

**AN EVALUATION OF LINGUISTIC AND CULTURAL IMPLICATIONS
OF LOCALISING SOFTWARE IN KISWAHILI: THE CASE OF GOOGLE**

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**A THESIS SUBMITTED FOR EXAMINATION IN FULFILMENT OF THE
REQUIREMENTS FOR THE AWARD OF DOCTOR OF PHILOSOPHY IN
KISWAHILI AT THE UNIVERSITY OF NAIROBI**

JULY, 2020

DECLARATION

This thesis is my original work and has not been submitted for any degree award to any other University.

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DEDICATION

This work is dedicated my two sons Austin and JV whom I wish to inspire through it, and to my father who believed in me since I was a child.

ACKNOWLEDGEMENTS

I am grateful to the following individuals and organizations who contributed to this thesis. First, I would like to express my sincere gratitude to my supervisors, Prof. Iribe Mwangi, Prof. K.W. Wamitila and Prof. Tom Olali, for their guidance and encouragement during the entire research period.

I also wish to thank my family for their encouragement and understanding. The strength I received from your spoken word and earnest prayers went a long way in motivating me to soldier on despite the turbulence that sometimes come my way. Your understanding especially when I was not as available as you would have wished is something I do not take for granted. Now that the work is done, I hope I will be more available for you all.

Next, I would like to thank my colleagues at the Centre for Translation and Interpretation; Prof. Jayne Mutiga, Mr. Gitonga, Dr. Justine Ndongo-keller, and Prof. Kithaka wa Mberia of the Linguistics Department. You made me believe I can make it, and all along the way you were a valuable source of encouragement and guidance.

Tamarind Translations, I thank you most sincerely. Through you, I got a lot of useful resources and insights into the topic, and this research would not have been complete without you!

Lastly, I wish to thank any other person who directly or indirectly influenced my thinking about research.

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LIST OF ABBREVIATIONS

AJOL	African Journal Online Localisation
APDIP	Asia-Pacific Development Information programme
CAT	Computer Aided Translation
FOSS	Free/Open Source Software
GALA	Globalisation and Localisation Association
GTT	Google Translator Toolkit
HTML	Hyper Text Markup Language
ICT	Information and Communication Technology
IT	Information Technology
IU	User Interface
L10n	Localisation
L18n	Internationalisation
LISA	Localisation Industry Standardisation Authority
LQE	Language Quality Edit
LSP	Language for Special Purposes
LTU	Lexical/Terminological Unit
LU	Lexical Unit
MS	Microsoft
MT	Machine Translation
OS	Operating System
QA	Quality Assurance
SL	Source Language

ST	Source Text
TL	Target Language
TM	Translation Memory
TMC	Translation-mediated Communication
TT	Target Text
TTS	Text-to- Speech
TU	Terminological Unit
UI	User Interface

ABSTRACT

Localisation of software products and computer Applications from English into major world languages has been going on for a fairly long time. The motivation behind this endeavor is business related, where global companies try to reach local markets for their products. However, it was until early 2000 when companies such as Microsoft started localising their software products in Kiswahili with the aim of availing computer programmes and applications to the over 150 million Kiswahili speakers within the East African region where Kiswahili is a *lingua franca*. So far, many other technology companies have joined the endeavor. Google, which is the subject of this research, has so far localised most of the content in its software products and mobile Applications in Kiswahili. However, although generally the project has been successful to a larger extent, the endeavor has had to deal with some linguistic and cultural challenges. These two challenges informed the overall objective of this research, which was to study linguistic and cultural elements in localised Google products with the aim of assessing how they impact on localisation quality. To do this, the researcher analysed lexical and terminological units (LTUs) from the localised Google software products such as Gmail, Google Search, Hangouts, and Google Maps among others. Source text English LTUs were compared with target texts Kiswahili texts and analysed interpretively. Data from secondary sources was also used as a basis for an interview and survey used to gather information on localiser experience during the project undertaking. The findings revealed that the *skopos* (functions) of source texts was achieved to a larger extent in the target text (TT). However, there were linguistic challenges encountered by localisation translators. These challenges were mainly equivalence related borne from the fact that there are several lexical and structural differences between English as the SL and Kiswahili as the TL which prevent a one-to-one textual relationship. The challenge was observed more in cases where technical requirements such as space limitations impeded localisers' ability to find creative solutions to the problems. On the issue of culture, Kiswahili speaking locale is highly multicultural, a factor that problematizes the work of looking for neutral cultural terms. Nevertheless, on the issue of culture, the study found out that although localisation theory places culture as one of the most important things in orienting localisation endeavors, on the contrary, there are very few culture-specific elements in software that would render the work of localising software challenging. Furthermore, it emerged that a culture has emerged that can be described as digital culture whereby anyone who uses Internet by extension subscribes to this culture. This culture was found to supersede national cultures in the way people interact with the web. The study recommends that a follow-up research be done to understand user demographics. This is because quality evaluation for localisation and translation particularly for public use highly depends on the users' perception rather than the perception of linguists.

DEFINITION OF KEY TERMS

A locale refers to a group of people who share a language, a writing system and other properties which may require a separate version of a software product Yunker (2003:16). This could be a region, a country or just a language community. In this study, locale refers to Kenya.

Cultural issues of localisation involves the adaptation of programmes written in one language by members of one culture to another language and another culture in such a way that they seem fully consistent with the assumptions, values, and outlooks of the second culture. The source culture in this study is the United States of America where the programmes were developed and the target culture is the Kenyan culture (s) which is the locale under focus.

Culture refers to the integrated pattern of human knowledge, belief, and behaviour that is both a result of an integral to the human capacity for learning and transmitting knowledge to succeeding generations Dennis *et al* (2006:126). In this proposal, the concept of nation and country are used to operationalise the term culture.

Free and open source software (FOSS), also known as free/libre open source software (FLOSS)), is software programmes whose licences give users the freedom to run the programme for any purpose, to study, and modify the programme, and to redistribute copies of either the original or modified programme without having to pay royalties to previous developers (Wolff 2011:2).

Globalisation is defined by Esselink (2000:36) as the process of publishing web sites in foreign languages. In this research, Globalisation is defined in relation to Translation Mediated Communication (TMC) as a process to enable the message to be adaptable to a condition that may be imposed by receivers who do not share the same linguistic and cultural backgrounds as the receiver (Minako et al 2002:71).

Internationalisation in the localisation process refers to the process of developing applications that can easily be converted to operate in different cultural or linguistic environments (Esselink 2003:4).

Language Quality Edit segments (LQEs) are documents which show the translated text (from the translator) and the corrected text (from the reviewer), as it will appear when installed in the computer.

Multilingual means supporting more than one language simultaneously. Often implies the ability to handle more than one script and character set.

Software is a general term for the various kinds of programmes used to operate computers and related devices (Grant 2005:76). In this study, Google+ and Google Search are the two software programmes under focus.

Software localisation refers to the actual adaptation of the product for a specific market (Pym 2004:51). It includes translation, adaptation of graphics, adoption of local currencies, use of proper forms for dates, addresses, and phone numbers, and many other details, including physical structures of products in some cases.

Technical issues of "localisation" have to do with the translation of programmes originally written in and for one language into intelligible and user-friendly versions in and for another language (Pym 2003:219). It usually entails, for example, creating Kiswahili versions of U.S.-English language programmes, with appropriate local character sets, numbers, scrolling patterns, dates, colours, box sizes, etc.

User interface (UI) is defined in Business Dictionary as everything designed into an information device with which a human being may interact including display screen, keyboard, mouse, light pen, the appearance of a desktop, illuminated characters, help messages, and how an application programme.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

In today's competitive market, companies are increasingly realising the importance of adapting their software programmes to a particular language, culture, and local design requirements (Reinecke 2010:18). Google, Microsoft, Oracle, Linux are examples of software vending companies and operating systems that are embarking on a rigorous effort to adapt their software programmes and User Interfaces (IUs) to different target nations in order to increase its market share. This adaptation is what is being referred to as software localisation in this research.

Localisation today is used with the term internationalisation and globalisation. Globalisation means the preparation of a product to make it suitable for efficient localisation, while globalisation signifies the global design of a product (Yunker 2003:17). According to LISA (2003), there are two primary technical processes that comprise globalisation. These processes are internationalisation and localisation.

Internationalisation is the first phase. It encompasses planning and preparation stages for a product; that is built by design to support global markets. According to LISA (2003), it is in this stage that all cultural assumptions are removed and any country/region or language-specific content is stored. The second phase, localisation, refers to the actual adaptation of the product for a specific market or audience. This phase involves, among other things, the four issues LISA describes as linguistic, physical, business and cultural

and technical issues. The aspect of language is very important in localisation. In fact, Brook from Microsoft has used language to delimit a locale as a linguistic rather than a geographical location (Brook 2000:48). Brook argues that the work of localisation is linked to language primarily, and this explains why in the localisation triangle the linguistic oval is larger than technical and marketing ovals.

Localisation is a fairly new phenomenon and many people use translation and localisation interchangeably (Esselink 2003, Moustén 2008). Today, there is a lot of discussion going on as to whether translation is part of localisation or vice versa. McDonough (2006:87) argues that while the localisation industry usually considers translation a simple sub-process of localisation, translation researchers have argued that in many ways, localisation is just translation with a new name. However, an examination of the localisation circle contained in the Localisation Industry and Standards Association primer clearly show that localisation is broader than translation because it involves a couple of other processes. Esselink provides a clear definition of the position of the sector on this matter. He says that translation is only one of the activities in localisation; in addition to translation, a localisation project includes many other tasks such as project management, software engineering, and desktop publishing (Esselink 2000:7). This view is supported by other professionals (Dohler 1997; Donoso 2002).

In addition to translation, which forms the bulk of localisation services, other processes are involved, too. These processes include such diverse processes as the travel of text from a global source text over an international relay text to a local target text (Moustén

2008:4). The localisation process further involves training and project management, linguistic work and linguistic tools development, as well as management processes such as quality assessment and product testing. Non-textual components of products or services such as grammar and spelling issues that vary from one place to another as well as adapting graphics, local currencies, dates addresses, phone numbers, colours all these with an aim of recognising local sensitivities, avoid conflict with local culture and habits are addressed (Collins 2001:11).

In the last decade, the concepts of localisation and internationalisation have permeated into virtually every sphere of human and computer interaction and disciplines, including Translation Studies. The ongoing effects of globalisation have reached areas far-distant from economy and have affected practically all spheres in our society (Schäffner 2000:119). In addition to the new global configuration, we have witnessed the explosion of the Internet and its development as an informative source and a communication platform used by millions of people every day. In this scenario, translation becomes a basic tool for intercultural communication and a vehicle for understanding among nations (Wiersema 2004:7).

In view of this fact, localisation of software products and user interface into Kiswahili has been undertaken within Kiswahili speaking locale with substantial amount of success. Three re-known international computer software developers namely Google, Microsoft and Linux have started the localisation of their software using Kiswahili language in a bid to bringing information Communication Technology (ICT) access closer to most Africans

especially in the East and Central African region. Other efforts of using Kiswahili to spread ICT in Africa include the Kiswahili text to speech (TTS) programme and Facebook (Onyango 2008:4). The main goal of the various Kiswahili localisation efforts is on the one hand to bridge the digital divide between Africa and the developed world and on the other hand to expand their markets in Africa (Kamau 2008:7). Software localisation in Kiswahili is centred mainly on free and open- source software, commonly referred to as Free and Open Source Software (FOSS). This is software that is available without restrictions for use and usually comes at no cost (Wolff 2001:2).

1.2 Statement of the Problem

Localisation of software in major world languages has been going on for a while. In Kiswahili though, this phenomenon is a fairly new one and was brought to the limelight around 2003 when Microsoft launched the first initiative to localise their products in Kiswahili. In the recent years however, a lot of development has been witnessed in this area as companies whose products are authored in other languages endeavor to localise their software in Kiswahili in a bid to tap into the East and Central African market that has over 150 million Kiswahili speakers. This is after it became clear that it is much easier to appeal to consumers if you use their local language than when foreign languages are used.

Despite the efforts, there seems to be deficiency or lack of adequate software development methodologies to support localisation efforts for Kiswahili. This deficiency emanates from two issues namely linguistic and cultural factors, both of which have

potential to hinder overall success of localisation effort. The former, linguistic, is perhaps the more critical of the two. It stems from the fact that English, which is the source language and Kiswahili which is the target language share less homogeneity as would be perhaps between Kiswahili and another Bantu language. As a result, there are several lexical and structural differences between them which prevent a one-to-one relationship. The following general principle holds in any translation undertaking: the closer the source and the target language are related, the easier it becomes to transfer message between them. It is clear for example that English lexicon is wider than that of Kiswahili. As a result, senses in English are narrower than in Kiswahili, meaning that an idea or phenomena that English expresses in a more specific manner, Kiswahili may express the same in general terms. It is against this backdrop, that this study tried to investigate whether the localisation project can be successful in transferring the ST functions to the TT amid the lexical and terminological shortcomings that there are in Kiswahili as the target language.

As regards cultural factors, Kiswahili is spoken in a region that is highly multicultural with remarkable differences of its use emanating from the cultural differences that exist within the locale. Sheppard et al (2010:1) observes that cultural markers and the prevailing IU design elements and features can directly impact on user performance since they have a direct effect on quality of the localised products. There are terms which when used by a particular cultural group within the locale sound normal but to others they could be alien and sometimes even offensive. For example, *highlights*, a term used in Google+ to refer to a page in the photos area where only a user's best photos are shown,

is rendered in Kiswahili as *vivutio*. This term may have a more denotative sense in communities where tourism is a predominant economic activity and therefore can easily be construed to mean *attractions* by someone from such a background thus hindering the communicative effectiveness the term.

In the light of the above issues, this research study sought to address the question of whether the culture played any significant impact on the success of the localisation of software in Kiswahili. This is because for a long period of time localizing online content has been premised on culture. Through this study we sought therefore to investigate whether culture should be relied on heavily by software localisers in conceptualizing, orienting, and guiding localisation endeavors. It is clear that culture is quite dynamic especially in globalized online environments and that international online audiences tend to construct a more general sense of locality, in which audiences inflect or even modify their cultural habits in light of what is happening online.

Although several studies have been done to evaluate the effect of culture on localisation of software and the methodologies used on the development of software strategies, no study was found to have been done involving Kiswahili, a language that is spoken in a highly multi-cultural locale. Thus, this becomes the problem that this research wished to address.

1.3 Objectives

1.3.1 Overall Objective

The overall objective of the research was to study linguistic and cultural elements in localised Google products with the aim of assessing how they impact on localisation quality.

1.3.2 Specific Objectives

1. To discuss the localisation process including cultural markers available in products that are localised in Kiswahili;
2. To establish the strategies and procedures used in localizing lexical and terminological units (LTUs) from English to Kiswahili;
3. To evaluate the communicative functions of localised software/google products; and
4. To determine contextual factors surrounding localisation of software in Kiswahili.

1.4 Research Questions

1. Which translatorial actions come to play at the various stages of software localisation process?
2. How do the various software localisation models influence decisions of localisation translators?
3. To what extent has localised Kiswahili Google software products achieved their text functions?
4. What are the main linguistic and cultural factors inherent in Kiswahili that problematize its use in software localisation environment?

1.5 Justification of the Study

Kiswahili is an international language with over 150 million speakers within the East Africa Common Market and 150 million all over the world (Sewangi (2010: 17). This figure has been cited by Phomeah (2004) in Edmundson (2007:69) who adds that 10% of Kiswahili speakers have access to computers. The number of Kiswahili speakers using computers in the present day is certainly higher than 10% of the total number due to the recent developments in ICT sector in Kenya and the East African region at large.

Efforts to internationalise Kiswahili through localisation of software and user interfaces have been ongoing since early 2000 with the aim of availing computer programmes and applications to people who do not understand English. Sewangi (2010) notes that spreading of computer knowledge involves teaching people how to operate relevant systems and the teaching and learning of the knowledge is easier where people use their own language. Unfortunately, most software is available in English (Onyango 2008). This has become a big challenge in learning and using of computer applications especially for people who do not understand English.

Early efforts to localise software in Kiswahili was made by Microsoft through its operating systems like Windows and Open Office. Linux followed and localised Linux operating system (OS) into Kiswahili through its Kilinux (klnX) project. Google joined the endeavor and has several products already localised in Kiswahili including Google Search, Gmail, Google Chrome, Google+, Google maps, and YouTube. The project is however ongoing. There is also Facebook localisation in Kiswahili which is ongoing and

being done by volunteers. As at now many companies including electronics companies like Huawei, LG, and Samsung are, in their effort to penetrate the East African market localizing their software and manuals in order to appeal to the tastes, norms and conceptions of Kiswahili speakers.

Despite all these efforts to localise software into Kiswahili, there has not been a systematic study on the challenges of transferring the highly technical terms from the SL to the TL in a communicative, usable manner bearing in mind that the Kiswahili speaking locale is quite culturally heterogeneous. The findings of this research will therefore be significant because they will allow future localisers to examine the nature, function and methodologies of localising software in Kiswahili. Besides this, in literally scholarship, findings of this study will contribute by offering a baseline for future research.

1.6 Scope and Limitations of the Study

This was a qualitative single-case study that explored localisation of software in Kiswahili within the Kenyan locale. The study focused on localisation drawing from both conceptual and theoretical frameworks. We explored the efforts made to localise computer software by software developers within framework of Translational and *Skopos* theories.

The study was confined to Kenyan locale. Although there are many multinational technology companies such as Microsoft, Oracle, International Business Machines (IBM), this research focuses on Google because so far Google is the leading Internet

search engine and therefore widely used by web browsers (Sterling, 2003). Google has succeeded in localising a number of its products including Google search, Gmail, Google maps, Google Chrome, Google+, and YouTube. This research did not limit itself to any specific product due to the fact that the users of localised products are largely the same and there is minimal variation of language across products. The other reason is that Google user accounts are usually synced and therefore there is heavy permeation of terms from one software product to another.

The researcher focused on Lexical Terminological Units (LTUs). These are lexical units that can be general terminology in some contexts and specialised terminology in other contexts (Melby 1995). The LTUs analysed were only those that carried linguistic and cultural implications to the use of products under study. They were chosen after analyzing the situational context of their use.

The study research area was Nairobi City. This is because Nairobi is a metropolitan city with Kiswahili speakers from diverse cultural backgrounds. It is therefore a good representative of Kenya as a locale. In addition, Internet culture is more entrenched in Nairobi city more than other towns. The area is also easily accessible to the researcher.

1.7 Literature Review

In this section, theoretical and empirical literature will be reviewed.

1.7.1 Review of Theoretical Literature

Localisation has been widely discussed by many scholars and researchers (Corte 2000; Esselink 2000; Austerhöhl 2001; O'Hagan & Ashworth 2002; Yunker 2002; Pym 2005), giving their dimensions and perspectives on the process.

Pym (2000, 2003b, 2004a, 2010) has discussed localisation at depth. He has made great efforts in defining the term which many scholars agree that it is rather new as compared to translation (Maroto 2007, Collins 2001, Murray 2010). According to Pym (2000), localisation is understood as a general mode of thoughts informing social- culture text adaptation in the field of software, product documentation, web technology, and some international news services. Pym has discussed localisation from translation Studies perspective. In Pym (2003b, 2004a, 2010), he strives to show the place of translation in localisation process. Pym argues that translation seen from the perspective of localisation is basically the minimalist replacement of natural language strings.

He further defines translation in localisation context as a text replacement process suited to natural language strings and that translation operates on the basis of equivalence (Pym 2004:57). Pym argues that translation is a linguistic part of localisation. He also highlights the importance of translators and localisers as language experts in the localisation process. The role of such experts in the translatorial action and transcultural

message transfer lies within the scope of this research. Pym's argument furthermore applies well in this research where the researcher is evaluating LTUs, which form part of the linguistic elements in Google's localised software products. However, since localisation involves taking a product to people not just in the language they understand but also in the language that is culturally acceptable by them, the issue of culture then becomes important and this is what this research intends to enrich Pym's work with.

The importance of localisers identifying carefully the parts of software applications that are unique to a specific country or area (such as a language and culture) is well explained by Collin's (2001:1). Collins argues that while the tendency in localisation is to focus on differences between groups of potential software users who are then viewed as quite homogeneous, it is also important to recognise that cultures are difficult to describe and measure and many individuals are culturally heterogeneous. These views are echoed by Sandrini (2005:22) who says that localisation should be done in a way that it is linguistically and culturally appropriate to the target of locale. He adds that the readers want to read the localised content in their own language and expect clear and understandable information and not culturally offended by language images, colours and so on (Sandrini 2005:8).

Esselink (2001) has explored the fundamentals of localisation from a general perspective. Esselink (2000, 2001) explores fundamentals in localisation including language issues and website adaptation. On language matters, Esselink (2000:51) points out that in any localisation project, software translation precedes many other processes. Here, graphical

user interface components are translated into TL. Esselink further highlights language guidelines that are to be followed by translators. Key among them are need for proper terminology management which he places as the responsibility of translators, the need for translators to avoid literal translations, ensuring that translation of software strings is consistent within software strings, style and grammatical form for specific types of IU components, and adapting language to suit local language conventions.

The guidelines laid by Esselink are important for this research in two ways. First, they will be used to evaluate the role of translators as experts according to Translational Action theory which will be used to analyse the data. Secondly, they will help in analysing the process of text production in a localisation project. However, Esselink's work is on general localisation principles that can apply in many types of localisation such as web site localisation, software localisation, and game localisation. This research aims at looking deeply into principles that apply to software localisation.

1.7.2 Review of Empirical Literature

In this section, we will review literature from scholars in the area of localisation. Although the value of open-source software has been subject of considerable academic debate, researchers have not properly examined processes for open-source software localisation efforts (Castelluccio, 2008) in (Hinz 2010:3). Hinz (2010) has done a detailed study on localisation of open-source software. He has explored the value of open-source software localisation in facilitating change to enhance software providers and consumers to conduct business using a familiar local language. Hinz explored people's attitudes

towards specific software localisation methods and use of Linux in a development environment. The empirical evidence disputed the assumption that software localised into Kashubian language was important to Kashubian business operations. Hinz's study shed new light on the place of small languages like Kashubian in the localisation efforts by companies of the world today. This study focuses on Kiswahili which has about 100 million speakers in its locale as compared with Kashubian, which has about 366,000 speakers. In addition, Hinz's study laid emphasis on business applications of localised open-source software. Although most localisation projects are motivated by business interests, this research aims at making a step further by studying localisation for and for cultural and linguistic purposes.

Mousten (2008) has investigated the text travel processes from VELUX's Danish website to its English-language locale (combination of language area and country/countries) of Ireland and the UK. He studied how the text travels between two websites and what happens to it during the travel. The results from the analysis of quantitative text travel showed that the majority of the web pages on the Danish web site did not travel at all, but were local in content. Mousten's research also revealed interesting facts in relation to cross-field of localisation and translation where he tried to answer the question as to whether translation is part of localisation or localisation is part of translation. In handling the questions, Mousten modified both concepts by adding the word 'process' to localisation and 'text production' in translation. He thus argues that it makes sense to talk about 'text production in the localisation process' if one has to discuss localisation where translation studies are fundamental. He adds that text production and text translation

strategies have to be constantly adjusted in a localisation process where many locales are included. Mosten's analysis confirmed that different processes could be identified in web-page travel: translation, adaptation and replacement. These processes were analysed using *Skopos* theory and Translational Action theory.

Cultural dimension in localisation process has attracted more attention in most localisation studies (Mosten 2008 and Reinecke 2010). This research will benefit greatly from insights from their research concerning cultural issues in localisation. Furthermore, the linguistic issues that this research is studying will help to shed more light on linguistic dimension of localisation.

