrated the Arabic unchanged*".

Perhaps, the dispute is due to the different interpretation of the classical concept of word borrowing as given by Sibawaih: "علم أنهم مما يغيرون من"

الحروف الأعمية ما ليس من حروفهم البتة، فربما ألحقوه ببناء كلامهم، وربما لم يلحقوه". In brief translation: "The Arabs change those foreign words that are incongruous with their own, sometimes assimilating them into the structure of their words, and sometimes not" (Sibawaih, n.d.). The first group of linguists, such as Al-Jawaliqi (1990), el-Maghrib (1908) and Hassan (2017), suggested the term *al-ta'rib* for Sibawaih's definition and believed the duality of *al-ta'rib*, i.e., Arabicization and transliteration. In contrast, the others, including Yusuf (1999), Hassan (2007), and Stetkevych (1970), insisted on developing the concept and classifying it into two major terms. Assimilating the foreign terms into the structure of the Arabic language is called *al-ta'rib* (Arabicization), whereas transliterating it with no change in its structure is called *al-dakhil* (transliteration). The term that covers both concepts is then called *al-iqtirad* (loan) (Khasarah, 2007).

A distinction had to be made in this article between Arabicization and transliteration so that the translator can choose between both transferring the technical-technological concept to Arabic and preventing immense penetration of peculiar terms into the Arabic language. We conclude that Arabicization is the adaptation of non-Arabic terms to Arabic by applying the phonological and morphological systems of the language to the terms. To illustrate, the term تلفاز [*tilfāz*] for "television" is an Arabicized term since it has been phonetically and morphologically constructed according to the Arabic mould (*qawālib*) مفاعل [*mif'āl*]. In contrast, the term إنترنت for "internet" does not generate any Arabic pattern. Hence, it is considered *al-dakhil* (Stetkevych, 1970).

As for the English term, two words refer to *al-ta'rib*, i.e., Arabization and Arabicization (Elmagrab, 2016). Although some scholars use them interchangeably, for instance, Ghazala (1995) views "translation as problem and solution" as he stated: "Arabization or Arabicization is the translation of technical terms into Arabic, the latter is more appropriate because it refers to Arabic, i.e., the language, whereas the former refers to the Arab people". Al-Abed Al-Haq (1998) said: "Arabicization is derived morphologically from Arabic, that is, the language..., while Arabization indicates a reference to Arabs, i.e., the people and culture".

3. Method

The present research is qualitative, with the major focus being to study the Arabicization present in books, journals, and Arabic language academy reports, which are the sources of this study. We classified the sources into primary and secondary. Related journals and articles are secondary (Creswell, & Creswell, 2018).

In collecting the data, this research fully employs the documentary method by collecting the data from both primary and secondary sources. The primary comprises classical and modern Arab linguist's works on Arabicization mainly focus on Sibawaih's view, and

some Arabic Language Academies (ALA) reports such as Cairo ALA. In addition, the secondary data is derived from the journals and articles related to the research.

The study adopts an inductive approach for data analysis, i.e., a systematic procedure for analysing qualitative data. The analysis will likely be guided by specific evaluation objectives (David, 2006). (Goddard & Melville, 2004) stated: "the inductive approach starts with the observations, and theories are proposed toward the end of the research process as a result of observation." Similarly, Strauss and Corbin (1998): "the researcher begins with an area of study and allows the theory to emerge from the data." (Bernard, 2011) added: "inductive research involves the search for patterns from observation and the development of explanations/theories for those patterns through a series of hypotheses.

In this research, inductive analysis refers to approaches that primarily use detailed readings of the theories of Arabicization. It focuses on the discussion of traditional and modern Arabic linguists on it and the Arabic Language Academies. This step is mainly to derive a general pattern of Arabicization methods by interpreting the raw data (the previous discourse on Arabicization). In other words, the extensive and varied raw text data are condensed into a summary form. The form is utilised to develop a model or a theory about the underlying structure of experiences or processes that are evident in the data. In this concern, Arabicization will be displayed descriptively.

4. Result

The results of this study encompass several points; the phonetic naturalisation of the new Arabic language that derives from the western term, filtering and abreast the foreign terms with the morphological rhythm, and hybrid Arabicization.

4.1 Phonetic Naturalisation

Phonetic naturalisation is considered to be the first approach to Arabicizing foreign terminologies. This approach was first introduced by orthodox grammarians such as Sibawaih on *al-Kitāb* (Sibawaih, n.d.) and al-Khafaji on *Shifā'u al-Ghalīl fī mā fī Kalām al-'Arab min al-dakhīl* (Al-Khafaji, 1998). The idea of letter and phonetic naturalisation means to find the exact similar sound of foreign alphabets or at least the nearest sounds to Arabic alphabets.