Husmann has done a study on localisation of web user interfaces and cross cultural differences in home page design. In his study, he has looked at web user interfaces and the means by which an application communicates with the user. Husmann focuses on the design aspect of web pages especially on home page. He has used cross cultural theory to look at how culture influences perception, preferences, communication and social acceptance of localised web pages. His empirical evidence showed that both overt and covert factors such as colour, position of the logo, number and type of images influence perception and acceptance of home page.

Husmann's study is confined to localisation of the home page, a level of localisation that Mosten (2008) terms as basic, meaning it is the lowest level of localisation that can be done on a product. This research will be studying programmes like Gmail and Google Hangouts, which have almost been fully localised in Kiswahili. Furthermore, Husmann's

research study limited itself to cultural aspect of localisation leaving the linguistic and technical aspects. This research will explore deeper into the linguistic dimensions of localisation with aim of finding out how effective the translated texts in localised products are in fulfilling the *skopos* of localisation.

Sun (2004) has examined and compared multiple cases of local uses of mobile messaging technology in American and Chinese contexts. His study employs a framework of cultural usability, bringing social-cultural contexts into user activities and integrating key concepts and methods from activity theory, genre theory, and British cultural studies. The framework regards usability as a mediation process consisting of an instrumental aspect (mediation of practices) and a social aspect (mediation of meanings). Through his study, he has illustrated how each specific local use develops in a concrete activity situated at the intersection of the immediate context and social context and how the local use echoes with both the subjectivity of the user and the ethos of the surrounding culture. Sun calls for a change in localisation practices from localising for operational affordances by simply applying cultural conventions in localisation work to localising for social affordances with rich understandings of use activities in context.

Although the phenomenon of mobile text messaging lies within the broad spectrum of IT, we all acknowledge the fact that use goals in mobile text messaging are different from computers in many respects including the physical, social, and cultural contexts within which they are used, level of personalisation, applications, and services provided (Biljon 2006:15). In addition, she researched on localisation in mobile phones that involved only

minimal localisation work from engineering side where manufacturers mainly translate the interface and menu into local languages. This research aims to look at localisation in its full sense. It aims at studying programmes which have almost been fully localised.

Karani (2011) has studied challenges of neologisation on the Internet. In the study, Karani has looked into Kiswahili neologisms on the Internet as used by Google and Microsoft and their communicative effectiveness. His conclusion was that there were many inconsistencies in the usage of the neologisms thus confusing Internet users. In addition, most of the neologisms were either too difficult to be understood by users with basic knowledge of Kiswahili (who in fact localisation was meant to benefit) or ambiguous as result of poor word coinage. Karani's research was mainly on terminological units classified as neologisms on the Internet. He did not concern himself with other lexical and terminological units in the context of localised software found on the Internet, which this research aims to study.

Malangwa (2010) did a study on translation of technical terms found in computer programmes from English to Kiswahili. In her study Malangwa was guided by a text-type theory of translation which viewed the translation of texts found in computer programmes from a text-type perspective.

Moreover, her study focused on the process of translation where the findings revealed that there are translation of technical texts from English into Kiswahili involves two phases. The first phase involves creation of Kiswahili equivalences for the English and the second, the actual translation practice. Her study underscored the importance of

translators in both phases in transcreating and developing appropriate terms where they did not exist in Kiswahili. Nevertheless, the study highlighted the challenges that confronted translators, key among them being the lack of uniformity in the equivalents created among the translators which was caused by the lack of genuine attempts at collaboration and cross-fertilization as well as insufficient efforts to disseminate the created terms regularly and systematically. On usability of the created terms, Malangwa observed that the resulting technical translations were judged difficult by the majority of the TL consumers because they were neologisms and very few people had come across them.

This study is important for our research first, by demonstrating that Kiswahili like any other language can operate in technical realms including in computer programmes. Secondly, the study has highlighted the role of translators in coming up with creative solutions particularly in looking for equivalences where none exist in Kiswahili. This research is building on this knowledge and going further in addressing the issue of translator competence which is key in enhancing this creativity. Furthermore, this study looks deeper into the issue of suitability of the terms linguistically and culturally within the Kiswahili speaking locale since the computer programmes were authored in a locale that is different from that of Kiswahili.

Localisation of FOSS in Kiswahili is a recent phenomenon. That is why both theoretical and empirical literature on the area lacks. The first initiatives to localise software in Kiswahili were taken by Microsoft and Linux in the early 2000. According to Microsoft

three things acted as their motivation to localise their software products in Kiswahili. First, it is to help the developed countries to expand their markets in Africa East Africa, a region that has over 100 million speakers. Secondly, is to bridge the digital divide in Africa using local languages (Kamau 2005:10) and lastly, to grow local languages technologically (Kahigi 2005:5). Microsoft Kiswahili open-source localisation project aimed at incorporating Kiswahili into Microsoft Operating System (Windows XP) and Microsoft Office whereby four programmes: MS Word, MS Excel, MS Outlook, and MS PowerPoint would be made available in Kiswahili. Mozilla Firefox is also available in Kiswahili. Linux Kiswahili localisation project, commonly known as Kilinux is an open Swahili localisation project similar to Microsoft. Although the project is based in Tanzania, Linux users in Kenya and the rest of East Africa can still use the localised products. Through the programme, Kilinux was able to localise Jambo Office 1.1.3 which is similar to Microsoft Office. KilinuxJambo OpenOffice has also software for children in Kiswahili language. By February 2009, Kilinux had started to create Kiswahili language pack (sw-Tz.xpi) for Mozilla Firefox 3.1 (Edmundson 2010:79). Currently, Kiswahili presence in ICT media is quite visible.

Out of all the efforts made by international software developers, Google has perhaps made greater strides in Kenya because of its popularity as a search engine. As earlier mentioned, six products namely: Google search, Gmail, Google+, Google Chrome, Google Maps, and YouTube are now almost fully localised in Kiswahili. Google search is a web search engine that is ranked as the most used search engine according to Alexa top sites ranking. Gmail is a free email service provided by Google available both in

desktop and mobile phones. It is available in over 40 languages and currently it is rated the most widely used web-based email. Google+ is a social networking service like Facebook. Google Chrome is a popular web browser just like Firefox and Internet explorer. A large portion of Google Chrome's source code is open-source meaning third party developers are allowed to study and modify it. Google Maps is a service that powers map based services. It provides aerial and satellite images for places especially urban centers all over the world.

1.8 Theoretical Framework

Since localisation is a purpose-driven process, a bi- model approach that employs two prominent functionalist theories will be used for this research. Vermeer's *Skopos* theory and HolzMänttari's theory of Translational/translational Action will be used to play a complementary role in the analysis of the empirical data. A Bi-model approach has been opted for in order to enable inclusion of the many variables in the data, something which any one of the two theories alone cannot address adequately.

1.8.1 Skopos Theory

Key Tenets of Skopos Theory

- i. Translation, just like any other human action has a purpose. The purpose of translation determines methods and strategies to be employed and must be defined before translation can begin.
- ii. The purpose of any translation is determined by the client's needs other than the needs of the source text author.

iii. Translation is interlingual and intercultural and involves both linguistic and cultural transfer.

iv. Fidelity to the source text is a possible *skopos* (purpose of translation)

Skopos theory is an approach to translation which was developed in the late 1970s by Vermeer (1978) and which reflects a general shift from predominantly linguistic and rather formal translation theories to a more functionally and socio-culturally oriented concept of translation. *Skopos* theory takes seriously, factors which have always been stressed in action theory, and which were brought into sharp relief with the growing need for translation of non-literary text types.

According to *Skopos* theory, the contextual factors surrounding the translation of scientific, academic, contracts and such kind of texts cannot be ignored. These factors include the culture of the intended target text (TT) and of client who has commissioned it, and, in particular, the function (*skopos*) which the text is to perform in that culture for the readers. The theory states that translation, just like any other human action has a purpose. The word *skopos*, derived from Greek is used as the technical term for the purpose of translation. The *skopos* of a translation must be defined before translation can begin.

Vermeer (1978:78) states that as a general rule, it must be the intended purpose of the target text that should determine translation methods and strategies. Thus, he derives the *skopos* rule: human action (translation) is determined by its purpose. The rule is formalised using the formula:

general theory, the translator offers information about certain aspects of the source- text- in-situation according to the target text *skopos* specified by the initiator (Reiss and Vermeer 1984/1991). Both further argue that neither the selection made from the information offered in the source text, nor the specification of the *skopos* happens at random; rather, they are determined by the needs and expectations of the target text receivers. They conclude by saying that translation is by definition interlingual and intercultural, it involves both linguistic and cultural transfer. In other words, translation is a culture-transcending process (Vermeer 1996:40).

Since *skopos* varies with text receivers, the *skopos* of the target text and of the source text may be different and in this case texts undergo change of function. However, there may be other cases where the *skopos* is the same for the two texts and this, Reiss and Vermeer (1984/1991:45) speak of functional constancy. They further point out that although a translation is not a faithful imitation of the source text, fidelity to the source text is one possible or legitimate *skopos*.

Application of *Skopos* Theory to the Localisation of Software

Skopos theory can be operationalised in this research study by looking at what the localisers have to do in order to produce a target text. According to Sunwoo (2007:5), the translation purpose has to contain instructive information which must be feasible within the translation method developed. Sunwoo (2007:6) proposes a checklist of 6 items explicating the translation commission. These items which are put in question format are: In what language is the original and in what language should the translation be? Who is

the client and what are his interests? For what situation is the text needed? What type of text does the client expect? What readership does the client want to address? Is there a certain form, a layout guideline or software the translator has to use?

Having answers to above issues will enable the translator to know among other things what reader type the client wants to address. The translator can also estimate the specialist knowledge, the cultural knowledge and the interest of the reader type. The result is that the translator can derive the *translation purpose* from these assumptions.

1.8.2 Translational Action Theory

Key Tenets of Theory of Translational Action

- i. Translation is a process of intercultural communication. The translator must thus be guided by target culture's perception of the subject matter.
- ii. Translational action entails the process of text production in its widest sense: initiation, commissioning, text production, translation, target text production, and negotiating with the client.
- iii. Translator plays the role of an expert in the field of transcultural message transfer.

Holz Mänttari's Translational Action theory (1984), just like Vermeer's *Skopos* theory is driven by purpose of the text, given through commission, or defined by the translator and exercised through negotiation with the commissioner (Snell-Hornby 2006; Vermeer 1989/2004) as quoted by (Moustén 2009:50). However, the two theories differ slightly with Holz Mänttari focusing on action, and Vermeer on cultural transfer. It is in this light

that the two theories are considered useful in this study since localisation involves both translational action and cultural transfer.

According to Translational Action theory, translation is conceived primarily as a process of intercultural communication whose end product is a text that is capable of functioning appropriately in specific situations and contexts of use. The theory further puts it that any translation is situated within the wider context of cooperative interaction between professionals (experts) and clients (Shaffner 2009:3).

In Holz Manttari's theory, translation and other forms of text production are conceived as part of translational action. According to the model, one purpose of translational text operations is to establish whether the content and form components of the source texts are functionally suitable for the target text. In making this decision, Holz Mänttari argues that the translator cannot be guided by the source text alone but must research in addition, the target culture's conception of the subject matter (Shaffner 2009:4). The textual profile of the target text is determined by its function, and whether this is or is not similar to the textual profile of the source text can only be established through systematic translational analysis. Translational Action theory further states that an action is determined by its function and purpose, and its outcome, too, must be judged by this criterion. The notion of function is central in this model in two respects. On one hand, it forces the translator to embed the product of translational action in a complex situation of human needs. On the other hand, it forces the translator to embed translational action in the social order.

According to Translational Action theory, a theoretically sound definition of translational action must take account of all elements involved in human communicative action across cultures; in particular it must take in consideration the client's culture, the process of text production in its widest sense, and the concept of expert action. And since cultures may have different conventions, transcultural text production may require substitution of elements of the source text by elements judged more appropriate to the function the target text is to serve (Shaffner 2009:4). In other words, when communication is to take place transculturally, measures need to be taken to overcome cultural barriers. These measures constitute a significant part of expert action. Translators as experts in translational action, therefore, are responsible for deciding whether, when, and how a translation can be realized. All this depends on the circumstances of the target culture. The translational text operations are based on analytical, synthetic, evaluative, and creative actions that take account of the ultimate purpose of the text to be produced and of aspects of different cultures (Schaffner 2009:18).

Application of Theory of Translational Action to the Localisation of Software

We had stated earlier that the translator is an expert in the field of transcultural message transfer. In view of this, translational action can be operationalised in this research by looking at the role of localisers as experts in the localisation process. The translator or linguist is an expert responsible for the creation of the translation. As such, he or she ought to possess perfect command of both source and target language at all levels. Equally important, is his or her ability to use computer based resources that are available for the localisation process. This is because no localisation undertaking can be

accomplished without relying on such resources and as Austermühl (2009:75) puts it, localisation is an utterly knowledge-based activity which utilises localisation tools to enhance the localisers' hermeneutic abilities, thus allowing them to unfold their full potential. The importance of localisers as experts in using relevant tools to improve quality of localised products with regard to terminological and phraseological consistency should not be ignored.

1.9 Methodology

This study employed a multi-stage approach in data collection. Qualitative data was the main driver used to draw conclusions for our study. The data was obtained from multiple sources including already published localised software. It was also sought from LQEs. Data from these two sources was used as a basis for a survey used to gather information on localiser competencies, their opinion about ST difficulty and more details about the localisers experience during the localisation project.

1.9.1 Participants

A sample size of seven respondents was utilized in this study. These included all the localisation translators known to the researcher as having participated in the localisation project. Despite their number, we believe we were able to arrive at true generalizations since they all had participated in the project for at least three years which is long enough to have experience to provide rich and varied insights into the localisation process which was phenomenon under study. They were selected using non-probability sampling. Specifically, we employed snow-ball sampling technique whereby we identified the first

three localisers who then referred us to the other four. All the respondents were contacted through telephone and requested if they were willing to participate in the study and all of them accepted. This was after we briefed them on what the study was all about.

1.9.2 Data Collection

This was a qualitative single-case study. The data was collected in three phases. First, in documents that were utilized by localisation translators, then in the real localised products and finally from the localisers themselves. The first two phases yielded qualitative data about the LTUs, which as explained earlier, were the translational units under study. The third phase yielded both qualitative data as well but regarding localisers as linguistic and cultural mediators in the localisation process. Details about each of the phases are found in the following sub-sections.

1.9.3 Document Analysis

Both printed and electronic (computer-based and Internet transmitted) material were included in this category. In this phase, we first examined Google glossary which we got online and which was an important language resource for checking equivalence and definition of terms. Out of the one thousand, eight hundred and forty eight (1848) terms therein, we made a list of one hundred and thirteen (113) Kiswahili LTUs that were of interest to the research for instance neologisms and those that have the potential of carrying cultural nuances with them was made. These LTUs were then used to do a qualitative analysis first, to compare the accuracy in rendering the message in the ST and secondly, to establish whether the terms in Kiswahili had the potential of obscuring

meaning of the texts where those terms were used. This comparison was used to analyse the communicative effectiveness of the LTUS and at the same time assess whether the *skopos* of the localisation programme has been achieved.

The other type of documents that data was derived from was the Language Quality Edit (LQE) segments. These were the translated and revised files before they were finally published. Here, another 2000 segments were examined and three hundred (300) LTUs were isolated from those segments. They were then coded using two criteria, Firstly, as culture-specific terms and secondly, as terms that possessed linguistic elements of interest to the study. The second criterion was to categorize LTUs according to Nord (1995) on the basis of the text function they were performing in the macro-text. These functions were:

- Referential function- terms that referred to objects and phenomena being described in the localised products;
- Expressive function - terms that expressed sender's attitude or feelings towards the objects or phenomena found in the text;
- Appellative function – terms that 'called upon' the readership to act, think or feel, or 'react' in the way intended by the text; and
- Phatic function – terms that aimed at opening and closing the channel between sender and receiver.

The texts were analysed qualitatively to assess whether the TT achieved the same text function as the ST because it is only if the texts were able to do so that we would conclude that the transfer of textual functions of the localised software products was successful. Other documents that were utilised included style sheets, guidelines and

checklists that the localisation translators relied on. In this category of documents, the list of LTUs got from LQEs and glossaries were assigned specific localisation strategies that were employed to coin them. Where such strategies were not clear, the researcher assigned possible strategies used. This assignment of localisation strategies was done based on the content in style guides and style sheets provided by the localisation client. The contents formed a basis for the interviews/questionnaire survey with the localisers who participated in the entire localisation process with the aim of evaluating their role as experts in Translational Action.

1.9.4 Localisation Translators Questionnaire

The aim of this questionnaire was to establish localisation translators' role in the localisation process in order to determine their contribution in facilitating transfer of message from the ST to the TT. This was important since the quality of localised products highly depended on their level of expertise in the translatorial process.

The questionnaire was published using SurveyMonkey, a web-based tool that uses online platform to send a questionnaire to multiple participants. This research tool has an advantage in that it offers a summary of the data collected. The questions were a mixture. Some were likert questions whose aim was to ascertain how strongly the respondents agree to a particular statement. There were rating scale questions in which we asked respondents to rate a particular issue on a scale that ranges between poor to good. We also had multiple-choice questions with only one answer as well as open-text boxes for personal comments.

The results were presented in Chapter Five and analysed qualitatively within the framework of Translational action. The analysis basically entailed assessing the role of localisation translators as experts in the localisation process in terms of their expertise in linguistic, cultural and digital competencies and how they used these competencies to finally transfer ST to TT in the best communicative manner.

1.9.5 Interviews

In order to gain a more detailed understanding of the participants responses, and interview was organized with them with an objective of adding qualitative data and seek clarification on data collected through questionnaire.

The interviews were conducted in a semi-structured fashion, reason being, the importance to let the interviewer to elaborate on certain issues, and to let the interviewee to feel free to express himself/herself if any thoughts emerge during the interview (Dörnyei 2007:136). This was also a way to fulfil the aim of completeness of the study and to guarantee that nothing essential was neglected. During the interview, questions relating to linguistic expertise and cultural backgrounds of the localisers were posed. The main aim was to map out how the different factors-linguistic and cultural complicate or facilitate the localisation process. The other objective of this interview was to gather information about the various aspects of the localisation process and also to get perception of localisers as experts in the translational action, on quality and quality control of the final product.

1.9.6 Data Analysis

The analytic procedure entailed finding, selecting, appraising (making sense of) and synthesizing data derived from documents, questionnaire and interviews, based on the objectives of the study.

Since this is a qualitative inquiry, iterative, cyclical approach was employed for the data analysis. This means that data analysis started once we had sizeable data and then there was back and forth movement between data collection and analysis. The reason behind this is that information on the Internet is quite dynamic and evolving and so sometimes new issues keep on coming up during the course of the localization project.

Having said this however, qualitative data obtained through the questionnaire, interviews and LQE analysis was coded using open-coding (Flint 1998:28). Coding helped the researcher to identify patterns and to get a general view of the responses and also make it easier to compare the answers in a standardised format. Thereafter, categorisations of the data were created. Information from each category was analysed interpretively in a controlled way and according to the existing theories and practices.

CHAPTER TWO

THE LOCALISATION PROCESS

2.1 Introduction

This chapter explores the localisation process from the point at which a global technology company such as Google decides to move a software product from its original place of authorship to local markets where it is intended to reach. This movement entails adapting it appropriately to suit the new locale linguistically and culturally. The main processes under discussion include globalisation, internationalisation and finally localisation. The chapter delves deeper into localisation since it is the main focus of the study, narrowing down into the linguistic and cultural dimensions of the process.

2.2 Globalisation, Internationalisation, and Localisation of Software

The terms globalisation, internationalisation, and localization are all key steps in the localisation process that came to the limelight in the last quarter of the last century. This was after large multinational software companies like Microsoft and Apple started translating their software products in the wake of globalisation, especially when they started to sell their products around the world (Mushtaha 2012:14). According to Mushtaha (2012:13), it was around mid-1990s when researchers such as Keniston (1997), Teasley (1994), and Nakakoji (1993) explored the economic benefits that would accrue to such endeavors. Later, they developed some practical guidelines and tips for software globalisation, internationalisation, and localisation.

The guidelines are meant to ensure that the product achieve user satisfaction. This was in turn to be achieved by ensuring that important elements of the product appear to have been designed specifically for target market and that linguistic and cultural norms are adhered to, meaning adopting not only the graphics to target market but also modifying content to suits tastes of other markets, preventing avoidable translation errors and having a clear and concise content.

The other guideline is that of design particularly planning to adjust available space by way of expansion due to the reality that when translated to other languages content strings can grow longer, thus requiring more space that can accommodate all the character, especially for message strings that are to be fitted in dialog boxes. The number of characters in some Kiswahili equivalents can be more than double the number of characters in the English source texts as exemplified below;

Mute	<i>Nyamazisha</i>
Next	<i>Inayofuata</i>
Saved	<i>Imehifadhiwa</i>

In all the examples, content strings have increased by over 100%, meaning that they require double the space to fit the localised content. This scenario is even amplified by the fact raised in the statement of the problem () where the issue of non-equivalence is a common feature when localizing between English and Kiswahili since both languages are quite asymmetrical in terms of size of lexicon, leading to massive use paraphrase and

other translation techniques that yield more characters in order to deal with non-equivalence. Consider the following examples:

Preview	<i>Uchunguliaji wa kwanza</i>
Spoofing	<i>kudanganya kwa kuonyesha mtumaji bandia</i>
Text-to-speech	<i>ubadilishaji wa maandishi kwenda usemi</i>

Like in the set of examples above, single terms are rendered with sentences that require much more space to fit them. Maintaining consistency is an important guideline in planning for localisation. Kiswahili, like many other languages has many synonyms and multi-word terms, that is, words that can fit in many parts of speech such as nouns, verbs, or even adjectives, as in the case of ‘copy’, ‘click, and chat. Deciding on a single use of a term and using it consistently is an important consideration for the localisers.

Using Culture-neutral words or rather words that cannot elicit meanings that are unwelcome or unexpected by engaging linguists who possess the requisite cultural competence for the locale is also a key consideration before starting localisation.

Defining localizable from non-localizable items to avoid what is commonly referred to as over-localisation or under-localisation is necessary. In this case, the former refers to the situation where strings which were meant to remain in English are erroneously translated. On the other hand, under-localisation refers to a situation where localizable items are left untranslated.

The relationship between globalisation, internationalisation, and localisation can be summed up by saying that global software product like Google Maps is used over the

world. Next, the software product is internationalised by removing all culture-specific attributes. Then, localised software products can be created. The illustration of this process is in the following sub-sections.

Software Internationalisation

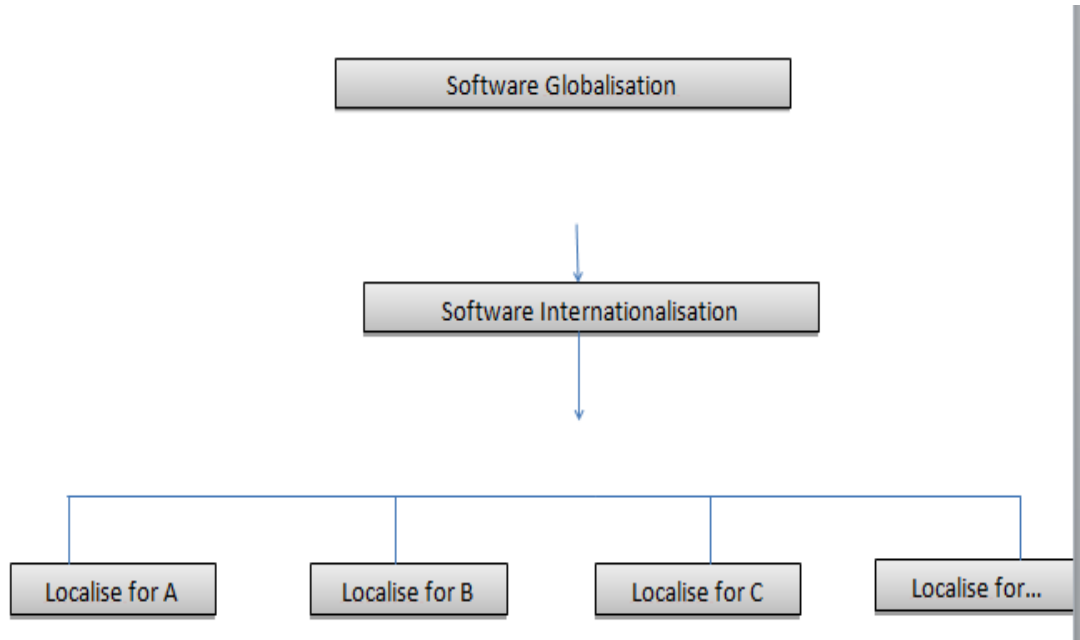


Figure 2.1: Overview of the relationship between globalisation, internationalisation, and localisation

Source: Mushtaha (2012:15)

The following subsections look at the two processes and their overall significance in localisation process in general.

2.3 Globalisation

Before looking at globalisation in the context of software localisation, let us first look at the term in a broader sense. The concept of globalisation is complex and ever evolving and seems to have many definitions, depending on the particular framework from which it is observed, be it commercial, political, social, artistic, cultural or technical. In one sense, this reflects the complexity involved in the globalisation process and the multitudes of areas it involves (Singh 2011:120). Generally speaking, it means expanding an organisation's geographic reach or expanding an organisation beyond its native borders (Yunker 2003:425). In localisation domain, it is the general process of making technical, managerial, marketing or any other necessary decision to facilitate localisation (Aykin 2005:4). The Localisation Industry Standards Association (LISA) on the other hand says a 'well-globalised product' should be well enabled at a technical level for localisation (LISA, 2003:17). For the purpose of this research, we define globalisation in relation to Translation-mediated Communication (TMC) as a process to enable the message to be adaptable to the condition that may be imposed by receivers who do not share the same linguistic and cultural backgrounds as the sender (O'Hagan et al 2002).

The Internet has revolutionized global business and is now viewed as the single most important medium of international communication. This situation is of course what has led to the term globalisation being discussed more in business circles than in any other domain. According to (Dunne 2006:59), globalisation in business context means enabling localisation in order to allow a product to be used globally, in countries other than the country where it was produced originally. According to Dunne (2006:200), globalisation

should be a prerequisite of any localisation process because well globalised software essentially means that the product in question will support all languages without the need for redesign. He further says that the goal of globalisation is to eliminate the need to completely re-engineer the product for multiple languages simultaneously.

2.4 Internationalisation

Internationalisation is sometimes rendered as a pseudo acronym I18N where 18 is the number of letters between I and N. Internationalisation is the process of generalising a product so that it can handle multiple languages and cultural conventions without the need for redesign. Ideally, Internationalisation should be the second stage in the localisation process after globalisation. It is done because of two reasons: first, it is to ensure the product is developed free of any culture-specific attributes and therefore be easily accepted in international markets (O'Hagan et al 2002:31), and secondly, to ensure that the product is easily localisable (Yunker 2003:19). The internationalisation stage entails developing a master design that is consistent across locales, yet remains flexible enough to accommodate different language and cultural versions that may be developed (O'hagan et al 2002:34).

An illustration by Yunker (2003:16) would perhaps serve to make us understand the concept of internationalisation better. Yunker uses an example of a car manufacturing company that decides to use a modular design that can be customised to the needs of various consumers and the countries they live in. He says that the core design of such cars usually functions like a template where an international version of the Honda Accord

for instance, is a template of a the car, the frame on which all the DXs, LXs, and EXs can be assembled depending on or each suited to a specific type of customers. The same way, a software product is built on a global template through internationalisation process. Internationalisation therefore is an essential step in software localisation process as it leads to saving of time and money because by working with a template, a lot of work is already done.

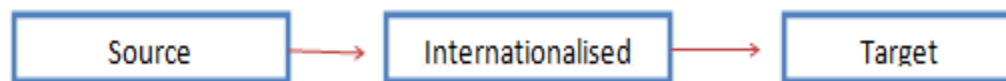


Figure 2.2: A simple model of translation plus Internationalisation

Some of the Internationalisation issues in Google Localisation Project relates to whether currency, URLs, email addresses, and product names need to be localised or not. The decision on whether or not to localise such things is vested on the Google Localisation Project Manager.

2.5 Localisation

Localisation, sometimes referred to with an acronym L10N, is the last step in the process of adapting a software programme to a certain locale. It is the actual adaptation of the product for a specific market. This phase involves making technical, visual and textual modifications to the software product and aligning all these to the culture of the target consumers (Singh 2011: 296). The goal of this phase is to make the localised software product to appear to the end user as though it was created by a local company.

Localisation involves two key processes. The first one involves translating text into local languages for specific locales, and the second process involves testing the product for each locale implemented. Text translation forms the bulk of the work at this stage (Mushtaha 2005:16). It entails translating necessary resource files so that the products are culturally and technically suited for the target culture. Besides translation of text in message resource properties files, at this stage graphics files containing localised images (such as flags) as well as the translation of text in message resource properties files may be created. Another important part of localisation is testing, to check whether localised text fit on a screen designed for words in the source code because different languages take different amounts of space (O'Hagan et al 2002:30).

This situation is prevalent in Google localisation project where quite often, Kiswahili translations of English texts end up being longer than the English source. For instance, an English term like alumni or mobile which do not have direct equivalents in Kiswahili are paraphrased as *watumiaji bingwa wa zamani* and *simu ya mkononi* respectively hence requiring a bigger space which may have not provided for in the screen designed for the target text.

Ideally, localisation should be preceded by globalisation and internationalisation because once these processes have taken place, localisers are able to work directly from the internationalised version without referring to the source code. The result of this is that there is efficiency, since it is possible to have many localisations taking place

simultaneously with many different target versions being produced as demonstrated in the model diagram below.

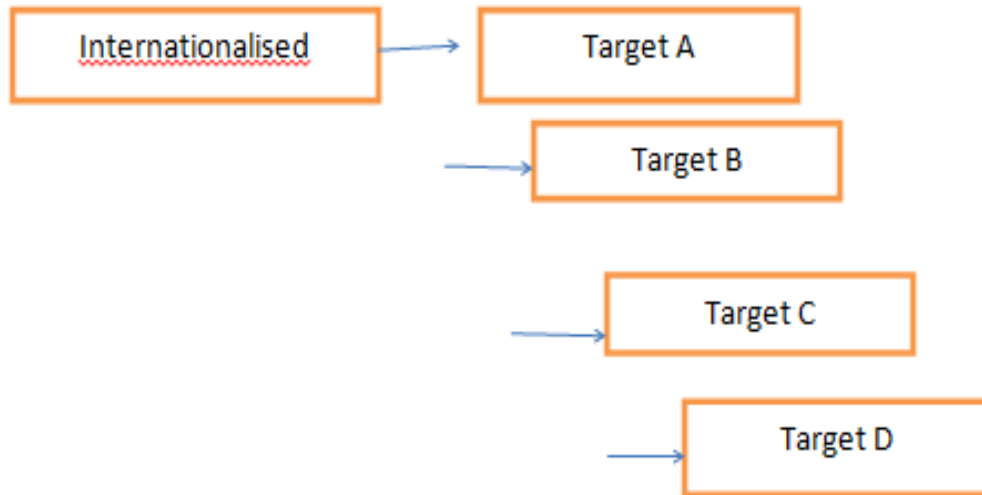


Figure 2.3: A model of Localisation

According to Pym (2010:124), simultaneous production of target versions has its logic because it means that major products (like a new Google product such as Inbox) is released at the same time in many locales across globe, making use of similar marketing formats and publicity campaigns.

2.6 Localisation Dimensions

Software localisation covers three issues as demonstrated in the model below.

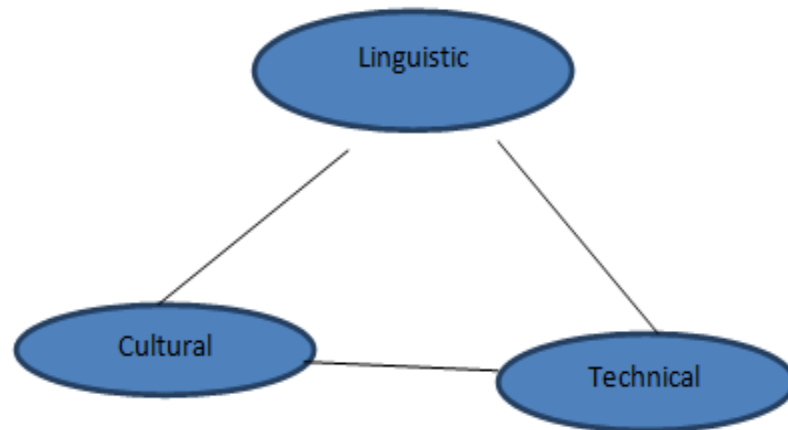


Figure 2.4: Localisation dimensions

Source: Mousten (2008:49)

Linguistic issues concern translation of the text, documentation, and any linguistic functionality embedded in an IT product. Cultural issues concerns the presentation of information such as icons, graphics, colours and metaphors in the most acceptable way in the target culture. Lastly, technical dimension (which is beyond the scope of this research) deals with redesigning and re-engineering an IT product to accommodate issues such as double byte characters (Sun 2004:18)

2.7 Cultural Dimension in the Localisation Process

The term ‘culture’ is used in different fields such as history, communication, psychology, anthropology, sociology, and information studies to mean different things. This study looks at culture as used in the domain of Human Computer Interaction (HCI). We will

begin by defining the term culture as used in HCI and thereafter review how cultural issues are approached in localisation practices.

The concept of culture is a dilemma in localisation practices. It is such a pervasive term that one expects to encounter in literally every localisation literature (Sun 2005:7). In HCI, definition of culture is informed by research in the field of anthropology and behavioral studies where related terms like ‘cross-culture’, ‘intercultural’, and multi-cultural are found to be used. Even in behavioral and anthropology studies, the term culture has been defined in different but related ways. Kroeber (1952:157) was one of the earliest researchers in the field cultural anthropology. He defined culture as the historically differentiated and variable mass of customary ways of functioning of human societies. Kroeber and Parsons (1958:583) arrived at a cross-disciplinary definition of culture as transmitted and created content and patterns of value, ideas, and other symbolic-meaningful systems as factors in the shaping of human behavior and the artifacts produced through behavior.

Edward Hall (1965), a well renowned researcher in the field of cultural anthropology, defined culture as people’s way of life, the sum of their learned patterns of behavior, attitudes and material things. For Hofstede (1995:25), culture is the collective programming of the mind that distinguishes the members of one group or category of people from another. In order to clearly define the concept of culture, he introduces three levels of human mental programming in his pyramid model: individual, collective, and universal. Through this, he attempts to discern the origin of culture and to explain why it

is unique in human mental programming. For Hofstede, the individual level is the unique part of each person, the collective is shared with some but not all people, and the universal is shared by all humanity.

In summary, it is clear that there are many but slightly different previous cultural definitions. Despite this, there are agreements about certain aspects of culture: First, culture cannot be understood by studying the individual; rather, culture must be read as a set of shared characteristics within a group of people, which affects the behaviors of individual members by providing norms. Secondly, culture can be understood through the limited frame of tangible aspects but, instead, encompasses numerous intangible aspects including human thoughts, norms, and behaviors (Galletta et al 2006:175).

Thirdly, people seldom belong to just one culture. Instead, they can be part of several different forms of cultures, more so in the present state of hybridized cultures. Thus, an Internet or a software user might belong to a certain national culture, but could differ from another one by incorporating their level of exposure in world matters. Thus, when Google provides localised products in Kiswahili they do so with an assumption that these users though they share common behaviors, customs, and values and most importantly, common language norms, there may be differences in the way they perceive all these things.

Culture has often served as an orienting and guiding term for online localisation efforts (Burgmann et al., 2006, Kondratova and Goldfarb, 2006, Reinecke and Bernstein, 2007).

At the same time, application of culture to the field of human-computer interaction is usually not without problems where questions have been raised regarding several issues. Firstly, the question of what we need to know about a user's culture in order to localise user interfaces to cultural preferences.

Secondly, research is yet to determine which parts of the software interface ought to be adapted considering that cultural preferences are certainly biased by personal preferences, and thirdly and finally, this unclear definition of culture and the fact that culture is not an homogeneous construct makes its adaptation to different target countries an rather problematic, time-consuming and expensive exercise [Reinecke and Bernstein, 2007]. Nonetheless, the issues above notwithstanding, cultural models can be applicable to analyze software localisation efforts.

2.7.1 Culture Meta-models

There are several models that are used to give high-level view of the concept of culture. (Mushtaha 2012:21) refers to these as meta-models of culture. These models do this by defining different layers of culture. Researchers studying the influence of culture on human life attempt to schematise its multiple effects through a notion of "layering" that, in turn is proposed through four representative models: the iceberg model, the onion model, the Objective and subjective and the Pyramid model (Hoft, 1996, Dennis, 2006,). In the following subsections, we will describe the four cultural meta-models briefly but adopt the iceberg model and the onion model for the purpose of this research.

2.7.1.1 Ice-berg Meta-model

The iceberg model was developed by Hoft (1996). The model provides a useful metaphor for describing the layers of culture and how each layer influences can apply to software localisation. The analogy drawn in the iceberg model is that just 10 percent of an iceberg is visible above the surface of the water; meaning that only 10 percent of the cultural characteristics of a target audience are easily visible to an observer. It follows that the remaining 90 percent of cultural characteristics are hidden from view and are, therefore, more difficult to identify and study. In the same breath, cultural specific terms in localised products are numerous, but only a small percentage (approximately 10%) are distinguishable as being cultural specific terms while the remaining percentage can only be constructed within the mind of people. According to Hoft's model three metaphorical layers of culture can be identified from the analogy of an iceberg:

Layer of surface or external layer: comprised of only 10 percent of what can be regarded as the characteristics of a culture. It entails the cultural elements easily visible by people. In software localisation, these are the visible and obvious rules such as number system, currency, and time and date formats. For example, whereas English date formats can take various forms such as 12/31/2005, where month comes before the day, Kiswahili format the day has to come before the month whichever style one adopts, and this is known by all Kiswahili speakers.

Layer of unspoken rules or the internal layer: these are the characteristics of culture that are obscured. This culture is the unspoken and entails underlying beliefs,

unconscious rules, and thought patterns. These cultural elements are difficult to identify or even study and they can only be understood through context-specific experiences. In HCI these rules could be cultural conventions such as mental models, functionality, navigation system, metaphors, icons, and ordering sequences. It may be difficult for instance for many Kiswahili speakers to tell what comes into their mind when they hear words like *gonga*, *kikaragosi*, or *buruta* mean except if they are presented with a context that gives the possibility that they may not be involving force in IT.

The unconscious rules: these are rules that one is not consciously aware of and that are therefore difficult to reason with. Examples here include the sense of time and physical distance, what constitutes politeness, beliefs, values of the society, strategies and skills used to communicate. For example when someone invites friends for a party that starts at 6.00pm in Kiswahili and different people interpret this to mean different things like ‘evening’, ‘after work’, overnight *etcetera*.

2.7.1.2 The Objective–subjective Meta-model

This model was defined by Stewart and Bennett (1991). It distinguishes two levels of culture as explained below:

Objective culture constitutes institutions and culture artefacts. It manifests in concrete things that are visible, tangible and easy to examine (Judith, 2006:45). Examples of artefacts of objective culture are: language, date and time formats, currency, infrastructure and technology. Other examples may include the economic system, social customs, political structures, arts, crafts and literature (Del Galdo& Nielsen, 1996).

Subjective culture is evident in the psychological features of a culture, and entails, assumptions, beliefs, values and patterns of thinking. In fact, there are words that when used in some cultural groupings, they automatically elicit some kind of meaning, which may be totally different from another cultural group. *Taka* (noun), which literally means ‘dirt’, is used as the equivalent for spam. Although ‘spam’ simply means unsolicited messages sent over the Internet, typically to a large number of users, for the purposes of advertising, phishing, spreading malware etc (Farlex dictionary), it is a good example for it elicits in any Kiswahili speaker a sense that this is not a good thing and should be discarded immediately. Judith (2006:46) itemizes values, behavioral norms, attitudes and religion as examples of subjective culture. She adds that subjective culture operates outside of conscious awareness and this makes it difficult to examine.

2.7.1.3 Onion Meta-model

This meta-model was developed by Fons Trompenaars (1997). It is quite similar to the Subjective and Objective meta-model in the way it looks at the layering concept in culture. According to the Onion meta-model culture consist of three layers as elaborated below:

The outer layer, which is explicit and represents the first thing(s) people see or rather encounter when they are introduced to a particular culture. This explicit culture is represented by, for example, clothes, food, language, and housing. In software localisation terms representing such phenomena ought to be identified in the ST and adapted accordingly to fit in TL culture.

The middle layer, which is a collection of symbols, cultural norms and values that guide people on what should be done and what is good or bad. Things like salutations and phaticisms are unique to every culture and form good candidates for this category. These norms and values control people's behavior to some extent, and they are the ones responsible for giving a person an idea of how one should behave in a culture (Trompenaars & Hampden-Turner, 1997). Whereas it is normal for an English speaker to say 'I want this or that' it would be preferable for a Kiswahili speaker to replace the 'want' with a more polite word *ningependa* instead of using its formal correspondence, *nataka* which some Swahili people would consider imprudent, rude or overbearing.

The core of the onion: It is implicit culture, which comprises underlying and basic assumptions about life that people of a particular culture carry with themselves. It is at the core of the onion that one finds underlying values and cultural assumptions which influence all of the other layers. However, these beliefs, norms and attitudes are much harder to recognise than the rest of the cultural elements. It thus calls for a deeper analysis and thorough understanding of the culture to be able to pick out these cultural elements. Trompenaars says that understanding the core of any culture is the key to successfully work with that culture. When a software product is being designed for use in multiple markets, there are visible or surface issues for localisation that represents implicit characteristics and hidden assumptions. This is the part of a culture that is most intangible and is usually the key for understanding other cultures (Trompenaars & Hampden-Turner, 1997).

2.7.1.4 The Pyramid Meta-model

The Pyramid Meta-model was developed by Geert Hofstede in 2001 (Hofstede, 2001).

Like the onion meta-model, the pyramid meta-model consists of three layers of culture:

- *The layer responsible for personality:* Is concerned with the ideosyncracies specific to a person. These characteristics are learned and inherited.
- *Group culture:* comprises characteristics that are specific to a group or category of people. These characteristics are learned not inherited.
- *Universal Culture:* The characteristics common to all human beings.

The pyramid meta-model is the most widely used in HCI research because it encompasses all levels of human interaction from individual differences among users as well as similarities based on universal, inherited characteristics (Mushtaha 2010:22).

2.8 Linguistic Dimension in the Localisation Process

Language is one of the key elements in software localisation. It is probably the element with the highest visibility (Aykin 2005:18). It affects everything from how characters are displayed to how layouts need to accommodate potential expansion during translation. This is because languages differ and one likely challenge is where the length of source text string is smaller than that of the target text string (O'Hagan et al 2002:30). Languages too are complex by their nature. One of the complexities of languages in localisation projects is that languages and countries or locales often do not form a one-to-one relationship (Aykin 2005:18). This is because of two reasons. First, it is due to the fact that countries can share the same language. For example, Kiswahili is spoken Kenya,

Tanzania, Uganda, and partly in Rwanda and Burundi. Second, many countries like those mentioned above are multilingual. Kenya, for example has Kiswahili and English as both official and national languages. This lack of one-to-one relationship between countries and languages means that designers in a localisation project have to consider both language and country as potential determinants in design (Aykin 2005:18). These considerations have implications on language rendering.

2.8.1 Translation in Localisation

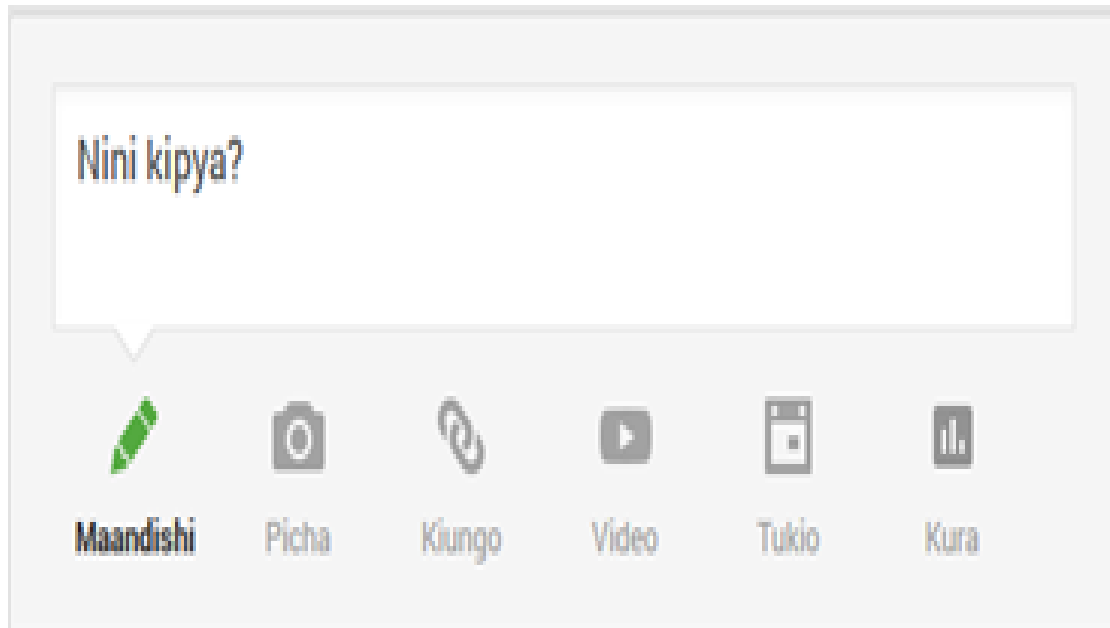
Researchers and practitioners alike agree that translation and localisation processes are tightly intertwined. It has also been established that the localisation process is broader than translation and that other skills and methods other than translation are included (Mousten 2005:37). The term ‘localisation’ means taking a product and tailoring it to an individual local market. And ‘tailoring’ involves both ‘translation’ (converting text from one language to another) and ‘adaptation’ (apparently everything else that has to be done) (Pym 2004:51). The replacement of natural-language strings (translation) is shown to be a minor part of localisation. In practice, translators and localisers are perhaps indistinguishable from each other, and many of the people working in localisation have a background in translation anyway.

Most localisation projects start with translation of language strings in the software. Translating consists of reproducing in a receptor language the closest natural equivalent of the source language (Nida and Taber 1969). It is an action that leads from a source

language text to a target language text which is as close an equivalent as possible and presupposes an understanding of the content and style of the original (Wellss 1982).

Translation in the domain of software localisation entails reproducing of all Graphical User Interface (GUI) components of a software application such as dialog boxes, menus and error or status messages displayed on the screen in the target language (Esselink 2000:57). It is an essential component of globalisation and is one of the most expensive undertakings in localisation project (Aykin 2005:24). Localisation projects involve translation and revision of thousands, perhaps millions of words depending on the size of the project. That is why clients maximize on use of CAT tools such as the GTT in the case of Google to leverage on past translations and therefore bring down the cost. GTT will be discussed in detail in chapter three.

Esselink (2000:9) identifies three user-interface components that would normally be translated: dialog boxes, menus, and strings. Dialog boxes are windows or screens used to change options or settings. Menus are drop down lists used to select commands and options or to access dialog boxes. Strings contain status messages, error messages, and tool tips that are used in the software. The screen capture below of a localised Google+ page in Kiswahili shows an example of translatable components of the user-interface that have been translated.