To illustrate, the foreign letter 'Q' will be transliterated into the Arabic sound 'ق' as in 'قونطوس'. The letter 'P', which is not found in Arabic, will be transliterated into the nearest sound 'ف' as in 'فوراموس' or 'ب' as in 'إفراط'. Similarly, the vowel 'E' that does not exist in the Arabic sound will become 'أ' or a diacritic mark *fath* (◌َ) depending on the situation one letter faces, as elaborated in table no. 1,2,3, and 4.

There have been many attempts to develop methods or rules to replace letters and phonetic sounds in modern times. The attempt of the Arabic Language Academy of Cairo is considered the first explicit rule for transliteration (for Arabicization purposes) in the

history of the Arabic language (Yusuf, 2003). Another attempt was made by Dr Mohammed Sharaf and Majma' Mustafa al-Shihabi (Khasarah, 2007). Their attempt at generating rules for transliteration is highlighted in below summary tables.

Table. 4.1. Summary of Procedures in Translating Consonants

Latin Alphabets	Arabic Alphabets Transliteration		
	ALA Cairo	Muhammad Syarif	Musthofa Syihab
Bb	ب		
Cc	ق، ك، س	ك، س، ق	ق
Dd	د	د، ذ	د
Ff	ف		ف
Gg	غ، ج، ك، خا	ج، غ	غ
Hh	ه	ه	ه
Jj	ي (ألمانية)، خ (اسبانية)، ز، ج	ي، ج	ي
Kk	ق، ك	ك، ق	-
Ll	ل	-	-
Mm	م	-	-
Nn	ن	-	-
Pp	ف، ب	ب	ف
Qq	ق، ك	ق	ق
Rr	ر	-	-
Ss	س، ش، ص	س، ز (بين حرفين صوتيين)، ش، ص	س
Tt	ط، ت	ط	ط
Vv	و، ف، ب	ف، و	و
Ww	و، ف	-	-
Xx	كس، كز، خ	ز (في أول الاسم)، إكس	إكس
Zz	ز	-	ز

Table. 4. 2. Summary of Procedures in Transliterating multiple consonants

Latin Alphabets	Arabic Alphabets Transliteration		
	ALA Cairo	Muhammad Syarif	Musthofa Syihab
Ch	خ، تش، ش، ك، ج	ك، خ	خ
Gn	غن	-	-
Ph	ف	-	-
Sh	ش	-	-
Th	ث، ت، ذ	-	ث
Ll	ليا	-	-

Table 4.3. Summary of Procedures in Transliterating Vowels

Latin Alphabets	Arabic Alphabets Transliteration		
	Beginning	Midle	End
Aa	أ	فتح ما قبله	ا
Ee	أ	ا، فتح ما قبله	ية
Ii	إ، إي	كسر ما قبله	-
Oo	أ، أو	و	و، ون
Uu	و	و	و
Yy	و	و	و
Y.I.E	ي	ي	ي

Table 4.4. Summary of Procedures in Transliterating Diphthongs

Latin Alphabets	Arabic Alphabets Transliteration		
	Beginning	Middle	End
Ai, Ae	إ، إي	ي	ا
Au, Ao	أ، أو	أ، أو	-
Eu	أ، أو	و	و

4.2 Filtering

The Arabic language is known for its complexity regarding its word systems. To mention first, the uniqueness of an Arabic word digit. Arabic grammarians such as Al-Farāhidy, Sibawaih and Ahmad Al-Khawalah, have come to an agreement that the minimum digits of an Arabic word are no less than three, although there might be disputes regarding the maximum. Al-Farāhidy and Ibn Khawalah argued that Arabic words, either verbal or nominal, have five maximum digits limit (Khawalah, 1978). Meanwhile, Sibawaih believes it is seven (Sibawaih, n.d.).

Perhaps, the different agreement on the maximum is due to the methods of counting the letter's number. Al-Farāhidy and Ibn Khawalah mentioned that five is for the original letters only, and if a word contains over five, it must be the additional letter. To illustrate, the six digits word 'ankabūt (spider) is originally four digits word 'ankaba. On the other hand, the seven letters number of Sibawaih covered both the original and additional. Al-Farahidy and Ibn Kahawalah have not stated the maximum digit for the additional letter (Al-Farahidy, 2002).