Hitilafu

Baadhi ya vipengee vya Gmail havikuweza kupakiwa kwa sababu ya tatizo la muunganisho wa intaneti. Ikiwa tatizo hili litaendelea, jaribu [kupakia upya](#) ukurasa, au kutumia toleo la [HTML msingi](#) . [Pata maelezo zaidi](#) .

Sawa

Figure 2.5: A screenshot of a menu containing lists used to select commands

Source: Google+

In localisation, translation basically entails replacement of natural language strings. As such translation is undoubtedly a linguistic part of localisation (Pym 2004:51). Pym argues that since localisation means taking a product and tailoring it to an individual local market, this “tailoring” must involve translation (converting a text from one language to another) and adaptation (everything else that has to be done to make it acceptable by the

target users). Aykin (2005:24) highlights some of the linguistic elements of keen concern to translators. These include:

2.8.1.1 Abbreviations and Acronyms

Abbreviations and acronyms can be a headache to translators. However, they are an integral part of any localisation project and Google texts contain several of them. In order to mitigate confusion that might arise as a result of use of acronyms and abbreviations, Google localisers are advised to use accepted Swahili abbreviations as prescribed in a Standard Swahili Dictionary.

Examples: English	Kiswahili Equivalent
e.g (for example)	<i>k.m. (kwa mfano)</i>
etc. (et cetera)	<i>n.k. (na kadhalika)</i>
i.e. (that is)	<i>yaani</i>

Caution is given to translators not to create their own acronyms and abbreviations where none exist, but instead they should simply spell out the word(s). For example, 'Mon' which abbreviates “Monday” in English, is translated in full as '*Jumatatu*' because there isn't a clear, consistent way that can be used to abbreviate days of the week in Kiswahili. Whereas in English, the first three letters in each day are taken to form the abbreviation, in Kiswahili, a problem would arise in the case of days that start with 'juma'. There are suggestions by localisation linguists to deal with this problem by combining letters and numeral to coin something like 'J1, J2, J3, J4 and J5 for Jumamosi (Saturday), Jumapili (Sunday), Jumatatu (Monday), Jumanne (Tuesday), and Jumatano (Wednesday) but then, there is uncertainty as to whether their meaning would be clear to the users, especially where context is not provided or is inadequate. Likewise, industry accepted/widely

known abbreviations and acronyms such as SMS, 3G, EDGE, GSM are left as they are and this is the norm even with all the other languages that the products have been localised into.

2.8.1.2 Spelling

The same language used in different countries can have different spelling rules (Aykin 2005:20). Kiswahili has quite a number of words that are spelt differently especially by speakers of different regions particularly Tanzania and Kenya. Here are a few examples:

Sifuri/sufuri

Ofisi/afisi

Disemba/Desemba

Although these are accepted variants in Kiswahili, localisation resources mainly the glossaries and style guides gave their preferences and which had to be followed strictly for consistency. In the case of above examples, *sufuri*, *ofisi* and *Desemba* are preferred over their counterparts.

2.8.2 Localizable Files in a Software Localisation Project

Software localisation deals with several types of files. In the following subsections we will discuss a few of such file types for the various Google platforms that needed to be localised and show some of the problems that might arise in their localisation.

2.8.2.1 Resource Files

In software localisation, the user interface, which basically means the visible part of the software, is one of the file types that are localised. In properly developed software, the

texts the user sees are included in separate files, the so-called resource files (Dohle 1997: 4). These file types contain things that the user sees when s/he opens the software to interact with it and include things like the dialog boxes, commands, help files, menus, error messages, and many more as exemplified below.

English Version

Message 5	OzFrontend : 1809698868931045820
------------------	---

Message text

[SELECT_CREATOR_GENDER]

[FEMALE]

[SELECT_VIEWER_GENDER]

[FEMALE]

[PLURAL_NUM_PHOTOS]

[=0] : Exact 0

[=0]**unused plural form**

[=1] : Exact 1

[=1][CREATOR_NAME] **shared a photo you may like**

[OTHER] : 0, 2~16, 100, 1000, 10000, 100000, 1000000, ...
0.0~1.5, 10.0, 100.0, 1000.0, 10000.0, 100000.0, 1000000.0, ...

[OTHER][CREATOR_NAME] **shared some photos you may like**

[END_PLURAL]

[MALE]

[PLURAL_NUM_PHOTOS]

[=0] : Exact 0

[=0]**unused plural form**

Kiswahili Version

Message 5	OzFrontend : 1809698868931045820
-----------	----------------------------------

Message text

[SELECT_CREATOR_GENDER]

[FEMALE]

[SELECT_VIEWER_GENDER]

[FEMALE]

[PLURAL_NUM_PHOTOS]

[=0] : Exact 0

[=0]unused plural form

Figure 2.6: A resource file in English

[=1] : Exact 1

[=1][CREATOR_NAME] **alishiriki picha ambayo huenda ikakupendeza**

[OTHER] : 0, 2~16, 100, 1000, 10000, 100000, 1000000, ...
0.0~1.5, 10.0, 100.0, 1000.0, 10000.0, 100000.0, 1000000.0, ...

[OTHER][CREATOR_NAME] **alishiriki picha ambazo huenda zikakupendeza**

[END_PLURAL]

[MALE]

[PLURAL_NUM_PHOTOS]

[=0] : Exact 0

[=0]unused plural form

Figure 2.7: A resource file translated into Kiswahili

Source: GTT

This is an example of a basic dialog box in English and in Kiswahili. It also shows how it is represented in a resource file. In the file, the LTUs in bold (marked for purpose of highlighting only) constitute the texts to be translated. Everything else is to be left untranslated including the “unused plural form” which deceptively enough is also in bold but it denotes that the referent is in singular form. It is important to be aware about the structural differences between the SL and the TL because if they differ greatly, that will call for the resizing of the boxes especially if the TT has more characters than the ST as in the case of ‘rename’ which is translation has increased by eight characters or rather more than 100%.

2.8.2.2 Error Messages

These are more straightforward and are used to describe any error that arises unexpectedly and causes the computer to not function properly. Such errors can either be software or hardware related. The screenshot below from a LQE is an example of a software related error message. In this case, a key problem to be tackled when localizing the source file is being able to accurately modify the translatable information without damaging the peripheral text. Luckily in this case, the translatable strings are in bold. Without this, then translatable strings have to be spotted very carefully since the slightest mistake can lead to functionality problems or the so-called “bugs” once the files have been compiled.



Figure 2.8: Error Message
Source: GTT

2.8.2.3 Help Files

The help files otherwise referred to as system files are usually documentation components of a software programme whose aim is to explain the features of the programme and helps the user understand its capabilities. These files which are in form of hypertext (a digital text that contains hyperlinks to other texts and in which when one clicks on they are taken elsewhere, usually to a sub-topic relevant to the topic that s/he is searching) are represented in .RTF files in the form of single- and double-underlined texts, hidden text, and footnotes.

```

namespace WindowsFormsApplication1
{
    public partial class Form1 : Form
    {
        private const string helpfile = "help.chm";
        private const string Index = "FAQ";
        public Form1()
        {
            InitializeComponent();
        }

        private void Form1_Load(object sender, EventArgs e)
        {
        }

        private void HlpButton_Click(object sender, EventArgs e)
        {
            HelpNavigator navigator = HelpNavigator.Index;
            Help.ShowHelp(this, helpfile, navigator, Index);
        }
    }
}

```

Figure 2.9: A help file from Windows

Help files also contain different types of strings some of which are to be translated and others are to be left untranslated. For example, in the above screenshot, only ‘FAQ’ need to be translated. This is important information for the localisation translators to know just like in all other types of files so that one is able to translate without destroying them.

2.8.2.4 Client-prepared File Formats

These are text files that larger localisation companies like Google and Microsoft produce from the resources and files to be translated. These text files form the translators’ working files and usually they vary in size. When the client sends these files s/he accompanies them with other important information like instructions on how to use their formats, where to write the translations, what elements that must not change, the meaning of various tags, placeholders and any other necessary information for enabling the translator produce a TT that is clear, understandable, communicative and that adheres to the linguistic and cultural conventions of the target users. The biggest advantage of this

procedure is that it offers localisation translators with a set of instructions which form part of the necessary context that is required for accurate rendition of the ST message.

2.8.2.5 Minor Files

These consist of a variety of other minor file types which we can refer to as incidental and which occur in an unpredictable manner. Examples include packaging files, warranty cards, accessibility labels and other purposes. They are too diverse for listing here. But since they usually do not present any specific translational problems, we will not discuss them further.

2.8.3 Terminology Management

Terminology Management is a critical task in localisation process especially when a publisher is using a number of translation supplies as in the case of Google. Terminology Management is any deliberate manipulation of terminological information (Wright and Budin 1997:372). It consists of a series of actions that are carried out in a planned manner in order to ensure that the terms are available to the localisation translators, they are well defined, and other important information such as specialized usage is available. One manages terminology so that one knows what terminology he/she has and for maintaining consistent terminology in a product and across different products and releases (Dunne, 2006a, Esselink 2000). Terminology management is also important in improving translation speed. Terminology management allows the localisation translators to achieve effective and accurate translations by organizing the terms with a clear set of rules for their usage, thus ensuring that the correct terms are used within a translation.

If left unmanaged, terminology can become inconsistent within and across software products leading to translations that contain competing senses, thereby confusing the end user of the localised software besides it rendering the product more difficult to use (Wright et al 2001). Wright observes that language plays a critical role in our ability to learn and master a computer programme and that if terms are not consistent, then the programme becomes harder for us to use. In addition, new terms and new concepts are always coming up as new innovations in computers are made and all call for new terms. For example (explain a bit referring to Google). Moreover, the result of not being able to leverage terminology is that translations would be more expensive and of course take more time.

In many software companies, such as Google, Microsoft, Oracle or IBM, terminology management follows a scenario similar to the following: after a source language SL (typically U.S English), product is created, a documentation specialist typically compiles a glossary. If the product is to be localised the key source terms are collected and passed along with glossary to target language localisers, in this case, Kiswahili.

In order to be able to manage terminology effectively, software vendors centralize their operations in order to maximize on their resources. This centralization is necessitated by the fact that most large software companies like Google develop multiple products simultaneously. A good example is BigTop, Google+, Gmail, Google Docs and others that Google released for localisation simultaneously. Thus, in order to use terminology

consistently across all these products, localisation managers maintained a central store and coordinated terminology decisions across product teams.

Esselink (2000:418) identifies three phases of a localisation project, all of which Terminology Management is of key importance. These phases are the startup, the production, and the review cycle. Esselink (ibid) explains that at the start of a project, a list of key terms for a product must be created. These, he says forms the basis of a terminology list to be developed during translation. Google for example had a startup list of about 1500 terms when it started localising its products in Kiswahili. Production phase involves translation and editing. It is at this phase that glossaries containing terminological equivalents are prepared. Finally, review stage involves checking terminology for accuracy and consistency.

Google localisation project being multilingual in nature required translators and linguists to take responsibility for Terminology Management. In this regard, they are tasked with the responsibility to perform the following:

- Review and approving general and product-specific terminology since some terms may be given senses that are only unique to them. For example ‘suggestive’ in general terms meaning stimulating further thought (Farlex English Dictionary) but in the legal sphere, it means ‘calling to mind sexual desire’ and therefore should be translated as *–a kuchochea ngono* in legal documents instead of *inayopendekeza* which is the formal equivalent.

The other role is that of maintaining of Terminology Databases (TDBs) and ensuring that all terminology is of verifiable quality and consistency. It is at this point that justification is sought for use of every term or reason for preferring a certain terminology over another. Decisions like choosing the following:

English Term	Agreed Term	Possible other Term(s)
Home	<i>Ukurasa wa mwanzo</i>	<i>nyumbani</i>
Cancel	<i>Ghairi</i>	<i>Badilisha nia, sitisha</i>
Help	<i>Usaidizi</i>	<i>Msaada</i>

Consistency is a very crucial element of language use in software and therefore the localisers have to settle on terms guided by some semantic criteria to justify their choices. For instance choosing *ukurasa wa mwanzo* for ‘home’ instead of going for *nyumbani* which is its literal translation was justified by the fact that the choice is more straight to the meaning and is not ambiguous as would be *nyumbani*. Similarly, in the case of ‘help’, whereas both *usaidizi* and *msaada* are nouns denoting the same thing, *msaada* is slightly broader sense wise because it could mean even material help, but since in software we use the word to mean a command that invokes documentation and helping information, *usaidizi* is deemed a more specific equivalent.

Terminologies research in instances where no equivalent is available or where several different translations are possible. For the case of Kiswahili localisation projects, this role is crucial due to the fact that most of the terms are neologisms that require coining of equivalents that reflects the source terms.

For example, Craigslist, which is a site for online business that allows users to sell a goods and services to buyers in a format more or less like the format of classified newspaper adverts, was an innovation in social media marketing and needed an equivalent in Kiswahili as soon as possible. Other terms like ‘timeline’ with a number of possible translations like *kalenda ya matukio*, *kalenda ya kumbukumbu*, *mfuatano wa matukio* needed a consensus.

Today, many software vendors employ the assistance of glossary management software to ensure a consistent terminology use. Google for instance has Google Translator Toolkit (GTT) software which among other things, stores terms, their Swahili equivalents, definitions, contextual information, and the product that uses such a term.

As stated earlier, terminology management is a very important aspect in the localisation process and therefore both publishers and software localisation vendors should be involved in the effort of maintaining it. The publisher, is crucial in this process because being the author of the original products, he possesses a lot knowledge about them, and leads the process of creating a database containing source language terms for the products that need to be localised.

The localisation vendors on the other side are responsible for providing target language equivalents for the terms before commencement of localisation cycle. They should also keep on updating the terms as they come up due to advancements in technology. In addition to updating, they also keep on reviewing them and looking for better

equivalents, based on user reviews as well as input from linguists that are working on the project so as to improve their communicative effectiveness. For example in Google project, terms *jifunze zaidi* and *hariri* were used as equivalents for ‘learn more’ and ‘edit’ respectively but later changed to *pata maelezo zaidi* and *badilisha* respectively after such reviews because on interrogating their semantic meaning it emerged that they had had been literally translated yet they required a dynamic equivalent to capture their meaning in a more clear manner in the course of the cycle.

2.9 Practical Approaches in Software Localisation

2.9.1 Levels of Localisation

The notion of localisation levels is defined in the context of software localisation as the amount of translation and customisation necessary to create different language editions (Microsoft Corporation 2003:15). Decisions about which products to localise and to what level are driven by market considerations (Jimenez-Crespo 2013:34). This is because the primary objective of localisation is to meet consumer needs in international markets. According to Microsoft, the levels of localisation are determined by balancing risk and return range from translating nothing to shipping a completely translated product with customised features. Brook (2000:49) identifies three levels of localisation of web content:

- Enabled – users can compose documents in their own language but software user interface and documentation remains in source language.
- Localised – the user interface and documentation are translated but language specific tools and content remain in source language.

- Adapted – the linguistic tools, content and functions of software are revised or recreated for the target language users.

The above classification applies mainly for web sites which, as stated in chapter one differs slightly with software localisation because of their completely different production and lifecycles, textual features and types of genres (Austermuhl 2006:70). The categorisation proposed by Singh and Pereira (2005:18) primarily based on role of cultural adaptation could complement Jimenez-Crespo (2012a, 2012b) categorisation that is based on Translation Studies to offer an elaborate approach surrounding localisation practices in Google. These identify five levels of localisation but only those that apply to Google are discussed below:

2.9.1.1 Semi Localised Category

This category encompasses texts with a mixture of localised and non-localised content. Most of the times, due to internationalisation issues which prescribe that things like product names are left as in the source and only descriptive names to be translated. Others like Adwords and Adsense would be difficult to translate and are left as in the source. In all Google products, semi localised pages are as a result of the above reasons and the fact that localisation is ongoing and such strings are yet to be localised as exemplified in screenshot below.

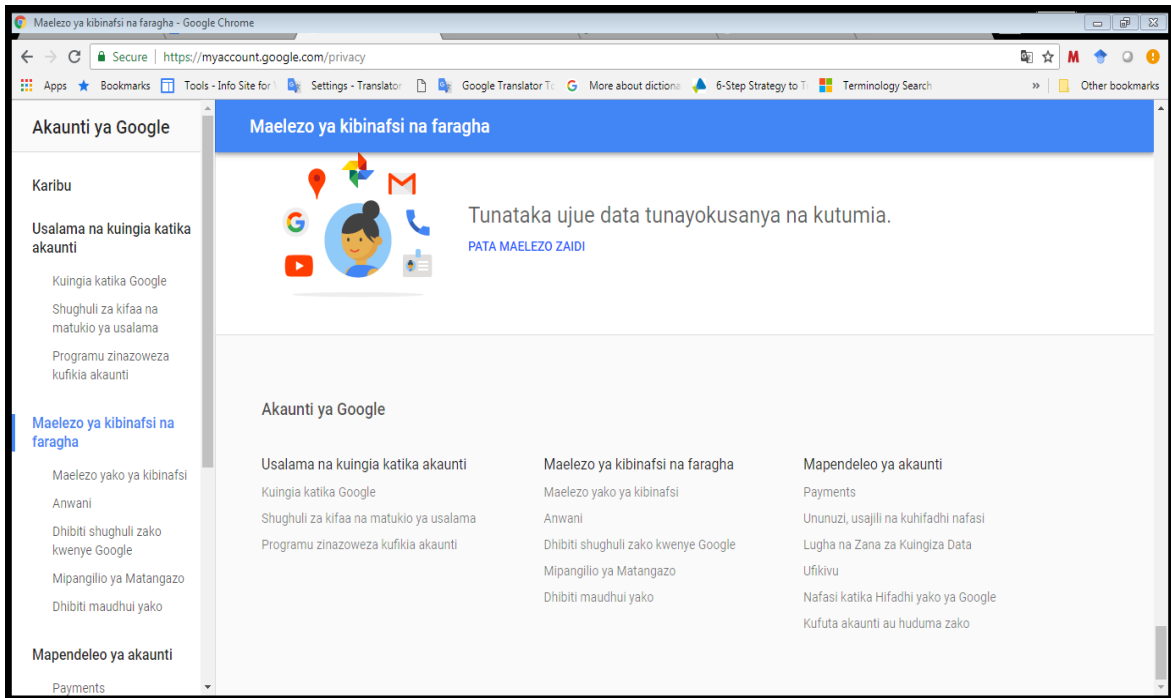


Figure 2.10: A screenshot of a semi-localised window
Source: Gmail

Looking keenly at the page above it is noticeable that all the text segments are translated except ‘payments’. This may not be due to internationalization but rather the fact that the project is ongoing and in due time reviewers will send it to localisation translators to translate it.

2.9.1.2 Localised Category

Here, all the content and pages are localised and the original functionality is modified in such a way that it adheres to the linguistic and cultural norms of Kiswahili. The localisation translators try to capture the essence of the meaning of all LUs and LTUs in the text and convey their meanings accurately in Kiswahili bearing in mind cultural appropriateness of each unit or text. Of equal importance is style especially the level of formality in choice of units to be used as equivalents. This is because different products

call for different levels of formality in language use. YouTube and Google+ for example, use less formal language than Google Search or Adwords.



Figure 2.11: A screenshot of a fully localised Window

Source: Google+ Page

2.9.1.3 Adapted Category

The adaptation category encompasses the transfer of texts from one locale to another, but with semantic content added or removed. Most of Google's products especially those with less formality like Google+ contain frequent use of humour intended to catch the reader's attention, help him to remember the product and present the product in a more informal way. The translator as an expert in transcultural transfer often captures the humor of a certain phrase or sentence by adapting it to something known by Kiswahili speakers. For example, according to the localisation style guide, an English Orkut error

message like “Bad, bad server; no doughnut for you” is to be translated like “*Seva mbaya, mbovu. Hupati andazi ng’o*” whereby the word doughnut is replaced through adaptation with *andazi* which recognizable among Kiswahili speakers, and an interjection *ng’o* is added to retain the flavour of the original text. In the same breath, the phrase “don’t forget Bob” is rendered as *Usimsahau Ali*, in which case “Bob” is replaced with local name Ali. The name Ali may not necessarily be ‘purely’ local in the Kiswahili speaking region that is highly multicultural since it is common name among Muslim communities, but it might be recognisable by majority of the users.

2.9.1.4 Replacement Category

The replacement category encompasses the transfer of idea from one locale to another locale. It is closely related to adaptation in the sense that the ST and TT have shared communicative functions, semantic content and text-linguistic expression. Most jokes in Google tests, especially FAQ files, regularly use popular cultural references. These references are often funny and need to be substituted with something equally funny in Kiswahili, preferably examples that are neutral enough to be enjoyed by users everywhere since Kiswahili is spoken in a multicultural locale. For example “Mary Poppins’ is favorite example of a potential "secret question" for password retrieval in the U.S. Since Mary Poppins isn’t known in East Africa where Kiswahili is popular, a similar figure like *Juha Kalulu* of Kenya or *Kificho Cheza* of Tanzania can be used as an appropriate replacement.

2.10 Conclusions

In this chapter, we have discussed the localisation process including the three important stages in a localisation project. These are globalisation, internationalization and finally localisation. In the globalisation stage, the study found out that the main task here is designing the software products in a way that it was possible to use them in Kiswahili speaking locale. Internationalization on the other hand, involved generalizing the software products so that they can handle multiple languages and cultural conventions without need for redesign. In other words, a global template is created from which versions for many locales can then be built. Finally, localisation, which was the interest of the research, involved adapting the international template to specific markets bearing in mind specific and unique linguistic and cultural norms and conventions of that particular locale. It is at localisation stage where linguists who are native speakers of Kiswahili and who possessed requisite cultural understanding of the target users come to play.

In the case of localisation, the research discussed other processes involved, and the specific translatorial actions and localiser-competencies required from the localisation translators. Key among these competencies is terminology management which is necessitated by the fact that the localisation project involves enormous number of terms which needed to be managed properly in order to ensure that they were easily retrievable by the localisers and that there was consistency in their usage within and across different software products. In order to manage terminology well, the research established that a Translation Memory Tool which in the case of Google was the Google Translator Toolkit

(GTT) was essential. The role of technologically savvy linguists was found to be crucial to inform how the terms are to be created, stored and retrieved for future work.

The research delved into the linguistic, cultural and technical dimensions of localisation as these were of interest to the research in terms of bringing to light what role they play in a localisation process. Cultural models of ice-berg model, the onion model, the objective-subjective model and the met-model proposed by Hoft (1996) and how they apply in software localisation were also discussed. All the models showed that there exist cultural elements in software products. Furthermore, it was revealed that these culture elements exist in what can be described as layering, meaning there are those that are easily visible and distinguishable by people while others are hidden and sometimes difficult to distinguish them from ordinary lexical and terminological units. The Ice-berg model for example placed culture-specific elements in the data into two categories: those that are visible and which formed a smaller percentage than those that were hidden and formed the larger percentage.

Terms such as names of popular people and places, Swahili salutations and mannerisms were the most visible across software products. However, just like in the case of an ice-berg where only a small part is usually visible to people, the culture elements that can be isolated by all software users as being so were found to be very few. On the other hand, there were other cultural terms that were not distinguishable on the surface as culture-specific. These were many and their classification as being cultural terms is subjective and depends on who is looking at them.

CHAPTER THREE: A FRAMEWORK FOR THE DEVELOPMENT OF LOCALISATION MODELS

3.1 Introduction

Software localisation is a complex undertaking that involves many players, many interlinked activities and numerous updates. All these players are supposed to work in tandem to deliver a flawless localised product. This is because errors in localisation may lead consumers to question the quality of the product. Functional errors introduced during localisation will have the same negative result, and will also lead users to abandon using the product and look for alternatives. In order to get rid of errors in a localisation project, clients seek services of an experienced localisation team to guide through the complete process of localisation. This team is equipped with the necessary tools and resources, qualified in-country linguistic talent and the engineering capabilities to ensure an efficient and quality localised product.

Localisation of software products in Kiswahili by Google is done by global language service provider (LSP) such as Moravia that provides language services which include translation and localization, among other services. In order to ensure linguistic excellence, such LSPs have a special service groups whose sole function is managing and overseeing the quality of the linguistic services provided. In addition to managing linguistic resources, they enforce the high linguistic expectations that it requires for customer projects and they are the primary contact point for all linguistic aspects of complex mono- and multi-lingual projects. Their responsibilities include sound

terminology management, scheduling internal review/editing cycles and various other language-related tasks.

Moravia and other LSPs conduct regular training for the translators, which is designed to ensure they continue to be on top of the latest developments in their area of expertise, with translation processes and tools, and that they continue to meet quality standards and the specific needs of the client. A translation team and linguistic quality expert (Senior Reviewer) work on each project and maintain the subject matter expertise and process knowledge regarding that customer over time. Linguistic consistency is a sine qua non in localisation of software products.

3.2 Software Localisation Perspectives

In the last two decades, localisation has become one of the most important issues for companies that want to market and sell their products in international markets (Esselink 2000:1). This is why localisation and translation studies have been found to inform the development of theory on language in international business (Janssens et al (2004:416). According to Esselink (2000:1), in many cases, localisation has proven to be the key factor for international product acceptance and success. Hines (2013: 8) rehearses this view by saying that when a business invests abroad, it adopts to some extent to local conditions in order to maximize local demand for their products or services and to minimize the chance of their being discriminated against.

Janssens et al., (2004:425) borrows from international business to propose three perspectives on translation and language use: mechanical, cultural, and political. He goes

ahead to show how each of them leads to a different language strategy in the localisation process. The role of translators is significant in all strategies, but the nature of that role varies from one genre of localisation to another.

3.2.1 Mechanical Perspective

Mechanical perspective is consistent with the source model of translation, which views translation as a technical exercise by which a source text is “correctly” rendered from one language to another. It also assumes a clear and unambiguous relationship between language and empirical reality. Tietze (2008: 215) describes mechanical perspective of the localisation process as transfer of objective information, which assumes it is not possible to achieve a directly equivalent translation between languages. In other words, equivalence does exist between texts. As Ivir (1980:52) puts it, a static view of both translation and equivalence pushed to the extreme forces the conclusion that for any linguistic unit in a SL, there is an equivalent unit in the TL and that it is the translator’s job to find that equivalent.

This means that an element of form isolated from the TL as a likely candidate for a formal correspondence of an element in SL will yield exactly the same element whose correspondent it is thought to be (Ivir 1985). Thus LTUs “like” (as in the case of a page or photo), “comment” [verb] in Google+ and “search” and “link” in Google Search translates as *penda*, *maoni*, *tafuta* and *kiungo* respectively and when back-translated, they will yield the same correspondents. This lexical equivalence favored by back-translation therefore serve as a check on the semantic content.

Another picture of translation and translation equivalence is when translation is regarded as a process rather than as a result. In this case then, we talk of substituting messages in one language for message for message in another language (Jakobson 1959:25) or about reproducing in the receptor language the closest natural equivalent of the message of the source language (Nida 1969:495). This view looks at translation from a communicative angle where the translation is a product of the dynamic process of communication between the sender of the original message and the ultimate receiver of the translated message through the translator. Under this view, equivalents are not texts but rather messages. Perhaps that is the reason why text segments in GTT are referred to as messages and not texts.

From the view of translation and translation equivalence as communication, we see the rationale of translators rendering “home”, i.e the home page on Google+ where users see posts from their circles; the central hub on Google+ as *mwanzo* instead of *nyumbani* which would ordinarily be the lexical equivalent of “home” in Kiswahili. This is because, whereas in English the word “home” bears the sense of the starting position in a computer application, such sense is not in Kiswahili word *nyumbani*, which prompts the translators to look for an appropriate term to bring out that sense, which in this case is *mwanzo*.

A language strategy coming from a mechanical perspective is likely to encourage adoption of a lingua franca. As translation is viewed as a straightforward matter, localisation firms adopting this approach may use their own staff rather than professional translators (www.emeraldinsight.com).

3.2.2 Cultural Perspective

Cultural perspective in localisation is complex, demanding, difficult even to define clearly, and largely unrecognized in the literature on localisation (Dennis et al 2006:25). Cultural localisation means the adaptation of programmes written in one language by members of one culture to another language and another culture in such a way that they seem fully consistent with the assumptions, values, and outlooks of the second culture (Kenistone 1997:7). The reality of the matter is that Kiswahili is spoken in a region that is culturally diverse and where some cultural elements are specific to certain regions or groups of people. Therefore Google has to be sensitive to this reality in order to be able to produce products and computer programmes that are culturally indistinguishable from a programme that would be written by members of the culture in Kiswahili speaking locale. The ultimate goal in cultural localisation is to produce a culturally localised programme that is indistinguishable from a programme written by members of that culture.

The cultural model in translation and localisation emphasises the importance of the target audience and of the need to recognise the cultural dimension of language. In this model, the translator's detailed knowledge of language is not sufficient; s/he will also need some understanding of culture. This encourages a cultural perspective on language use, and leads to strategy which is more respecting of the diversity of native languages spoken within the locale and views translators as mediators between different cultural meaning systems (Janssens et al, 2004).

Very often translators of software are confronted with the difficulty of achieving direct equivalence when translating culture-bound terms, which may be present especially in products that have low formality like Google+. A good example is “tap”, a term that means to briefly touch a UI element with a fingertip to perform an activity, such as choosing an action from a menu or opening an item. In Google glossary, its equivalent is *gonga*. Some users who come from societies where the denotative meaning of *gonga* is to “beat” might have difficulties in comprehending the term, as a result of such a negative cultural association in meaning.

Therefore, it follows that the software localiser must be careful to overcome cultural barriers between the SL and the TL societies if the translations have to be informative, which is the sole purpose of reproducing a TL version of software originally written for SL users only. As (Šarčević 2009: abstract) puts it, this implies that the translator is obliged to make concessions to the reader by “bending” the translations to meet the lexical, syntactic and stylistic demands of the TL, which leads to the conclusion that a different type of translation of the same text should be made for the readers of different TLs.

3.3 Software Localisation Strategies

There is some disagreement amongst translation scholars about translation techniques and by extension, localisation techniques. This disagreement is not only terminological but also conceptual. There is even a lack of consensus as to what name to give to call the categories, different labels are used (procedures, techniques, strategies) and sometimes they are confused with other concepts (Molina et al 2002:499).

According to Farlex online dictionary, a procedure is a method used in dealing with something or an approach, techniques are technical skills; degree to which one is able to apply procedures and methods, and strategy is the art and science of developing and employing instruments of work in a synchronised and integrated fashion in order to achieve some objectives. From this, we can say that key issues need to be put into consideration when localising software products: that there is a task to be done, there are expected results, and that there is need apply some methods in order to realize desired results

According to Molina, the strategies used in any localisation project are related to text, context and process (Molina 2002:498). She adds that textual categories describe mechanisms of coherence, cohesion and thematic progression. Contextual categories introduce all the extra-textual elements related to the context of source text and translation production. Process categories are designed to answer two basic questions: which option has the translator chosen to carry out the translation project, (i.e. which method has been chosen)? How has the translator solved the problems that have emerged during the translation process, (i.e. which strategies have been chosen)?

Hariyanto (2000) in Liubinienė (2007: 48) defines thirteen translation procedures and strategies that can be used to translate culturally-bound words or expressions. These strategies are found to have been used in Google's localisation project. They are: transference, naturalization, cultural equivalent, descriptive equivalence, synonymy, recognized translations, using componential analysis, reduction, expansion, addition and note, modulation, deletion, and literal translation.

3.3.1 Transference

Transference otherwise referred to as loan word by some experts is the process of transferring a SL word to a TL as a translation procedure (Aulia 2012:3). The translator uses SL LTU without changing its form and structure. The word then becomes a 'loan word' (Newmark 1988:81). It usually is done in translating proper names such as names of people, products, and places that are not to be localized. The following are examples:

- (1) Our Mobile Planet
- (2) Oyster
- (3) Video
- (4) SMS

These terms derived from Google+ are transferred to the TT as they appear in the ST. This strategy is employed in Google localization projects because of two reasons: one, they are brand names and as Newmark (1988:81) says, brand names like Toyata, Benz, Google and others have to be transferred. The localization style guide also prescribes that certain terms such as brand names remain untranslated due to internationalisation issues. This applies in the case of (1) and (2). In the case of (1), where “Our Mobile Planet”, a think with Google website is a product name and in (2) “Oyster”, a database which contains a variety of data related to maps. These are left untranslated due to internationalisation which requires certain terms such as product names and some proper nouns to remain unlocalized. The second reason applies to (3) where the LTU already conforms to the morphological structure of the TT language (in this case Kiswahili word structure) and is thus transferred without any modification. There are very few examples in this category though. However, using loan translations (calques) for culture-bound

terms, sometimes, puts translators in a risk of rendering the original text incomprehensible to the majority of users of software products in the TL society.

3.3.2 Naturalisation

In the case of naturalisation, the source language (SL) term is brought into the target language text (TLT) and the writing is adjusted to the TLT writing system. For Nida, naturalisation comes from transfer and is actually a form of borrowing whereby a SL word is adapted to the TL phonetically and morphologically in order for it to fit in the norms of the TL (Nida 1964: 231). This procedure succeeds transference and adapts the English SL words first to the normal pronunciation in Kiswahili, before adapting them to the normal Kiswahili morphology (word-forms). These terms comprise a very big percentage of lexical and terminological units present in the products that Google have localized into Kiswahili. The justification for this strategy could be drawn from the fact that most of the terms are neologisms that need to preserve the local “colour” and “taste” as Newmark (1988:82) aptly puts it. Here are a few examples from the data.

Term	Gloss
(6) <i>Ajenda</i>	Agenda
(7) <i>Akaunti</i>	Account
(8) <i>Lebo</i>	Label
(9) Faili	File
(10) Fomu	Forms

3.3.3 Cultural Equivalents

The strategy involving use of cultural equivalents entails a procedure in which the SL word is replaced with the TL cultural word. It is very similar to Newmark's functional equivalent, and would be an adaptation involving for example changing baseball, for football in a translation into English where the ST was intended for American audience and the TT for Brazilian audience (Molina 2002:509). This category comprises fewer terms compared to other categories. Even when such terms appeared in the ST, most of the times they are rendered by their formal equivalents. It appeared that a culture has emerged that can be described as digital culture whereby anyone that uses Internet by extension subscribes to this culture. However there are a few examples from the data.

Term	Gloss
(11) <i>Lo!</i>	Phew
(12) <i>Leo ni siku yangu</i>	I'm feeling lucky
(13) <i>Umemwandikia Ali ambaye hukumkusudia</i>	Got the wrong Bob
(14) <i>Fulusi forex</i>	Dollar forex
(15) <i>African Boot</i>	Shoehop

In (11) "phew" is an English exclamation of relief, surprise, disbelief or disgust. Kiswahili equivalent for the same feeling is "lo!". In (12) the expression "I'm feeling lucky" as displayed on main Google search page to allow the browser to go directly to the first search result page without seeing the list of search results is rendered as "*Leo ni siku yangu*" instead of literally being rendered as "*Ninajihisi mwenye bahati*" because that is how naturally Kiswahili speakers express such a feeling. In (13), name "Bob" does not fit in common Kiswahili names and therefore it is replaced with "Ali" which is a more culturally familiar name. This is important and as Olali (2014:10) argues, factoring in

expressions in ST with equivalent connotation in TL would be fundamental and should thus never be ignored or given second priority consideration when translating culture-bound terms. In (14) and (15), Dollar Folex and Shoehop e are popular business enterprises in the U.S. They are localised into names that Kiswahili speakers can identify with.

3.3.4 Synonymy

Use of synonyms is one of the most common strategies in Kiswahili localization projects whereby standard near SL equivalents are used. This procedure is used for a SL terms that do not have a clear one-to-one equivalent especially for non-lexical terms as in the case of adjectives such as *bora/-zuri* (good/nice) or adverbs such as *mno/sana* (a lot); *kwenye/ katika* (in) *nia/dhamira/lengo/kusudi* (purpose). These synonyms are appropriate particularly where there are character limits set and it is proving that their use is able to solve the problem.

3.3.5 Using Descriptive Equivalent

In this strategy, localization translators created terms in Kiswahili by way of explaining or describing the function of the idea embodied in the English word. Description and function are essential elements in explanation and therefore in translation (Newmark 1988:83). There aren't many terms created by this strategy and for a reason. Sometimes describing the function and an idea results in long wording since the explanation is done in several words. This is discouraged in software because oftentimes message strings come with character limitation which if exceeded, it affects usability of the software because of truncation of messages. However where such limits are not set, descriptive

equivalents are ideal for dealing with English terms that did not have one-to-one equivalents in Kiswahili as exemplified below.

Term	Gloss
(16) <i>Kompyuta ndogo</i>	Notebook
(17) <i>Kichanganuzi</i>	Parser
(18) <i>Kompyuta kibao</i>	Tablet
(19) <i>Hudhurungi</i>	Desert sand

In (16) a notebook is rendered as *kompyuta ndogo* (literally ‘a small computer’) because of its small size as compared to other computers. Parser in (17), on the other hand is a specialised software programme that analyzes text by breaking it into smaller parts. The analysis function motivates its translation as *kichanganuzi* from the root *changanua* which means to analyse. In (18) the tablet is translated as *kompyuta kibao*. In Kiswahili, *kibao* means a small block of wood and the tablet is given that lexical equivalent since it takes that appearance. In (19) *hudhurungi*, is used as the equivalent for ‘desert sand’ owing to its brown colour.

3.3.6 Using Recognised Translation

This is the translation of a term that is already official, even though it may not be the most adequate (Newmark 1988: 89). This strategy is used particularly in the case of neologisms that have already attained stable status (Karani 2011:5) that is, they have been accepted fully to be part of the SL lexicon. Such terms are many in Kiswahili and most of them have been coined to describe new terms in IT.

Term	Gloss
(20) <i>Mchakato/chakata</i>	Process (noun/verb)
(21) <i>Shiriki</i>	Share
(22) <i>Kipanya</i>	Mouse
(23) <i>Sanidi</i>	Install
(24) <i>Saniki</i>	Configure

The terms above represent the formal equivalents for corresponding English terms. They are not neologisms but they are not common terms and are mostly used in high register and may be comprehensible to only a few Kiswahili users. Thus, majority of users who most of them are ‘supposed’/ thought to ordinary people may encounter problems understanding their meaning. Nonetheless they are used with presumption that they will gain stability with the passage of time/the more they are used.

3.3.7 Paraphrase

Paraphrase is not as widely used as the other translation strategies. In this strategy, meaning of SL word is restated in the TL in other words in order to complete the meaning which is not embodied within the first TL word. This strategy is close to a descriptive equivalent in the sense that in the effort to make the meaning of the referent clearer, oftentimes the translator adds words that more or less describe the referent. However, it does not involve the function of the idea of the SL word.

Term	Gloss
(25) <i>Ingia katika akaunti</i>	Sign in
(26) <i>Zana ya Kupanga Matangazo ya Video</i>	Video Planner
(27) <i>ubadilishaji wa maandishi kwenda usemi</i>	text to speech
(28) <i>Washa</i>	Enable

“Sign in” means to enter a particular set of details (username, password) in order to access a website or service, for example, "sign in to your Google account" has been rendered as *ingia katika akaunti* instead of just *ingia* in order to clarify where exactly because in Kiswahili there are possibilities of entering many places like a chat group or website. In (26) the translation includes the word *zana* which means a “tool” because “video Planner is indeed a tool that advertisers can use to help plan video advert campaigns. Likewise in (27) text-to-speech cannot be literally translated as for instance as *makala-kuwa-usemi* but rather the word *ubadilishaji* is added to the translation to bring out the sense of converting text input into the artificial production of human speech.

3.3.8 Reduction

In reduction, a translation unit in SL is replaced with another in the TL which results in reduction of the number of words or items that form the source language term. In software translation, it is used mainly in translation units that have character limitation and that exceeding the set limits have implications on the design and usability of the software. The following terms in the data were found to have been created through reduction technique.

Term	Gloss
(29) <i>Maarufu</i>	What's hot
(30) <i>Faida</i>	Return on investment
(31) <i>Mtumiaji</i>	App user
(32) <i>Simu</i>	Phone call

In Google+ “What’s hot” refers to a new stream view that contains popular, or recommended, posts, not necessarily from the viewer's circles. Ideally, this could be translated as *ni nini maarufu* but when reduction strategy is used *ni nini* is left out of the translation without compromising the communicative effectiveness of the term. The same case applies to (30), (31) and (32) where a three-word and a two-word phrase respectively are reduced to a single word while still keeping their senses comprehensible.

3.3.9 Expansion

In expansion, a SL word or phrase as a translation unit is replaced with a TL word or phrase which covers the SL word meaning plus something else. (Newmark 1988: 91) calls it amplification which entails adding linguistic elements to the translation.

Term	Gloss
(33) <i>Kuhadaa ili kupata maelezo ya kibinafsi</i>	Phishing
(34) <i>Blogu ya video</i>	Vblog
(35) <i>Otomatiki</i>	Auto
(36) <i>Kuna maudhui yanayokosekana</i>	Missing content

In (33), phishing, which according to Farlex dictionary is “criminally fraudulent process of attempting to acquire sensitive information such as usernames, passwords and credit card details by masquerading as a trustworthy entity in an electronic communication” is rendered as *kuhadaa ili kupata maelezo ya kibinafsi* an expansion of meaning by a way of adding other words that explain in Kiswahili what the term really means. Vblog in (34) is a short form of "video blog", a form of blogging for which the medium is video. In this case, extension strategy is employed and the resultant translation is *blogu ya video*.

Ideally, the translation would have easily translated the term as *vblogu* to maintain the style as it is in the ST but expanding the term makes it clearer to the user. Similarly, in (35), “Auto”: could have easily been naturalised as *oto*, but has been expanded by adding more morphemes to make it sound more natural and to avoid ambiguity. In (36) the localisation translator added *kuna* (there is) to the translation to make the message clearer because whereas in English ‘missing content’ is communicative enough, rendering it literally as *maudhui yanayokosekana* in Kiswahili blurs the message a bit.

3.3.10 Literal Translation

This is the most dominant translation strategy employed by the localization translators. As data revealed, literal translation was the first step in translation, and except in situations when it plainly proved inexact or, uncommunicative, localization translators tried as much as possible to adhere to meaning and form of the source text, in other words translating SL translation units into TL units while conforming to the SL syntactic rules. Literal translation occurs when there is an exact structural, lexical, even morphological equivalence between two languages (Vinay, J.-P. et al 1977) as quoted by Molina et al 2002:499). The following are just but a few examples of terms translated literally.

Term	Gloss
(37) <i>Dirisha</i>	Window
(38) <i>Wingu</i>	Cloud
(39) <i>Pakia</i>	Load
(40) <i>Ufunguo wa usalama</i>	Security Key
(41) <i>Ukurasa wa kutua</i>	Landing page

The above English lexical and terminological units have a Kiswahili translation, all with a corresponding grammatical function. 'Cloud' is a virtual place where web-based (cloud-based) programs live, and where data associated with these programs is stored (i.e. on hosted servers, as opposed to individual computers). The term is literally translated as *wingu* which is the lexical equivalent of cloud in Kiswahili. The same technique is applied when translating "window" which literally means an opening with the frame, sashes and panes of glass by which it is closed (Farlex online dictionary) and which is literally translated as *dirisha* despite the fact that in all Google products it means a framed area on a screen containing a particular program and content, for example, "browser window".

From a theoretical standpoint, the above strategies within functionalist approach are compatible with the concept of transcreation which as discussed earlier is responsible for creation of Kiswahili equivalents for LTUs in localised products. According to Liubinienė et al (2007:51), functionalism provides solid grounds for explaining how the process of translating a text is highly dependent on the function it needs to produce in the target audience. Nord's model of functionalism optimised and streamlined functionalist approaches by supporting a rational or moderate model of functionalism (Nord 1997: 126) as demonstrated through the above strategies. According to Nord, functionalist translations do not have to forget about the source text, but will be subject to the function the message has to render in the target audience.

3.4 The Role of the Translator as a Trans-creator

The role of the translator in the localisation process is key because in most cases, modifying a software programme for its sale in another market means translating it. Of all operations which concur in the localisation process translation is in the strict sense the most strategically important (Beeby et al 2000:243). This is so due to a number of reasons. First, it involves the greatest volume of human resources and coordination. Secondly, it's one of the main causes of error in localised product functioning, and finally, its results are most visible to the final user.

The translator is thus an important player in the localisation process because it is him/her who is responsible for mediating meaning and culture between ST and TT. Whereas technical issues like space can be handled by Engineers later by expanding dialog boxes, correcting a typological error once the translation has been published and the product is out would be costly in terms of denting the image of the company or even failing to achieve the purpose that was intended by the client.

The role of translators as experts in the translatorial action is further emphasised by Holz Manttari and Vermeer Translatorial Action Theory who see the translator as a decision maker who should be responsible for those decisions (Pym 2010:61). According to the proponents of the theory, when a message has to cross another culture as it is in the case of localising software products from English into Kiswahili, people sending those messages, in this case software vendor will require help from an expert in cross-cultural communication. That expert should be the translator. This expert should for example

ensure that among other things, the form and genre of the target text is guided by what is functionally suitable to the target culture rather than merely copying the source text profile (Esselink 2000:315). What is functionally suitable has to be determined by the translator who is the expert in translatorial action and whose role is to make sure that the intercultural transfer takes place satisfactorily (Munday 2009:78).

Holz Manttari further says that other than translation, this expert may be called to do many different things, including giving advice on the TL culture (Pym 2010:50). The translator being a decision maker is thus responsible for many decisions that are made during all the phases of localisation of a software product. According to Gouadec (2007:17) there are always several ways of producing a quality translation and as a result, the translator has to constantly make appropriate choices. Among these choices are dealing with translation of new products that he has little or no knowledge or is simply not familiar about, as is the case of most of Google products that are localised in Kiswahili. Here, several options may be available to him/her to help understand better including signing in that product and getting first-hand experience in English, filing a query through query manager or even consulting fellow translators (Gouadec 2007:17).

The ability of translators to see and understand the context of the translated text is very important for the success of his/her work. This is because during more complex projects, such as software localisation, the issue of context becomes more problematic. Since the localisation of a software product involves translating text embedded in various parts of the software interface, deconstructing that context is required in order to access the

information to be translated (Dunne 2006: 78). This deconstructive process represents one of the greatest challenges for translators working today since enough context is seldom provided all the time, leaving the localisation translator to rely on other experiences and competencies to render the message correctly. In many cases, even the context provided is not as easy to grasp as in the example shown in Figure 7.



Figure 3.1: Translation text segment

Source: GTT

Figure 4 is a screenshot of a segment from a Google product called Bigtop. Bigtop is a feature on Gmail on Android that focuses on simplicity, offering the user different ways of dealing with email. The user can pin a message down, snooze it for later or mark as done (archive it). Messages can also be grouped in clusters, so that users can combine mail related to the same task and deal with all of them at once.

From the description, the translator is not provided with enough context to enable him/her to figure out which sense is being carried by the word “on”. This is because it could be

indicating a position above, occurrence at a given time, or an object affected by an action in which case the translations would differ i.e. *kwenye*, *mnamo*, and *kuhusu* respectively. General localisation knowledge and projects specific experience would therefore be key factors in dealing successfully with complex localisation issues. The translator is responsible for performing the following tasks in a localisation project:

3.4.1 Target Text Production

The translation team working in Google localisation projects work from the GTT workbench which is a TM. Their primary responsibility is to deliver well-translated content. The translation must be complete, accurate and stylistically appropriate for the target locale (Dunne 2006:84). The terminology has been consistently used and the glossary has to be followed strictly and checks that there are no missing parts or text not translated. As an expert in intercultural mediation, s/he too makes sure that the style and tone of the ST are naturally transferred in the TL. The spelling and punctuation are checked as well.