On that matter, with regard to Arabicization, the foreign term with fewer letters than three digits should be augmented by gemination or duplicating one of its letters. If the number of letters is over seven, they must be reduced to match the rule. To illustrate, the foreign term 'طُنْ', which originally consisted of two sounds, was Arabicized by gemination to become 'طُنْ'. Meanwhile, the letter (ه) in 'شاه بور' is reduced to form an Arabicized word 'سابور' (Al-Farāhidy, 2002).

It should be noted, however, that the letters of the Arabicized words are all origins, and augmenting for declension or derivation (femininity, numbers, or verbal nouns *masdar*, or plurals, etc.) is disregarded because they are casual suffixes and are not given a fixed rule of the letters. For instance, a seven-letter 'ديمقراط' is still considered as *al-mu'arrab*, although it might become ten in the form of 'ديمقراطية' (Khasarah, 2007).

Another important point is that the Arabic language possesses unique phonetic and diacritic systems for its words. To explain, compared to other languages such as English and Latin, the Arabic language never started the word with a vowel-less consonant or the *sukūn* (a circle-shaped diacritic placed above a letter that shows that a vowel does not follow the consonant to which it is attached) (Jinny, n.d.).

Therefore, for Arabicization purposes, the foreign term started with the vowel-less consonant will be transferred by augmenting a *hamzah* (a glottal stop) at the commencement or adding a diacritic mark in the first transliterated letter. For instance, Greek or Spain will form an Arabicized word 'إغريق', 'إسبانية' respectively, and Granada will become 'غرناط' (Ahmed et al., 2017). Secondly, two *sukuns* never meet in an Arabic word. Hence, the words; Fibrin and Micron, for instance, which are transliterated to the Arabic utterance 'فايبرين' and 'مايكرون', should be Arabicized by deleting one of the *sukūns* to form an accepted-Arabicized word 'فيرين' and 'مكرون' (Khasarah, 2007).

4.3 Levelling up the Morphological Rhythm (al-iqā'u al-ṣorfīy) of the Arabic Language

The Arabic language is known for its roots and pattern systems, where all its words are derived from a particular root (a set of consonants containing the word's base meaning). These root consonants are then put into patterns/*wazn* (the set moulds of words that roots can be inserted into), which morph the meaning of the root to create a variety of related words. Based on this case, when it comes to the Arabicization process, the issue is quite complicated since all the letters of an Arabicized word contain non-Arabic roots. Moreover, according to many Arabic linguists, the idea of breasting foreign words with the Arabic pattern (*wazn*) is a matter of dispute.

Perhaps, according to the writer, the most acceptable argument is the theory called *al-iqā'u al-ṣorfīy* by the modern Arabic linguist Mamduh Muhammad Khasarah. *Al-iqā'u al-ṣorfīy* is literary translated into 'morphological rhythm'. Khasarah argued that fitting an Arabicized word with Arabic word rhythm, instead of an Arabic pattern (*wazn*), is far more important (Khasarah, 2007). This is due to the fact that the term (rhythm) eliminates the problem of original and additional letters in words and lefts the essence of the issue, which is the need for compatibility of the Arabicized word (*al-mu'arrab*) and the Arabic word formats and sound (Khasarah, 2007).

To illustrate, the Arabic paradigm (*abniyyah*) 'مفعال[mif'ālun]', 'تفعال [tif'ālun]' and 'فعلال[fi'lālun]' share similar consonant and vowel sequence. Therefore, they are at the single morphological rhythm but not in the same '*wazn*'. This is to say, although there is no Arabic pattern '[fu'lālun]' for an Arabicized word '*furayqun*', there is still a pattern 'مفعال[muf'ālun]' which shares the same consonant and vowel sequence (rhythm) with '[furaiqun]'. Similarly, the word 'أيقونة[ayq'unatun]'. Indeed, there are no *wazn* 'فيعولة[fa'iū'latun]' in the Arabic word pattern. However, such Arabicized words still share the same rhythm of an Arabic pattern 'مفعولة[mafū'latun]'; therefore, it could be considered *al-mu'arrab*.

4.4 Hybrid Arabicization

It is commonly understood that some foreign terminologies (especially those from English) frequently comprise two compound morphemes, i.e., word and suffix. For instance, amoral (consists of prefixes 'a' and 'moral'), axiology (consists of axio and a suffix, logy), etc. While some Arabic translators translated both a suffix and word, others just borrowed the terms deliberately. Interestingly, some of them come with a new approach to finding the Arabic counterpart of such words by combining translation and Arabicization simultaneously. This approach is what the writer called a Hybrid Arabicization.