3.4.2 Editing Translations

Peer review is a prerequisite before the translator hands in the final translation for review after which other quality assurance steps such as running a spell-check are done. The peer review is meant to provide what translators call ‘the fourth eye’ and is to deal with simple typological errors but which, as mentioned earlier, users have little tolerance on them. It is used to improve readability of the text and to make it sound natural for example, word placement in a phrase or sentence omissions and errors that cannot be detected by the QA tool.

Editing translations is done by senior translators who lead the team of translators working in a localisation project. In Google localisation projects, these are referred to as reviewers. They are mainly responsible for ensuring consistency in terminology and style as well as linguistic and technical accuracy (Esselink 2000:315). Things checked by the senior translator include: terminology and style are consistent and appropriate throughout the text, no spelling or grammar errors and that instructions, style guides, glossaries provided by the publisher are used and followed.

In the process of reviewing translators work, senior translators enter their corrections directly in the translation toolkit. However, serious and consistent errors are normally communicated to the translator responsible for the translation so that any further errors can be avoided. The feedback is also shared with the rest of the translators working in the project in order to help them to understand the linguistic quality expected of them. The feedback also acts as a reference material and a training tool to improve work for the next task and project. Figure 8 below summarizes the translator's role in a localisation project from a TM and MT output.

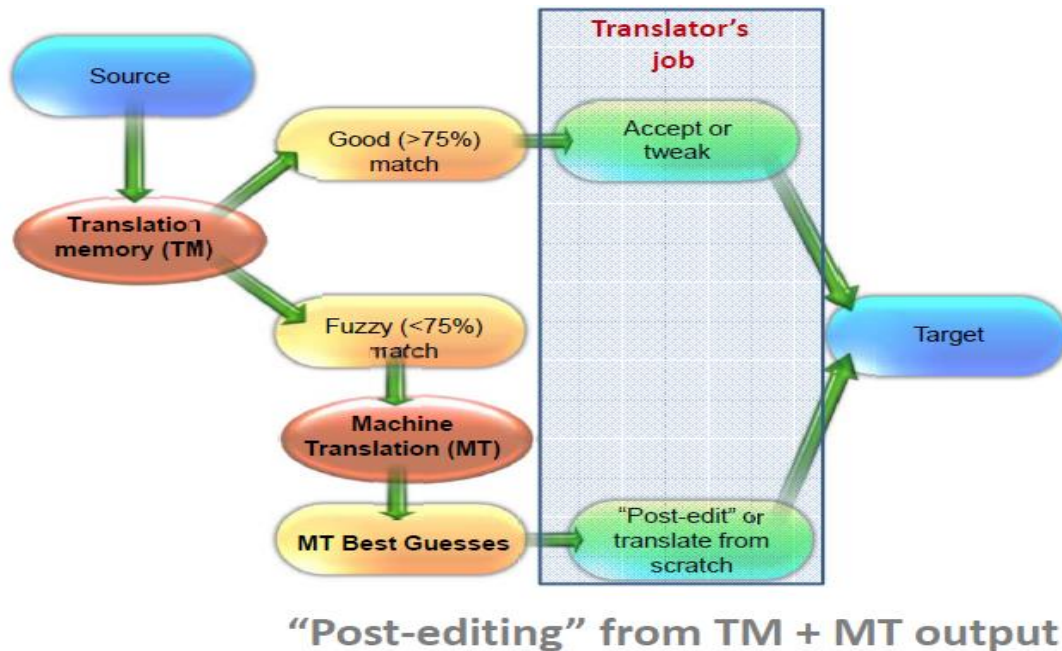


Figure 3.2: Translators role

Source: Mike Dillinger and Jay Marciano (2012)

In seeking to communicate, in the target-language communicative situation, a message equivalent to the one received in the source language, the translator has at his disposal a different potential set of linguistic devices and tools that are used for coding the message in the source language. Therefore, in a given situation, some linguistic units of the source text will be retrieved from the translation memory as good matches having over 75% match and therefore falling under the category that will either be accepted as formal correspondents or be adjusted slightly to suit in the target audience’s language and culture. The rest of the translation units which score under 75% match will be regarded as fuzzy matches and will go through machine translation or the TM will provide best guess. In this case, the translator will have to post edit the text or to translate it from scratch.

From figure 8, we can draw a conclusion by saying that a translator's job in a localisation project is to: translate from scratch segments that are non-matches, **revise** translations that are worth fixing ("fuzzy" matches), approve translations that are correct ("perfect" matches), and to skip sentences that have already been translated ("ICE" matches).

3.5 Integration of the Trans-creator in the Creative Process

Although localisation tools and technical resources are invaluable for software localisation, they cannot be successfully used without some involvement from human experts. Even the best machine translation must be reviewed by a qualified linguist to ensure that the final content makes sense in context and helps improve the engine's accuracy. The technical and professional background of translators and linguists as experts in the translatorial action, the nature of production process, therefore have a much more direct effect on the actual translation work of software products than in, say, literally or legal translation which to mention just one skill, require expertise in use of the available tools and technology. Put succinctly, "excellent translators cannot "merely" translate excellently; they must also be consummate users of technology in order to achieve optimal results" (Dunne 2006:82).

It is against this backdrop that it is imperative for any translator to have the expertise to use the available translation and localisation tools and technology among other skills in order to be able to perform his/her tasks in localisation. In the following section, tools and technology available for use by translators localising for Google are discussed in detail.

3.6 Classification of Localisation Tools Used by Google

Localisation tools used by Google in its projects can be broadly categorised into two: online or electronic resources and hard copy resources. The electronic tools are embedded in the Google Translator Toolkit (GTT) and the other tools are found outside of the GTT. Before discussing GTT and the specific tools, let us first say something about computer assisted translation tools and translation memories because GTT basically is a translation memory tool.

3.7 Computer Assisted Translation Tools and Translation Memories

For the last 15 to 20 years, Machine Translation (MT) has been experiencing a rebirth with advances in statistical machine translation, specifically in computer assisted translation (CAT) tools and translation-oriented terminology management as a new approach in translation and localisation (Suau-Jimenez et al 2011:147). CAT tools, which include Translation Memory (TM), Terminology Management Tools (TMTs), software localisation tools, and MT, have proved particularly valuable for companies like Google that work on large localisation projects (Esselink 2000: 362). It is increasingly common for translators in localisation industry to use CAT tools and translation memory systems to produce accurate and consistent translations, improve quality, speed, and have better return on investment or simply due to professional market impositions (Suau-Jimenez et al 2011:147). Simply put, CAT tools aid the translator and linguists working in a localisation project to increase their translation production.

The underlying principle of most CAT tools is that they allow the translator to reuse previously translated texts in a simple process. This happens when previously translated

translation units are kept in a bilingual or multilingual database and when the LUs and translation units appear again in a new text, the previous translation is automatically offered to the translator. The translator being an expert in the translatorial action evaluates the offered translation and takes appropriate action. The action can be accepting the offered text as it is or modifying it linguistically or culturally to suit his/her target audience.

CAT tools come with all kinds of acronyms that are used to describe their different types. A list of some of the common ones include: Machine Translation (MT), Human Assisted Machine Translation (HAMT), Machine Assisted Human Translation (MAHT), and Human Translation (HT). Austermuhl (2014:10) puts these acronyms into a diagrammatic perspective.

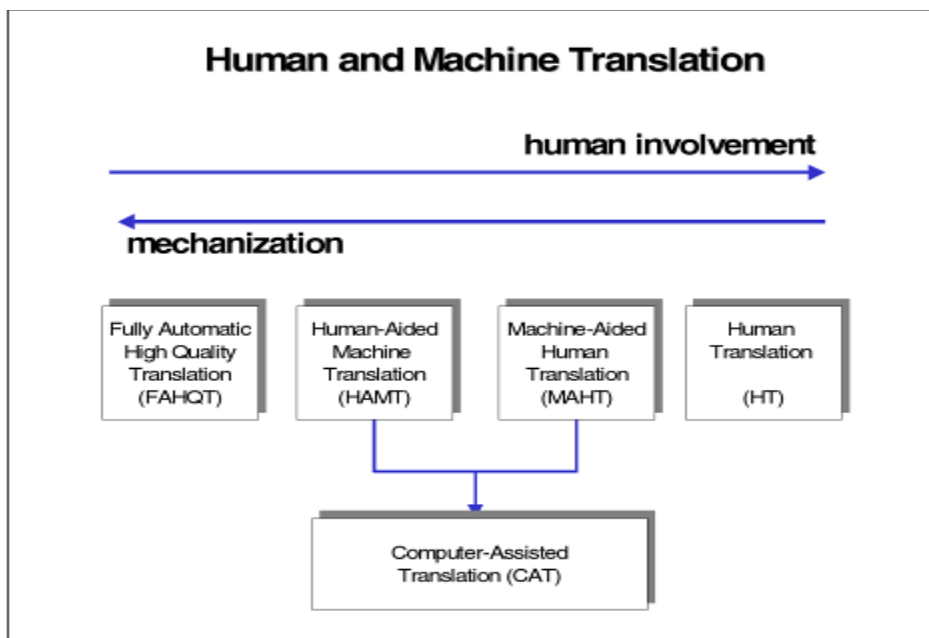


Figure 3.3: Dimensions of translation automation
Source: Hutching and Somers 1992

3.8 Google's Translator Toolkit (GTT)

GTT is a free web-based translation memory that utilizes CAT tools as software solutions to help streamline the process of creating language assets like translation memory and translation glossaries (GTT). The tool is designed to allow translators to edit the translations that Google Translate automatically generates. With GTT, translators working in a localisation project can organise their work and use shared translations, glossaries and TMs. Every time a translator uploads an existing translation memory or perform any translation within GTT, the material will be used by Google for the training of its machine translation engine. With the building of an online toolkit for translation come several related opportunities that can be pursued – adding both to the accuracy of the final output, and the value of the product (Eisele et al 2009:5). The most obvious of these opportunities is collaboration between groups of translators/editors on the same project, with everyone having access to the part of the project that is assigned to them to translate/correct. In order to get fast, accurate translation from the computer, GTT has integrated TM and MT systems for performing translation between several language pairs, along with the ability to post edit the output, make use of TM files, and collaborate online with other users.

Currently, the most effective strategy for integrating translation memory technology with machine translation is batch-oriented. It involves running segments not found in translation memory (rather than the document) through machine translation. Here's how it works:

1. Analyze the document with the Translator’s Workbench, and export all segments which are not found in the translation memory. The Workbench generates a file that resembles an exported translation memory, but with a copy of the source segment where the target segment should be. In concept, it looks like the following (See explanation of codes below).

<Author>MT!
<USE>Add him to your circles
<SWA> Add him to your circles

2. Run the exported file through the machine translation software. The job of machine translation software is to parse the target text, translate it, and overwrite the target text with its translation. The translated unit might look like this:

<Author>MT!
<USE> Add him to your circles
<SWA> Ongeza yeye kwenye circles yako

<Author>MT!	<Author> is a tag which identifies the source of the translation, MT! means machine generated
<USE>This is a segment.	<USE> is the language label, U.S. English. The text is used as the source and index for translation memory.

Figure 3.4: A screenshot explaining localisation parameters

3. The translated file is then imported back into the translation memory. It is merged with any translation units that have been previously translated by a human.

4. Translate (post-edit) the document using the Translator's Workbench. Based on the author tag, the Workbench alerts the translator when a translation has come from a machine so that extra attention can be given to post-editing MT-based text (Mark Berry 256). The MT above for example, failed to apply the rule of affixation in Kiswahili and also to translate the word circles in order to come up with something like *Mwongeze kwenye miduara yako*.

3.8.1 GTT Workflow

When translators upload a file they want to translate, GTT automatically pre translates the document. First, it divides the document into segments, usually sentences, headers or bullets. Next, it searches for all available translation databases for previous human translations of each segment. If any previous segment of human translation for the segment exists, GTT picks the highest ranked search result and pre-translates the segment with that translation. If no previous human translation of the segment exists, it uses MT to produce an automatic translation for the segment without intervention from human translators (GTT)

3.9 Translation Memory (TM) in GTT

Translation Memory (TM) is a multilingual text archive containing segmented, aligned, parsed, and classified texts allowing storage and retrieval aligned multilingual text segments against various search conditions (Austermuhl 2014:15). Bowker (2006:177) defines a TM as a type of linguistic database used to store STs alongside their translations. The translations are products of human translators working in a localisation

project. According to Bowker, the role of a TM is to make it possible to retrieve sections of previously translated texts in order to reuse them in a new TT. Corresponding segments from STs and TTs are aligned or linked together and stored in the TM database as translation units as illustrated in figure below.

Translation unit 1	EN Search in Google SWA Tafuta kwenye Google
Translation unit 2	EN Allow viewers to download photos and videos which I share in Google+ SWA Ruhusu watazamaji kupakua picha na video nilizoshiriki kwenye Google+

Figure 3.5: Sample translation units stored in a TM database

TM does the alignment by parsing texts and segments into smaller chunks. In practice, segmentation of texts takes place at sentence level, although it can also be done at paragraph level. It can also be a heading or an item in the list (Dunne 2011:102). The new text, while being analysed by TM tool, it is parsed, segmented and compared to contents of one or more existing translation memories (Esselink 2000:362). If it finds a matching segment, the TM system retrieves the relevant translation unit and presents it to the translator, who can accept, modify, or reject it (Bowker 2006:177).

Segmentation by GTT results in total or fuzzy matching. In a Translation memory system, a Fuzzy match is a partial proposal that the translation system gives if no full

match is available (a full match is an exact correspondence between the old and new source called 100 percent match). Different levels of fuzzy matches are calculated with an algorithm that uses character strings similarities and establishes partial correspondences between the source sentences based on syntactic structures (Arenas 2012:266). Different tools use different algorithms. The fuzzy match value is normally expressed as a percentage. This percentage represents the characters that were translated with a less than perfect translation memory match (100 %). Therefore, a 95 %, match, for example, is considered a high percentage match, that is, the translation proposed is deemed to be very close to the new source text. The screenshot below shows fuzzy match categories as found in GTT.

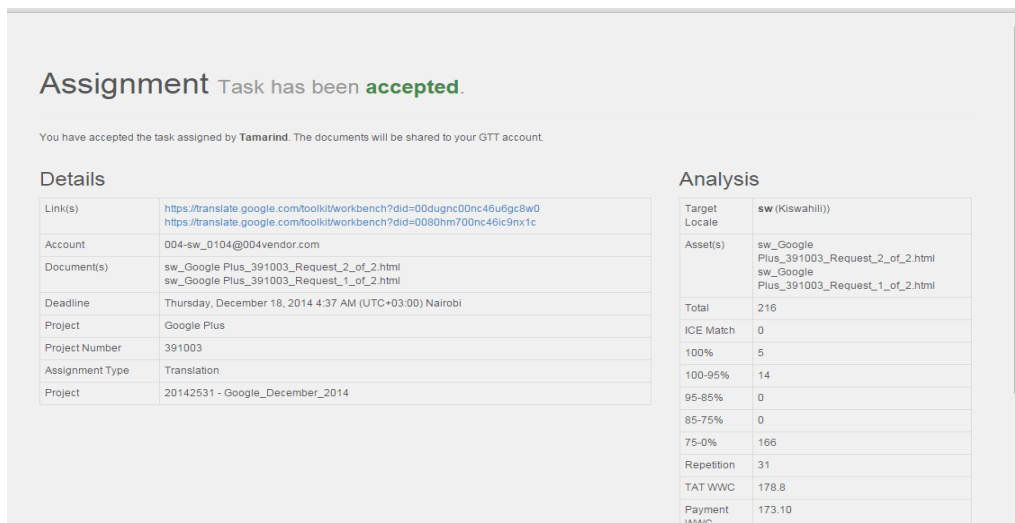


Figure 3.6: Categories from segmentation by GTT
Source: GTT

On the analysis section, the description of fuzziness is shown in terms of percentage and the number of words in each level of fuzziness.

In the following section, we discuss briefly each of the levels of fuzziness as applies in GTT.

3.9.1 In-Context Edits (ICE) Matches.

ICE matches indicate that the task was previously translated within the same file or software product and that is preceded and followed by the same segments as before (Dunne 2011:109). ICE segments require any modification whatsoever from the translator or reviewer. They do not incur any cost either. The text in the screenshot is an example of an ICE match whereby the LTUs in the source text have an identical match in the TM and therefore need no editing whatsoever. To sum it all, a pre-filled translation is an ICE match if the context of the earlier translation matches the context of the current translation, where "context" is defined as the segment preceding and following the pre-filled translation. The following is an example:

Original text in English

Hello!
How are you?
I'm fine, thanks.

Translation in Kiswahili

Hujambo!
U hali gani?
Sijambo, nashukuru

New text

Hello!
How are you?
I'm fine, thanks.

When this translation is pre-filled from the TM, the matches will be rated as an ICE match.

3.9.2 100% Matches

100% matches are usually segments that are identical to translation units which have already been translated. They often require no translation and little or no editing (Dunne 2011:102). However, at times they call for editing due to two reasons. One, they could be based on translation memories that could have been modified after inputs from localisation language experts, and two, they could be from a TM of a different product. A term like “enter” for example, would be retrieved from the TM as a 100% match with a translation of *ingiza*. However today, there are instances when the translators are required to render the term as *andika* (as in the case of a name or address) or *weka* (as in the case of a URL).

In the screenshot below the term “subtitle” is retrieved as a 100% match and is translated as *matini*. However a look at the product glossary in the work bench, *manukuu* is provided as the equivalent because this time the product being translated is a different from the one that the 100% was created, in this case, YouTube.

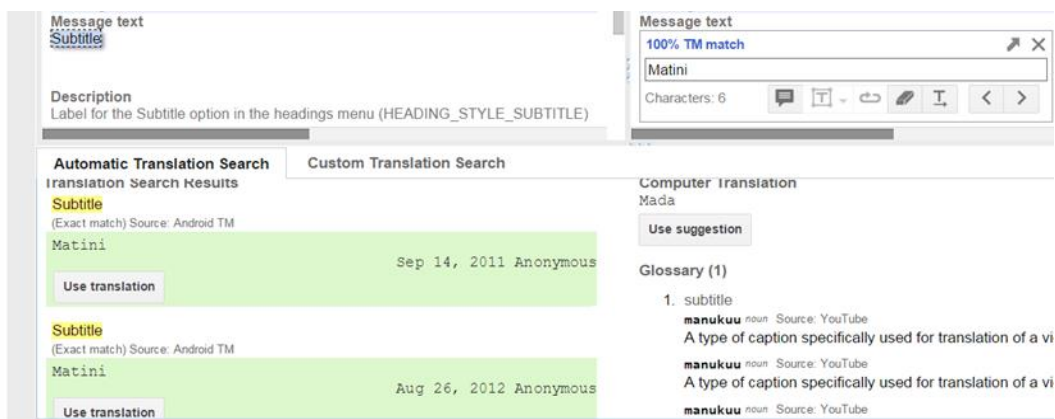


Figure 3.7: A screenshot showing 100% match from the TM
Source: GTT

3.9.3 Fuzzy Matches

Most translation memory systems support fuzzy matching, where translations are also retrieved from memory where the match between the previously stored segment and the new source segment is below 100% (Somers 2003:365). Biçici et al (2008:454) says that a fuzzy match occurs where the source sentence has some substantial commonality with a previously translated sentence. In a localisation project that is using a translation tool such as the GTT, fuzzy matches are very important for the translators because they act as the starting point from where they can start editing the associated TM based translation in order to accommodate the differences with the source sentence under translation. Typically, the amount of editing required depends on the fuzzy match level which Biçici et al (2008:454) defines as the percentage of shared words between the new source sentence and the previously translated source sentence.

During TM analysis, GTT sometimes comes across units that are similar but not identical to previously translated translation units. In other words, they have not attained a 100% match. For example, a TM database contains a translation for a sentence like

Source Text (English)	Target Text (Kiswahili)
(1) Report an Issue	<i>Ripoti Tatizo</i>
(2) Report an issue	<i>Ripoti Tatizo</i>

The translation in (2) will be retrieved as fuzzy match from the TM. It is a fuzzy match because although both the LTUs and syntax in source text is similar in (1) and (2), there is a slight difference brought about by capitalization of the term “issue” which is not the

case in the sentence 2. Therefore translator will be required to change the capital “T” in the match in sentence 2 to lower case.

Fuzzy matches in GTT are further categorised into four depending on their fuzziness: 100-95%, 95-85%, 85-75%, and 75-65%. In (2) above, the match is very high because except for capitalization in *issue*, all the LUs have matches in the TT and therefore can be categorized as 100- 95% match.

- | | |
|----------------------------|----------------------|
| (3) Report this Issue... | <i>Ripoti Tatizo</i> |
| (4) Report this Issue Here | <i>Ripoti Tatizo</i> |

The degree of fuzziness for (3) and (4) is lower because both have LUs that are not matched in the TM. In the case of (3) and (4) ‘this’ has replaced ‘an’, and in (4) ‘here’ has been introduced

3.9.4 New Words

Segments for which the percentage of shared words between the new source sentence and the previously translated source sentence below the threshold specified in TM tool settings (usually less than 75% for GTT) are categorised as new words.

Example:

- Learn more about **Hangouts for your** business (source segment)
- Preview **Hangouts for** this device (translation memory segment)

The example above shows that only the words in bold in the translation unit are the same. This accounts for less than 75% similarity thus being categorised as New Words. Whereas all the other categories require post editing in order to accommodate the

differences that there are with the source sentence under translation, segments categorized as new words require full translation because they have no commonality with a previously translated segments. Ideally these types of segments are common with new software products that have new terms that are not yet found in the translation memory tool. But as the tool continues being trained with more and more translation, they become less and less as even the fuzzy matches improve towards 100%.

3.9.5 Repeated Matches

Translation segments in GTT are grouped into units referred to as messages. Each message can contain one or several segments. A segment is retrieved from the TM as a repetition if (a) it was previously untranslated as a 100% match, and (b) it is found at least twice in the current document. In cases where a repeated text is pre-filled with a high-fuzzy match, it is counted in Translation Statistics as repeated text, not more high-fuzzy since repeated text warrants a larger discount than a high-fuzzy match.

When a translator lands on a piece of text that is repeated, the translator will see a button on the edit box that says, "Show repeated text options." If the translator clicks on this button, it brings up a dialog that allows the translator to find out the number of times the text is repeated in the document, and apply the current translation to all other similar segments within the document through the "Apply to all" option. This helps enforce consistency for the translation within the document. (GTT Guide)

3.10 Machine Translation

Machine Translation (MT) is a very broad topic in translation and localisation studies. It involves the use of computer programmes to translate texts from one natural language into another automatically (Baker et al 2000:162).

For the purpose of this research, MT will be discussed as one of the tools embedded in GTT that is used in combination with other TM tools to provide the translator with additional aid to his/her work in localisation. MT is usually given as an offer for any segment that falls under “new words” category. As a norm, segments translated by this tool require post editing by translation experts working in the localisation project. Machine translation in GTT is a prebuilt corpus of translations specific to Google products. It uses statistical techniques to improve upon the accuracy of its translations in the target languages. The way MT works in GTT is by first leveraging content using TM in the tool. Then any translation units that have not been pre-translated (leveraged) undergo MT (Somers 2000)

A close look at the translated segments in GTT one can associate it with an approach to MT that is referred to as example based machine translation (EBMT). In EBMT approach, there is an aligned parallel corpus of previous translations and from this corpus are selected appropriate matches to the given input word or segment (Somers 2003:44). The system automates the process of selecting the best matches and then recombines the corresponding target language segments to form the translation. Because this is done automatically by the system, linguistic knowledge and expertise of the translator is

brought to bear. From these retrieved matches, the translator decides what to do: either accepting them as they are, or to edit them.

3.11 Automatic Terminology Lookup and Pre-translation

Automatic terminology lookup and pre-translation is a specialised retrieval feature offered by GTT. This feature is essentially a type of automatic dictionary lookup that a translator click on and is able to run ad hoc searches for translations for any term, regardless of whether the search term can be found in the segment they are currently translating (Google Style Guide). The way it works is that as the translator moves through the text, the terminology recognition component automatically compares the lexical units in the source text against the contents of the term base (Somers 2003:61). If a term is recognized as being in the term base, the translator's attention is drawn to the fact that a record exists for that term and the translator can then view the term record and can copy and paste the term from the record directly into the target text as shown in figure below.

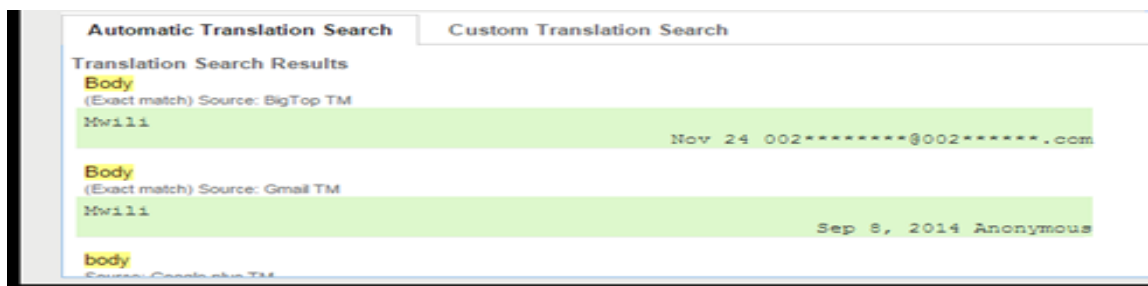


Figure 3.8: A screenshot showing Automatic terminology lookup dictionary
Source: GTT

GTT permits a more automated extension of automatic terminology lookup function where a pre-translation or batch processing of the text is allowed. In the case of pre-translation, GTT identifies those terms for which an entry exists in the term base and then automatically inserts the corresponding equivalents into the target text. The output of this pre-translation phase is a sort of hybrid text as shown in the figure below.

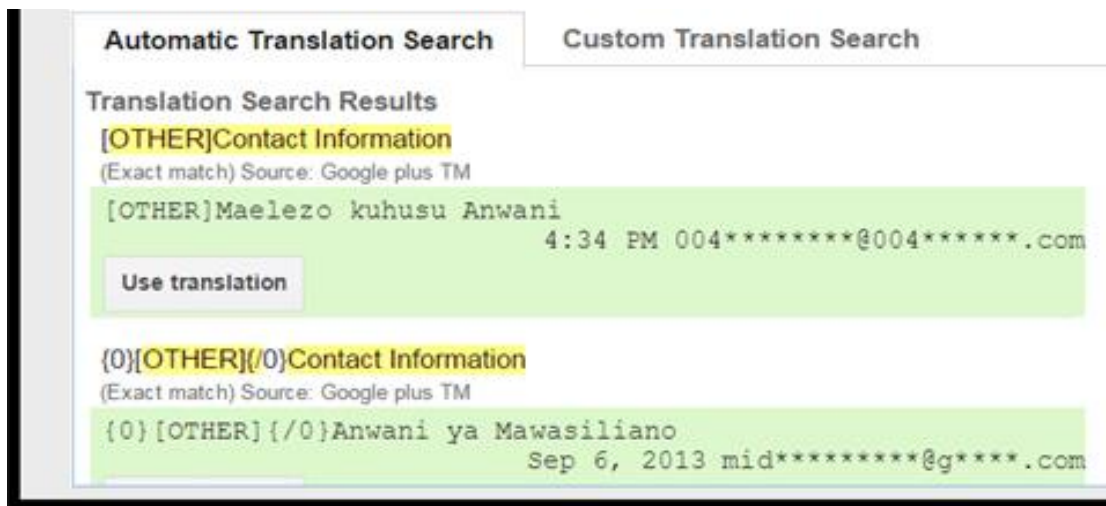


Figure 3.9: A screenshot showing Automatic terminology lookup in GTT

Source: GTT

In the post editing stage, the translator being an expert in translatorial action verifies the correctness of the proposed terms. In figure 14 TM retrieved two very different translations i.e. *Maelezo kuhusu anwani* and *Anwani ya mawasiliano*, for a similar source text. In such a case, the translator is expected to make a decision concerning which one of the two options provided he/she picks. S/he can even reject both if none is an appropriate TT equivalent.

On the other hand, figure 15 shows a screenshot of a TM retrieval where batch processing has taken place meaning that no equivalent for the unmatched term was found in the term base. In this case, the translator fills the unmatched text with appropriate ones (Somers 2003:57).

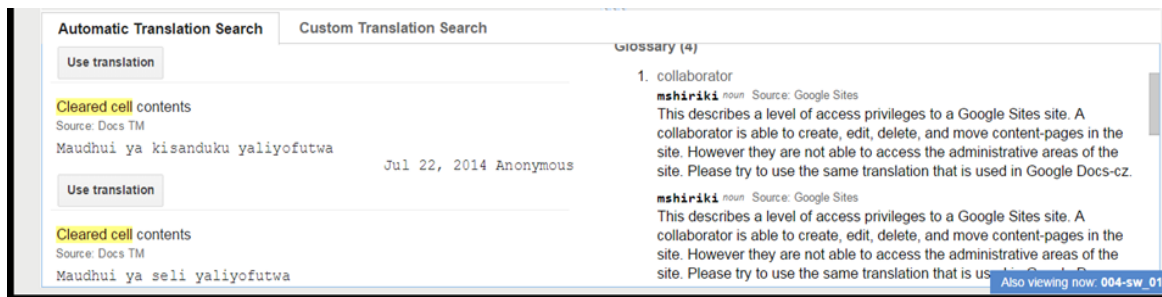


Figure 3.10: A screenshot showing batch processed segments
Source: GTT

Other than integrated online dictionaries and thesauri, translators also rely on hard copy dictionaries for extraction of meanings of LTUs and to get other useful information such as spelling, etymology and usage of the terms. In this case, the *Kamusi ya Kiswahili Sanifu* 1981 and *Toleo la Pili* of 2004 by Oxford University Press are chosen by the translation vendor to be used as authoritative guides except in cases where the term cannot get its equivalent in which case, other sources are used.

3.12 Online Glossaries

Glossary is perhaps the most important terminology management tool in any localisation project and reliable one is the cornerstone of the localisation process (Suau-Jimenez 2011:147). Ideally, no localisation project should commence before translation of the product content. Similarly, no translation should commence before a comprehensive glossary has been created. Glossaries are especially critical in the case of technical

translations and marketing communications as is the case of translation of most Google products. During the design stage of the product development cycle, a source language glossary is created, documenting each term along with its definitions, examples, and usage. The idea behind maintaining a glossary of the products being localised is that it enables terminology consistency and prevents project managers from having to repeat their research each time a new product is launched and need to be localised.

The glossary is expected to be as detailed as possible, and contain all terminological units, not only 'pure' terms. The most obvious type of glossary would be an alphabetic list of terms used in the software product and in the documentation of a specific project (Wright et al 2001:350). Translation glossary used by translators localising for Google focuses on the key terms used in various products. The glossaries used can be grouped into two: a general glossary that is created by merging various product glossaries and product glossaries that deals with a particular software product which helps translators to identify words that might be unique to a particular app, or that might have extra sense in the context of the app. For example, the word "spider" in Google+, which refers to a programme that visits websites and reads their pages and other information in order to create entries for an index is translated as *programmeu ya kutambaa*. The translation has a totally different sense from the one known in English language. Ideally, *buibui* would serve as the recognised Kiswahili equivalent for the term 'spider'.

Each software product glossary provides a list of LTUs with their translations in TL. They also include additional information about the context and use of the term. In GTT, four types of information are provided in the glossary. The first one is word class which specifies the part of speech or grammatical markings (noun, verb, adjective etc) that the LTU belongs. Secondly, it shows source of the word, i.e if it is from the general glossary or a specific product glossary. Term note is also shown. Term note information correctly identifies terms that can appear in different contexts and might require different translations (Wright et al 2001:501).

For example “Now” is an English word that brings out the sense of time. Its equivalent in Kiswahili is *sasa*. However, in Google+, the term is assigned a new meaning to refer to an app that works in the background displaying information when the user is most likely going to need it. For instance, if a user has a calendar entry for a dentist appointment, the app can check traffic and suggest to him or her when to leave for the appointment. From this function, the translators render it as *Msaidizi* which literally means “helper.”

3.13 Style Guide

Before any localisation project that involves many language experts start, a style guide is prepared for the translators and reviewers. For the translators, style guide is important tool for defining conventions such as grammar, syntax, and tone that they should use to convey company’s brand and desired end-user experience to the target audience (www.lionbridge.com). According to Colbert (2010:), style guides are books which authoritatively specify a basic set of application controls (interface objects) and user input

methods, and which advise when and how to use these controls and input methods. Style guides are typically presented as resources that encourage consistency and reuse. To the reviewers, the tool helps in making them understand what they should be judging against when reviewing content, which makes them less likely to request changes according to personal preferences and gives them a baseline for translation quality.

Kiswahili style guide at Google is not integrated into GTT but is available as ordinary document either in soft or hard copy. It is used in combination with other tools like terminology management tools and TM to increase translation quality. It is written in English but with Kiswahili examples to account for both linguistic and cultural uniqueness of Kiswahili locale.

3.14 Quality Assurance Tools

When the translation of hundreds of thousands of words is involved, errors are statistically inevitable (GTT user guide). Typos may find their way into documents; confusion about a specific technical term may arise and bugs in software are, unfortunately, a part of software development (Dunne 2006:84). This calls for processes to be put in place to minimize the errors and efficiently correct them hence the need to employ quality assurance tools. As Pym (2011:6) puts it, the notion of translation quality in the current localisation industry is reduced to minimisation of errors via quality control (Pym 2011:6). He points out that quality is increased by adding a new layer of control, and if something is considered of inferior quality, it is rooted out. He says that quality is a question of having enough testing and control procedures in place and is maximised by regulating processes (Ibid, p6).

Quality Assurance (henceforth QA) is one of the final steps in L10N workflow and every Translation Memory Tool has this tool embedded in it. This tool is referred to differently by different TMTs. In Trados Studio for example, it is called QA checker, in memoQ Quality Assurance and in Wordfast, Transcheck. The aim of QA is to achieve optimal quality by checking a final time whether the translated texts are consistent with the rules stipulated in the style guide and that the glossaries have been followed well. More generally, the QA check is focused on identification of errors like punctuation errors, mistakes in number values, terminology and whether there was adherence to project glossaries, tags and placeholders (Depraetere 2011:161).

3.14.1 Moravia Tools

One of the QA tools at Google is the Moravia tool which is an extension in Google Chrome. The tool checks a wide range of errors including inconsistent translations, number value errors, terminology errors, incorrect placeholders and tags, punctuation errors and untranslated segments. The following table summarizes those errors and gives details of each error.

ERROR CHECKED	DETAILS
Inconsistent translations	Different translations are used for the same segment
Forgotten translations	The target segment is identical to the source segment
Incomplete translations	The target translation is extremely long or extremely short (according to character limits given in the text description)

Incorrect placeholders and tags	The placeholder or tag is either misplaced or is missing
Spacing errors	There is double spacing or consecutive spaces
Punctuation errors	The target text does not follow the same end period with the source text, there are consecutive punctuation marks, there are spaces before a punctuation mark
Terminological errors	The Kiswahili equivalent used is different from the one provided in the glossary
	Words such as names of products, that are to be left in English are translated
Incorrect word and number formats	Time, date, weights and measurements do not follow the prescribed Kiswahili format or units are wrong
Repetitions	Repetition of words and phrases

Table 3.1: Categorisation of translation errors

Other than the roles played by linguists, other players like the non-linguistic QA engineers (testers) adapt the user interface, including resizing of forms and dialogs, as required. They also localise graphics, scripts or other media containing visible text, symbols, etc and compile and build the localised files for testing. They perform linguistic and functional QA before delivering the project to the client.

3.14.2 Query Management Tool

The quality management process should be part of a comprehensive Quality Management System that guides and regulates all processes that impact project quality and customer satisfaction (Dunne 2006:84). In any localisation project, there are many of the key factors that need to be controlled in order to achieve delivery of high-quality translations and language.

Query Manager is a tool developed by the Google localisation Team. It allows Google to interact with our translation and review vendors in creating and responding to queries (questions/clarifications) ranging from the meaning of the source, expression, possible typo in the source or a term, wording or anything else in the TT they find difficult to deal with during translation. It also handles issues to do with bugs. It consolidates all translation issues for all projects and is also a searchable knowledge base for Google and for our partners. The figure below is a screenshot of a window in Query Manager that allows the translator to file a query.

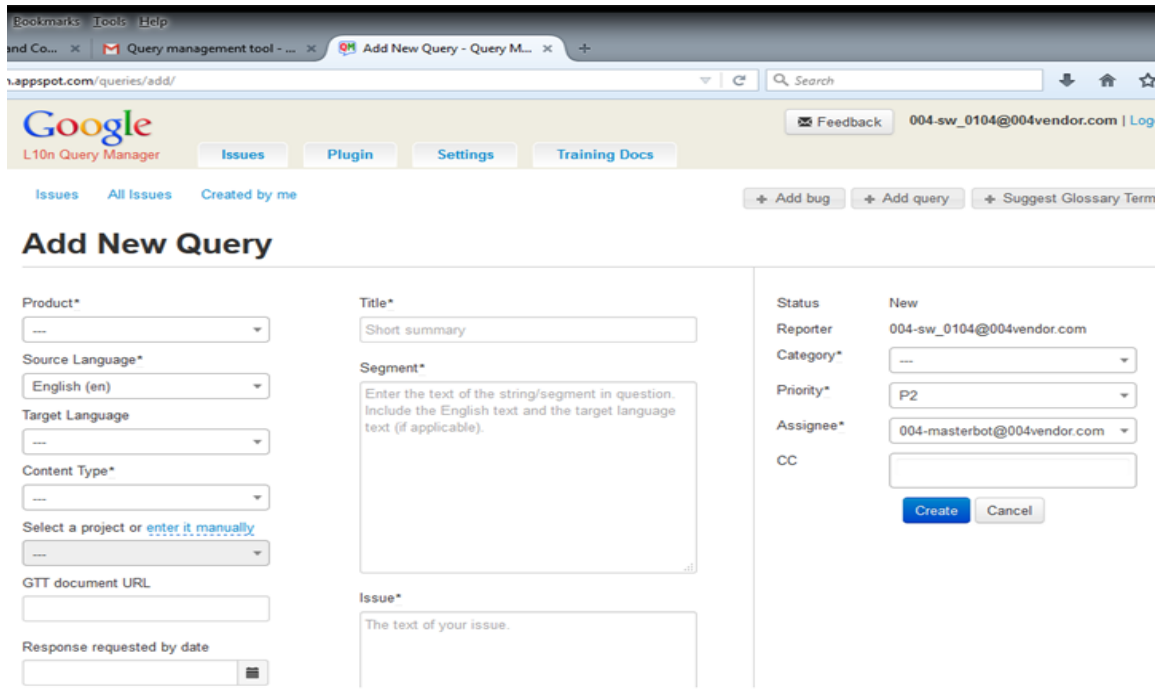


Figure 3.11: A screenshot of a Query Manager.

Source: GTT

Once the query is created by filling all the required fields, it is automatically assigned to the proper assignee based on the product, language, and category. If the translator is working through one of Google's translation vendors, his/her query is assigned to the master account of the translation vendor. At that point, the vendor project manager either responds to the translator directly, or route the query to the appropriate party. If a query for the same question exists from other language groups, the translator is notified by email with a link to the already existing query.

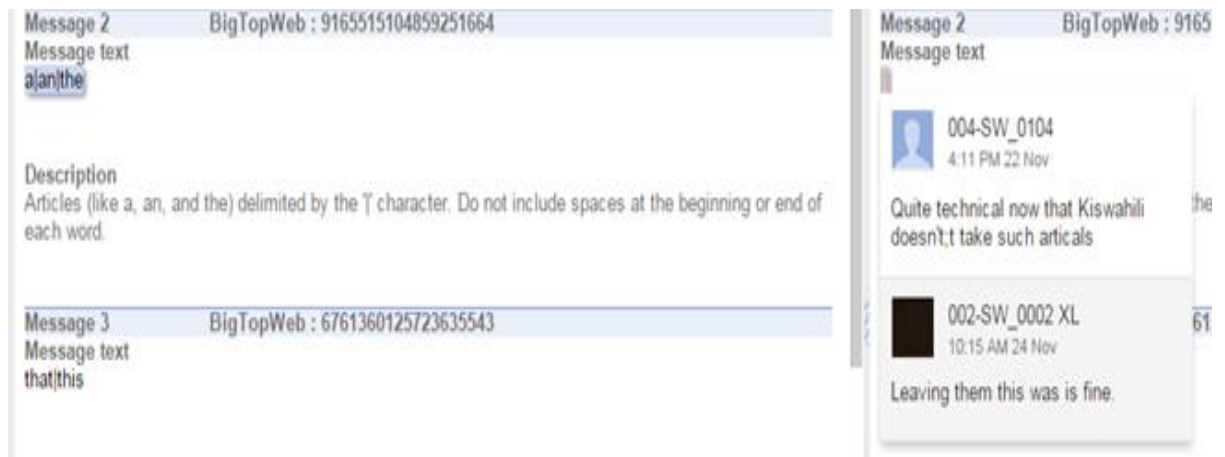


Figure 3.12: A screenshot of a response to a query.

Source: GTT

Above is an example of a query filed where message 2 is made up of English articles “a/an/the” with no other text. The translator ID 004-SW-0104 files a query asking for guidance on how to deal with the text now that Kiswahili language doesn’t take such articles. The senior translator in his advice recommends that the text be left with only the punctuation marks

3.15 Conclusions

In this chapter, we discussed the strategies and procedures used in localising lexical and terminological units (LTUs) from English to Kiswahili. The existing localisation models: mechanical, cultural and political were also explored because different models led to a different translation strategies in the localisation process.

The role of the localisation translators as transcreators and, adapters of texts for the target recipients and generally mediating meaning and culture between the SL and TT was discussed. This is because it was revealed that despite the many localisation resources (glossaries, term banks, TMTs, it is seldom the case that the author of the ST will supply

the localisation translator with the entire context and enough of such resources needed to accomplish the task of localisation. Even when equivalents are provided by the CAT tool and other language resources, sometimes such equivalents may not be adequate and may call for the localisation translator to rely on a host of competencies to coin an equivalent that is fully communicative. Secondly, CAT tool equivalents for example are based on mechanical analysis of the text rather than understanding of it. Therefore, the importance of the localisation translator was to evaluate such equivalents and if they were not fulfilling the *skopos* of the ST, they looked for a better term.

The findings of the study are in agreement with Nida and Taber 4 (2003), who argues that for any linguistic unit in the SL there is an equivalent unit in the TL and that the localisation translator's role as an expert in the translatorial action was to find or produce that equivalent. It emerged that in a number of occasions, one-to-one lexical or terminological equivalence was not possible due to fact that English has a larger lexicon than Kiswahili. Consequently, called for compensatory problem-solving strategies that explication, paraphrase, simplification or modifying the original text at a certain point (Stolze 1993). Nevertheless, when translation was viewed with a communicative angle, and if the purpose of a translation is the conveyance of referents from an SL to a TL in which these referents do not exist, the localisation translator's role in such circumstances is to produce the closest natural equivalent of English (SL) in Kiswahili (TL).

The study revealed that borrowing was employed more than other translation strategies where terms were transferred either in pure or naturalized form. This paralleled studies by

Molina, Albir, (2002) and Byne, (2014) who found that terminology of computer science is almost universally understood and accepted in its predominantly English form. An interesting phenomenon, however, is the fact that new English scientific and technical terms are assimilated into Kiswahili language and become part of the active language of the general populace.

CHAPTER FOUR: THE ANALYSIS OF *SKOPOS*, TRANSLATION METHODS AND STRATEGIES IN LOCALISED SOFTWARE PRODUCTS

4.1 Introduction

This chapter focuses on finding the *skopos*, the types of translation methods and strategies used in localizing Google's software products in Kiswahili and how the translation methods and strategies function and shape the localisation. The chapter compares the *skopos* the ST with that of the TT in order to determine if the localisers achieved the intended purpose (*skopos*) of the localisation within the given situations. Functional approach to translation by Reiss, Vermeer, and Nord are used along with translation methods and strategies analysis to see how different translation methods and strategies used helped to achieve the *skopos* of the translation.

4.2 Text Functions in a Localisation Process

Taking as a point of departure the hypothesis that translated texts have to "function" in the target situation for which they are produced by serving the *skopos* they are intended for, it is argued that the translator has to reconcile the conditions of functionality prevailing in the target culture with the communicative intentions of the source (Nord 1995: abstract). There are several models which could be used as a frame of functional analysis of translated text in a localisation process. I suggest that in analyzing the data we use a combination of models elaborated by Jakobson (1960), Nord (1997); and Newmark (1988) thereby establishing four basic text functions. We also propose several sub-functions within each function:

4.2.1 Referential Function

Referential function deals with reference to objects and phenomena being described in the localised products. According to Nord (1997:48), referential function of a text works in target culture if three conditions are satisfied: if textual information is sufficient, if ST object is familiar to TT receiver or if ST sender and TT receiver share sufficient amount of knowledge. Referential function has some sub-functions includes informative, teaching and instruction.

The core of the informative function of a text is external situation, the facts of a topic, reality outside language, including reported ideas or theories (Newmark 1988:40). For the purposes of localisation, typical informative texts are concerned with any topic of knowledge ranging from information about products and their functionalities, promotions, customer care and so on. Informative function is the predominant function in most translated texts in the localised products.

<p>(1) View a list of Google+ Collections accessible to you and information about them such as the name and cover photo, but not the posts inside</p>	<p>Angalia orodha ya Mikusanyiko ya Google+ unayoweza kufikia na maelezo kuhusu kama vile jina na picha ya jalada, lakini si machapisho yaliyomo</p>
<p>(2) Collections that promote hatred or violence based on race, ethnic origin, religion, disability, gender, age, veteran status, sexual orientation, or gender identity are not allowed</p>	<p>Mikusanyiko inayoendeleza chuki au unyanyasaji unaohusiana na rangi, kabila, dini, ulemavu, jinsia, umri, hali ya uraia, mwelekeo wa kingono, au utambulisho wa jinsia hairuhusiwi.</p>
<p>(3) European Union laws require you to give European Union visitors information about cookies used on your blog. In many cases, these laws also require you to obtain consent. As a courtesy, we have added a notice on your blog to explain Google's use of certain Blogger and Google cookies, including use of Google Analytics and AdSense cookies. You are responsible for confirming this notice actually works for your blog, and that it displays. If you employ other cookies, for example by adding third party features, this notice may not work for you. Learn more about this notice and your responsibilities.</p>	<p>Sheria za Muungano wa Umoja wa Ulaya zinahitaji uwape wanaotembelea tovuti kutoka eneo la Umoja wa Ulaya maelezo kuhusu vidakuzi vinavyotumiwa kwenye blogu yako. Mara nyingi, sheria hizi pia hukuhitaji upate ruhusa. Kwa hisani, tumeongeza arifa kwenye blogu yako ili kueleza matumizi ya Google ya baadhi ya vidakuzi vya Blogger na Google, ikiwa ni pamoja na matumizi ya vidakuzi vya Google Analytics na AdSense. Una jukumu la kuthibitisha ikiwa arifa hii inafanya kazi ipasavyo kwenye blogu yako, na kwamba inaonekana. Ukitumia vidakuzi vingine, kwa mfano, kwa kuongeza vipengele vya watu wengine, huenda arifa hii isifae. Pata maelezo zaidi kuhusu arifa hii na majukumu yako.</p>
<p>(4) Spam takes several forms in Blogger, all of which can result in deletion of your account or blog. Some examples include creating blogs designed to drive traffic to your site or to move it up in search listings, posting comments on other people's blogs just to promote your site or product, and scraping existing content from other sources for the primary purpose of generating revenue or other personal gains.</p>	<p>Taka ni za aina mbalimbali katika Blogger, zote zinaweza kusababisha ufutaji wa akaunti au blogu yako. Baadhi ya mifano ni pamoja na kufungua blogu zilizoundwa kuendesha trafiki kwenye tovuti yako au kuisogeza juu katika orodha ya utafutaji, kuchapisha maoni kwenye blogu za watu wengine ili tu kukweza tovuti au bidhaa yako, na kuchapisha maudhui kutoka nyenzo nyingine kwa madhumuni msingi ya kuzalisha mapato au manufaa mengine ya kibinafsi.</p>

Table 4.1: LTUs performing referential function

In (1) the translator has translated “view” as *angalia* instead of *kuangalia*. This he does despite the description in the message that this was an Application programming Interface (API) text which did not require to be rendered in an imperative tone because by doing so the localiser missed out on the referent which is a programme and not a person. On that account therefore, we can say that the rendition did not fully achieve the informative function. In the second example, information is given concerning some of the conditions to be adhered to when one is creating a Collection in his/her blog. Most of the terms are localised with adequate equivalents in Kiswahili. However, the terms in bold have translation issues that have potential to affect the overall achievement of the text purpose and function. The term *unyanyasaji* which the localiser gives as the equivalent for “violence” has a one-to-one equivalent in English, which is “exploitation”.