A hybrid Arabicization technique is usually started by translating the suffix and borrowing the other

morpheme but not often conversely. As an illustration, the foreign term 'axiology' which consists of two morphemes: *axio* (originally from Latin means value) and *logy* (from Latin means science, which is currently used in English as a suffix to describe a particular branch of science), was borrowed by translating the *axio* into Arabic قيم [qīmu] and being Arabicized the suffix *logy*: 'لوحيا', to form a hybrid-Arabicized word 'قيمولوجيا [qīmūlūjiya]'. Another instance, dioxide. It consists of *dio* (a Latin origin means two) and *oxide*, to form 'ثاني أكسيد [thany uksīd]'; 'ربيعيل [rab'īl]' for foreign term *quartile* consists of *quart*, a Latin origin means four which is translated into Arabic ربيع [rab'i] and *ille*, to be Arabicized: عيل [ill].

5. Discussion

In the field where technical terminology is important to designate innovations and new products such as in science, technology, business, social media etc. Meanwhile, in the context of Arabic, standardise terminology in various subject areas is assumed as a special significance. Crucial problematic aspects related to terminology-making in Arabic are an issue of concern nowadays. These aspects involve the existence of a multiplicity of corresponding forms of one term, the conceptual imprecision, the ambiguity and vagueness of such forms, as well as inconsistency in their usage. This study suggests that the Arabicization techniques can play a fundamental role in providing counter knowledge for such issues and in developing technical-technological vocabularies in the Arabic language.

The suggestion of this study is in line with Al-Haq & Al-Essa (2016), who conclude that attitudes towards Arabicized technical terms, particularly in business, which were translated and published by the Jordan Academy of Arabic, were generally positive. Elmagrab (2011) also sees that arabicization is considered to be the most appropriate technique in introducing and creating neologism in the Arabic language, and it can fulfil a number of objectives: *First*, to preserve the purity of Arabic and consider as a means of developing Arabic vocabularies. *Secondly*, to standardise the scientific and technical terminology; and *third*, to retrieve the Arabic-Islamic cultural heritage.

Arabicization encompasses several processes. Starting from the phonetic naturalisation of the new Arabic language that derives from the western term, filtering and abreast the foreign terms with the morphological rhythm and the hybrid Arabicization. In further, Arabicization has the more comprehensive steps of generating the new vocabularies by stressing the processes from the basic language element, the phone, followed by the more complex system; the morphology with its relevance to the word construction and then the syntax; for identifying the word relationship to other words. The last is the semantic step, which immerses into the previous steps; the phonology, morphology and syntax aspects.

For clarity and to emphasise the factual application of those above Arabicization steps, this research collects some samples of new technical vocabularies from the sources provided by Farouq (2001), Jawzi

(1928) and Rahiim (2011). Below are some quick summaries of Arabicized terms that have been widely recognised and used in the Arabic text, as well as found in many Arabic dictionaries.

Table 5.1 List of Arabicized Terms

Arabicized Terms	Foreign Origin	Morphological Rhythm
أيقونة	Icon	مفعول
دولار	Dollar	فوعال
تقنية	Technique/technic	فعلية
بطارية	Batterie	فعالية
مليون	Million	مفعال
مليار	Milliard	مفعال
طن	Ton	فعل
متر/أمتار	Meter	فعل/أفعال
أكاديمية	Academic	مصدر صناعي
بالون	Balloon	مفعول/فاعول
غاز	Gas	فعل
أوزون	Ozon	مفعول
فلم/أفلام	Film	فعل/أفعال
كيمياء	Chemistry	فعلياء
مغناطيسية	Magnetic	مصدر صناعي
بيومترية	Biometric	مصدر صناعي
كهرمغنطيس	Electromagnetic	افعول
جنس	Genus	فعل
إسفنج	Sponge	مفعال/تفعال
جغرافي	Geographic	فعال
تلفاز	Television	مفعال
ميل	Mile	فيل، فعل
أيونية	Ionic	فعل
ليبرالي	Liberal	تفعال
كتالوج	Catalogue	فعال
فيزياء	Physic	فعلياء
هكتار	Hectare	مفعال
ديمقراطية	Democratic	مصدر صناعي
ثاني أكسيد	Dioxide	أفعيل
كربون	Carbon	مفعول/فاعول
مريخ	Mars	فعل
موسيقى	Music	تفعيل
بنك/بنوك	Bank	فعل/ففعال
أرشف	Archive	فاعل

Source: (Farouq, 2001; Jawzi, 1928; Rahiim, 2011)

As it transpires, the above terms have been through many stages and naturalised in many processes, including phonetic transliteration, filtering, and morphological adaptation. The phonetical naturalisation became the foremost stage conducted in this matter due to the different letter patterns in Arabic and English. This stage is then followed by filtering and morphological adaptation. To quote an instance, the English term Icon (A symbol or graphic representation on a screen of a program, option, or

window, especially one of several selections) experienced phonemic naturalisation, i.e., I [ai], c (which is pronounced 'k' as in 'key'), o [ɒ] and n [n], to become 'أ، ق، و، ن' respectively. The letters are then morphologically adapted to the inflectional gender (feminine) system in the Arabic language by adding the letter 'ة' to the end of the word. These letters are then abreast with the morphological rhythm مفعول/مفعوله [maf'ūlun/ maf'ūlatun] to form an Arabicized term أيقونة.

Another example of an Arabic term is Sponge [spʌndʒ]. After being naturalised phonetically, s → س; p → ف; ʌ → a diacritic mark (); n → ن; and dʒ → جي to form an Arabic word إسفنج. However, it is understood that the vowel-less consonant never started a standardised Arabic word. Hence, a hamzah (ء) is then augmented at the beginning of the word. Subsequently, the combined letters ج ن ف ن ج ء س ف ن ج are abreast with the morphological rhythm مفعال [mifʿālun] to form إسفنج [isfanjun].

Other patterns to consider are the English term that ends with the adjective suffix 'ic', such as technic, academic, magnetic, biometric, and democratic. Those terms were Arabicized by phonetical naturalisation, filtering and morphologically adapted to what is called in Arabic as مصدر صناعي [masdar sināʿī] by adding the ية to the end of the word as in تقنية، أكاديمية، مغناطيسية، and بيومترية and ديمقراطية respectively.

In quite similar, but not the same case happened in democracy and technocracy. Although the first is considered an Arabicized term since it already being naturalised on many processes to form ديمقراطية [dimuqrāṭīyya], this cannot go to the second. As it transpires, the borrowing term تكنوقراطي [tiknūqrāṭī] still violates the diacritics mark of the Arabic language, i.e., two sukūns never meet in an Arabic word. In this case, the sukūn letter و meets with the sukūn letter ق in a single Arabic word.

With regard to hybrid Arabicisation, the sample can be seen in column no.17. The term *kahrumagnātis*, which is a compound word from *kahrubāiy* (electro) and *magnātis* (magnetic), experienced a hybrid Arabicization process where the initial morpheme is translated from English term electric and the latter (*magnātis* from the magnet) is naturalised phonetically and morphologically into Arabic language word system.

The productivity of Arabicized terms in both inflectional and derivational is also considered positive. The study by Hassan (2017) showed that many Arabicized terms such as batteries (بطاريات), cables (كابلات), microphone (مكروفونات) accept the addition of inflectional morphemes which are Arabicized and remodelled to conform to Arabic word patterns of forming the sound of feminine plural in which the plural noun ends with suffix ات. The term battery (بطارية), to be more specific, accepts inflectional markers of plural (بطاريات), dual (بطارينان), femininity (بطارية), possession (بطارتك), etc. As for the derivation, some terms are also found to be productive. For instance, the noun magnet (مغناطس) derived to produce magnetism (مغناطيسية), to magnetize (يُمغناطس), magnetizing (مُغناطس), and magnetized (مُغناطس). Similarly, the word archive (أرشيف) is also productive for derivation to archive (يُؤرشف), archived (مُؤرشف), and archiving (أرشفة), etc.

6. Conclusions

In conclusion, results confirmed earlier findings suggested by the Arab linguists that the Arabic language is still suffering from the inevitable penetration of foreign technical-technological terminologies. The fact that using traditional vocabulary expanding techniques, including derivation (*al-ishtiqāq*), translation (*al-tarjamah*), analogy (*al-qiyyās*), compounding (*al-tarkīb*), coinage (*al-Naht*), metaphor (*al-majāz*), may bring difficulties in abreast with the development of such terms in one hand. At the same time, the free-borrowing technique (*al-dakhīl*) brings only a few advantages but situates the Arabic language contaminating an immense number of peculiar terms in the other. In this study, it is stated that the Arabicization technique can play a fundamental role in providing the development of technical-technological vocabulary, which mainly comes from developed countries and is used for identifying the word's relationship to other words. It has the more comprehensive steps of generating the new vocabularies by stressing the processes from the basic language element, the phone, followed by the more complex system; the morphology with its relevance to the word construction and then the syntax; for identifying the word relationship to other words. Lastly, the semantic step immerses into the previous steps; the phonology, morphology and syntax aspects. This research suggests that Arabic users carefully pay attention to the Arabicization technique that Arab linguists have developed before deliberately borrowing technical terms that will damage the feature of the Arabic language vocabulary in the future.

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