For many software users who have some understanding of English, they sometimes rely on back-translation as an aid to understanding Kiswahili terms. If this was the case, then the localiser’s wrong choice of terminology would hamper the understanding of the ST. The other one in the same text is “veteran status” which is localised as *hali ya uraia* which is back-translated as “nationality status”. Again, this is not correct because “veteran status and “nationality status” are not synonyms. The former in fact has a cultural reference and is mainly used in the USA to mean someone who has been a soldier, sailor et cetera in a war (in fact, a war in which the US military was engaged). If one didn't serve, then their status is negative; if they served, then their status is positive. So, if this is specific to the US, then the localiser would simply have left it out since omission is an acceptable strategy to deal with non-equivalence in translation. If s/he

feared the risk of leaving it out then an appropriate cultural equivalent or literal translation (*hali ya kuwahi kuwa mwanajeshi*) would have been other options.

In (4) the ST *skopos* is to describe what a spam is and to bring to the attention of the blogger some of the things that can result to his/her blog being deleted by the administrators. The rendition in Kiswahili achieves the *skopos* of the original to a very large extent. Nevertheless, there are a few lexical equivalents that undermine achievement of the same text *skopos* because of different reasons. First, the choice of *taka* as the equivalent of spam presents a problem. English dictionaries make a clear explanation of what spam is, that is, irrelevant and unsolicited message or email sent over the Internet to a large number of recipients. In Kiswahili, the case is quite different because the word which in fact is homonym means “dirt”, “filth” or “rubbish” and that is what comes immediately to the mind of any user when they hear the word. Of course the localisers can argue that this is a neologism where an existing word is assigned a new sense but still culturally, *taka* has a negative connotation and it can be very difficult for many users within the Kiswahili speaking locale to appreciate that it can be associated with a mail or message. The best way to mitigate this would be to qualify the term by putting the noun ‘*barua*’ to coin *barua taka*.

The other term is “drive traffic” [to your site] which is rendered literally as *kuendesha trafiki* [*kwenye tovuti yako*]. The sense that the ST writer wanted to bring out from his usage of the word “drive” was “to direct” and not to “propel” as the localiser understood it. In this case, the best the best equivalent would simply have been *kuelekeza watumiaji*

[*kwenye tovuti yako*] since the ‘traffic’ in reference here are the users who visit the website. This means then that translating the English word “traffic” as *trafikiki* is erroneous because in Kiswahili, most of the time *trafikiki* (naturalized from “traffic”) is construed by many to mean vehicles in transit. In this case, the message in that text segment is missed out. “Primary purpose” is rendered as *madhumuni msingi*. Though correct, it is ambiguous since it can bring out the sense of “primary”, “main” or “principal” or even “basic”. In order to disambiguate the term, the localisation translator would have used *madhumuni makuu* because *makuu* cannot mean anything else except ‘main’ which was the sense in the ST.

Giving instructions is another sub-function of the referential text function. This sub-functions emanates from the fact that IT has a lot of commands that necessitates the software writers to give instructions to the users on how, when, what to do in order to complete a certain task; how to use ever emerging products and functionalities etc. In Kiswahili instructive function is located in most of the renditions that have “*ili*” (to, so that, in order etc).

(1) Enable Google Voice SMS to reply	Washa huduma ya SMS za Google Voice ili ujibu
(2) Please open Settings, Privacy, Location to enable Hangouts.	Tafadhali fungua Mipangilio, Faragha, Mahali ili uwashe Hangouts.
(3) Leave Hangout and permanently delete history	Ondoka kwa Hangout na ufute historia daima

Table 4.2: LTUs performing instructive function

Rendition of the word “reply” in (1) has not achieved total instructional function because the user is provided with context about what s/he is replying. This is because whereas in English, the term “reply” explicitly refers to a written text, in Kiswahili, *jibu* could be in reference to either an SMS or even a phone call. However in (2) the instruction is clear both in English and Kiswahili thus achieving the instructional function intended by the ST. In (3) the referent here is an instruction to a user who was on Hangout to end the call. The word ‘kwa’ in the translation is grammatically incorrect. The preposition *kwa* is only used to mean 'in' or 'at' for something owned by a human being, for example *kwa Juma*, (at Juma’s), and never *kwa hoteli*, *kwa shule* and the like. It’s use can cause confusion to the user who might think Hangout’ is animate.

4.2.2 Expressive Function

Expressive function is concerned with expression of sender's attitude or feelings towards the objects or phenomena dealt with in the text. The text normally contains personal components that constitute the 'expressive' element (Newmark 1988:40).

The expressive function expresses feelings which could be emotions such as in interjections of joy, love or disappointment. Unlike the informative function that is more focused on the receiver, expressive function is focused on the sender and the ST, and aims at direct expression of the speaker's attitude toward what s/he is speaking about.

The following are examples:

English Texts	Kiswahili Equivalentents
(1) Oops , an error occurred while rescheduling the reminder.	Lo Hitilafu imetokea wakati wa kuratibu kikumbusho upya.
(2) Viking saying ouch sticker	Kibandiko cha Viking anayesema oii
(3) Operation cancelled. Phew .	Utendaji umeghairiwa. Phew!
(4) Ok, got it!	Sawa nimeelewa!

Table 4.3: LTUs performing expressive function

In the examples above, the expressive function of the interjections in Kiswahili is achieved in varying degrees in the various text segments. In the first segment, "oops", is translated as *Lo*. Although this is the formal equivalent for the LU, the translator forgot to put an exclamation mark after the LU as is the norm for Kiswahili interjections.

Therefore the translation can be said to have achieved some level of expressive function on the account of providing the right lexical equivalent. However, it misses out on style by failing to put an exclamation mark (*Lo!*) after the word as is the norm in Kiswahili interjections. In the second text segment, the translator left the interjection “phey” untranslated and thus failed totally to achieve the expressive function because s/he failed to consider that phoneme 'ph' does not exist in Kiswahili phonology, and therefore such an intonation would be alien to a Kiswahili user. The translation is also not followed by an exclamation as is the norm with Kiswahili interjections. The right interjection in Kiswahili would be *aah!* which expresses the feeling of disappointment. The third example where “ouch” is translated as *oii* which is correct because the inner feeling being expressed ST and TT is surprise.. However the fourth example can be said to have achieved full expressive function because both ST and TT have an expressive function. The original English ST expresses a personal emotion seen from the way English speakers express their contentment once they have understood something. Kiswahili rendition in this case avoids rendering “got it” literally as *nimepata* which would be taken to mean many things including “I have answered correctly”, “I have received” and so on. Had that been the case then the text function would not have been achieved in a natural way as achieved by the word *nimeelewa*.

In addition to expressing emotions, expressive texts express evaluation for example in appraisal of an item of information in terms of its credibility, reliability, accuracy and other attributes. This function is particularly common with texts that appraise new software products as a marketing strategy to woo buyers to purchase them. Direct

markers of the expressive function would be features like linguistic or stylistic devices that point to a referential or expressive function, such as superlatives, adjectives or nouns expressing positive values (like "new, awesome").

<p>(1) Beautiful new user interface • New contact list and people search to find the people you care about • New compose button to create 1:1 and group conversations in just a few taps • Show a status message so contacts always know what you're up to • New Hangouts app for Android Wear devices • Receive and reply to Group MMS for Google Voice</p>	<p>• Kiolesura kipya maridadi • Orodha mpya ya anwani na shughuli ya kutafuta watu ili upate watu unaowapenda • Kitufe kipya cha kutunga ili uwasiliane na mtu mmoja au kikundi kwa urahisi • Onyesha ujumbe wa hali ili unaowasiliana nao watambue unachofanya</p> <p>• programmeu mpya ya Hangouts kwa vifaa vya Android Wear • Pokea na ujibu MMS za Kikundi za Google Voice</p>
<p>(2) Get the official Google Calendar app for your iPhone to save time and make the most of every day. • Events from Gmail - Flight, hotel, concert, restaurant reservations and more are added to your calendar automatically. • To-dos on your calendar - Use Reminders to create and view to-dos alongside your events. • A new Schedule View - See your schedule at a glance with photos and maps of the places you're going. • Assists to fill in your calendar - You can quickly create events with smart</p>	<p>Pata programmeu rasmi ya Kalenda ya Google ya iPhone yako ili kuokoa muda na kufanya mambo zaidi kila siku. • Matukio kutoka Gmail - Safari za ndege, hoteli, tamasha, kuhifadhi nafasi katika mkahawa na zaidi huongezwa kwenye kalenda yako kiotomatiki. • Majukumu utakayoyafanya yaliyo kwenye kalenda yako - Tumia Vikumbusho kuunda na kuangalia majukumu utakayoyafanya sambamba na matukio yako. • Mwonekano mpya wa Ratiba - Angalia ratiba yako kwa kuchungulia tu pamoja na picha na ramani za mahali unapoenda. • Husaidia kujaza</p>

<p>suggestions for event titles, places and people. • Different ways to view your calendar - Speedily switch between viewing a single day to getting an overview of multiple days at once. • All your calendars in one, easy place - Google Calendar works with all calendars on your phone, including Exchange and iCloud.</p>	<p>kalenda yako - Unaweza kuunda matukio haraka yakiwa na mapendekezo mahiri ya vichwa vya matukio, mahali na watu. •Njia tofauti za kuangalia kalenda yako - badili kwa haraka kati ya kuangalia siku moja hadi kupata muhtasari wa siku nyingi kwa wakati mmoja. •Kalenda zako zote, mahali pamoja rahisi, - Kalenda ya Google hufanya kazi na kalenda zote zilizo kwenye simu yako, zikiwemo Exchange na iCloud.</p>
<p>(3) Good news! You can earn money right now by placing ads on your blog using AdSense. Your blog has been approved for AdSense fast tracking, a simplified sign up process for established bloggers with good traffic. Based on your current page views, you could earn up to per month. Join over 6.5 million other blogs making money using AdSense. Learn more about adding Google AdSense.</p>	<p>Habari njema! Unaweza kujipatia fedha sasa hivi kwa kuweka matangazo kwenye blogu yako kwa kutumia AdSense. Blogu yako imeidhinishwa ili ipitishwe haraka kwenye AdSense, kupitia mchakato rahisi wa kujisajili kwa wanablogu wanaojulikana na wenye trafiki nyingi kwenye blogu zao. Kulingana na mara ambazo ukurasa wako unatazamwa, unaweza kulipwa hadi kwa mwezi. Jiunge na blogu nyingine zaidi ya milioni 6.5 ambazo zinajitengenezea pesa kwa kutumia AdSense. Pata maelezo zaidi kuhusu namna ya kuongeza Google AdSense</p>
<p>(5) Improved user experience. • New attachments • Send multiple photos at once.</p>	<p>• Matumizi yaliyoreshwa. • Viambatisho vipya •Tuma picha nyingi kwa wakati mmoja.\n</p>

Table 4.4: LTUs performing expressive function

The message in (1) is meant to appraise Hangouts by describing some of its features that are unique compared to other social media platforms. Kiswahili rendition of various LTUs is by a very large extent adequate in terms of achieving the text function of the ST. The localiser employed a number of strategies to complement the message and to reduce ambiguity where it appeared to be. For instance s/he added *shughuli* (activity) before *kutafuta watu* (people search) because whereas in English the “people search” is fully communicative, in Kiswahili, the term needed to be qualified with a noun to disambiguate it.

However, some lexical choices in Kiswahili could have compromised achievement of the text function. “New compose button to create **1:1 and group conversations**” is rendered as *Kitufe kipya cha kutunga ili uwasiliane na mtu mmoja au kikundi*. The localiser decided to avoid use of numerals which is fine since it’s not a common stylistic feature in Kiswahili and thus could potentially compromise clarity of the message. Nevertheless s/he failed to understand that “1:1” simply means “one-to-one” which in English it denotes a situation in which two people talk directly. So, the most important thing here is ‘talking directly’ which is far from “*mmoja*” (one) as the rendition in Kiswahili shows. The message segment in that text fails to achieve full *skopos* on account of that. The correct rendition would be *Kitufe kipya cha kutunga ili uwasiliane na mtu moja kwa moja na pia kikundi*.

In the same breath, “Receive and reply to Group **MMS** for Google Voice” is rendered as *Pokea na ujibu **MMS** za Kikundi za Google Voice*. The term in bold which is an acronym is transferred verbatim because according to the translation brief in the localisation Style Guide, acronyms and abbreviations that are industry accepted or widely known are to be left untranslated. The problem arises from the fact that whereas acronyms like SMS, GB, MB are well understood by majority of users, this may not necessarily be the case with “MMS”.

4.2.3 Appellate Function

This function is directed at the receiver's sensitivity or disposition to act and to induce users to respond in a particular way (Nord 2006:138). Newmark (1988:41) says that the core function here is 'calling upon' the readership to act, think or feel, in fact to 'react' in the way intended by the text.

Appellative function in software is very prominent in texts that aim at marketing new software products where the seller of these products is calling upon the prospective buyers or users to try them out. This calling upon is done through illustrations by way of giving examples, advertisements, teaching and pedagogy, persuasions and so on. Let us examine the following examples:

<p>(1) URL must be entered in full. (example: www.google.com).</p>	<p>URL sharti iingizwe kikamulifu. (mfano: www.google.com).</p>
<p>(2) With Auto Enhance, landscapes pop, subjects look sharper, and people instantly look their best. If you don't like the changes, it's easy to undo them.</p>	<p>Unapotumia Uboreshaji wa Kiotomatiki, mandhari huonekana vizuri zaidi, yaliyo kwenye picha huonekana vizuri, na watu huonekana wameng'ara zaidi mara moja. Kama hupendezwi na mabadiliko, ni rahisi kuyaondoa.</p>
<p>(3) One home for all your photos</p>	<p>Mahali moja kwa picha zako zote</p>
<p>(4) Google+ Photos keeps all your images safe and sound and easy to find.</p>	<p>Picha za Google+ huweka picha zako salama na rahisi kupata.</p>
<p>(5) Don't feature my publicly-shared Google+ photos as background images on Google products & services.</p>	<p>Usiangazie picha zangu nilizoshiriki hadharani kwenye Google+ kama picha za mandhari-nyuma kwenye bidhaa na huduma za Google.</p>
<p>(6) We recommend that you do this every week, between 10AM - 2PM on weekdays.</p>	<p>Tunapendekeza ufanye hivi kila wiki, kati ya saa nne asubuhi na saa nane mchana katika siku za kazi.</p>
<p>(7) Photo organization uses face grouping technology. Learn more</p>	<p>Upangaji Picha hutumia teknolojia ya kuweka nyuso katika makundi. Pata maelezo zaidi</p>
<p>(8) Use this special offer to run an ad online with AdWords Express.</p>	<p>Tumia ofa hii maalum kuonyesha tangazo mtandaoni ukitumia AdWords Express.</p>
<p>(9) Use 'Hangouts On Air' from your laptop to broadcast a video recording of your business or your team in action.</p>	<p>Tumia Hangouts Hewani kutoka kompyuta yako ndogo kutangaza video ya biashara yako au timu yako ikifanya kazi.</p>
<p>(10) All your calendars in one, easy place - Google Calendar works with all calendars</p>	<p>Kalenda zako zote, mahali pamoja rahisi, - Kalenda ya Google hufanya kazi na kalenda</p>

on your phone, including Exchange and iCloud.	zote zilizo kwenye simu yako, zikiwemo Exchange na iCloud.
Outbound Caller ID - people who you call will see your verified number when you call them (no more appearing as Unknown!) Improved usability - complete calls through Hangouts Dialer from more apps New material Dialer UI	Kitambulisho cha Simu ya Nje - watu utakaowapigia simu wataona nambari yako iliyothibitishwa utakapowapigia simu (hakuna kuonekana tena kama Asiyejulikana!) Urahisi wa kutumia ulioboreshwa - kamilisha kupiga simu kupitia Simu za Hangouts kutoka programmeu zaidi UI muhimu mpya ya Kipiga simu
(11) Beautiful new user interface. New contact list and people search to find the people you care about. New compose button to create 1:1 and group conversations in just a few taps. Show a status message so contacts always know what you are up to. New Hangouts app for Android Wear devices Receive and reply to Group MMS for Google Voice	Kiolesura kipya maridadi Orodha mpya ya anwani na shughuli ya kutafuta watu ili upate watu unaowapenda. Kitufe kipya cha kutunga ili uwasiliane na mtu mmoja au kikundi kwa urahisi. Onyesha ujumbe wa hali ili unaowasiliana nao watambue unachofanya programmeu mpya ya Hangouts kwa vifaa vya Android Wear Pokea na ujibu MMS za Kikundi za Google Voice

Table 4.4: LTUs performing appellative function

In order to illustrate functionality of an Application by an example, something known to the user is used. In example (1) it is expected that any Internet user knows how to search the Internet by inserting a full URL. This knowledge is then used to illustrate how to search in the case of the App in reference. Kiswahili has rendered the example verbatim as www.google.com because this is just an illustration which appears to be the most neutral equivalent stylistically and even culturally.

Sometimes the software product vendors wish to persuade people to do this or that regarding particular products. In this case, they appeal to their reason. In message (6) the message sender is appealing to a business owner by way of recommending to him/her to share what's in his/her mind, about his/her business so that Google may show it when people search the business. Kiswahili rendition has achieved the same function as far as showing time is concerned because the localiser was keen to render time correctly in Kiswahili.

The localiser bore in mind that Kiswahili time runs from dawn to dusk, rather than midnight to midday. 10.00am and 2.00pm are therefore both ten o'clock and two o'clock respectively. But words '*asubuhi*' and '*mchana*' are used to denote morning and afternoon respectively. However, whereas achievement of text function can be said of time, this may not be the case for the "week days". The localiser rendered this term as *siku za kazi* which when back translated it yields "working days". The problem arises here when one argues that "week days" and "working days" may not necessarily be synonyms especially when looked at using cultural lens. In some cultures, "weekdays" are the days from Monday to Friday, as opposed to the weekend. On the other hand some other cultures take "working days" to mean any day of the week except Sunday and statutory holidays.

The next function of appellative texts is that of advertisement where software product vendors appeal to potential buyers of their products by describing those qualities of the product that are presumed to have positive values in the receivers' value system. This function is evident from our data in example (9) and (10). In (9), the sender of the

message is advertising a new Google+ product called 'Hangouts On Air' by describing one of its unique functionalities, that is, one can broadcast a video recording of their business or their team in action straight from their laptops.

In (10) Google users are being appealed to to buy a new product called Google Calendar which is said to sync all calendars in one, and is accessible on one's phone, including Exchange and iCloud. The rendition in Kiswahili has achieved the *skopos* of the ST save for "Hangouts On Air" which is rendered as *Hangout Hewani*. In spite of the fact that this is the right equivalent, the context in which it is used presents substantial amount of ambiguity because one is not able to tell that *Hangout Hewani* is a an App and not just a service. In fact for someone who is not keen on grammar to even guess that this is a proper noun from the use of capitalization in both words, they might just think *Hangout Hewani* is just any other noun phrase. This is not the case with the English term which at least is put in single quotation marks to denote that first this is a proper noun and from experience, be able to deduce that it is a software product or an App.

The overall function of the message in example (11) is to persuade potential buyers that the new App has Outbound Caller ID so that people who you call are able to see caller's verified number instead of appearing as 'Unknown'. It is agreeable that all the lexical units in that message are rendered properly in Kiswahili. However, "Caller ID" which appears to carry the core of the message has been rendered as *Kitambulisho cha Simu ya Nje* which when subjected to BTT, it yields "Outbound Call Identity". Thus, what is being identified in the Kiswahili rendition is the 'call' itself and not the 'caller' as is the

case with the ST. This compromises the *skopos* of the TT and consequently fails to achieve the text function as it is in the ST.

In conclusion, appellative and informative functions form the bulk of the texts in Google software products. This is understandable owing to the fact that, as said in Chapter One, the greatest motivation of localisation is marketing and the best way to do so is by firstly, providing sufficient information about the software products on offer in the market and secondly, convincing buyers and users to buy them by appealing to their tastes, likes et cetera. Direct evidence of appellative text is features like imperatives or modal verbs like “must” or “should” which are many in all the software products.

4.2.4 Phatic Function

The phatic function aims at opening and closing the channel between sender and receiver, and making sure the channel remains open as long as sender and receiver want to communicate. It also defines and models the social relationship holding between sender and receiver (Nord 2013:135). In localisation, phatic function of the localised texts is used for maintaining friendly contact with the software user rather than for imparting information. Apart from tone of voice, it usually occurs in the form of standard phrases, or 'phaticisms (Newmark 1988:43). These are messages primarily serving to establish, to prolong, or to discontinue communication, to attract the attention of the interlocutor or to confirm his continued attention (Jakobson1985:115).

Phatic function is not as common as other functions in localised texts and this can be attributed to the fact that most of the texts are technical and there is very little direct interaction between the ST writers and the TT receivers. However, in social media products such as Google+ and Blogger, there are examples of use of phaticisms which we can group into two according to classification by Nord (2007):

The first one is the Salutational phaticisms such as the ones in the following texts:

<p>(1) Hello, Blogger has been notified, according to the terms of the Digital Millennium Copyright Act (DMCA), that certain content in your blog is alleged to infringe upon the copyrights of others. In this case the content concerns BLOG_URL. As a result, we've been forced to remove your blog for violating our policies. A bit of background: the DMCA is a United States copyright law that provides guidelines for online service provider liability in case of copyright infringement. If you believe you have the rights to post the content at issue here, you can file a counter-claim. For more information on our DMCA policy, including how to file a counter-claim, please see https://support.google.com/legal/answer/1120734.</p>	<p>Hujambo, Blogger imearifiwa, kulingana na Sheria ya Millennium ya Hakimiliki Dijiti (DMCA), kwamba maudhui fulani kwenye blogu yako yanadaiwa kukiuka hakimiliki za watu wengine. Katika muktadha huu, maudhui yanahusu BLOG_URL. Kutokana na haya, tumelazimika kuondoa blogu yako kwa kukiuka sera zetu. Maelezo machache: DMCA ni sheria ya hakimiliki ya Marekani ambayo hutoa mwongozo wa uwajibikaji wa mtoaji huduma ya mtandao iwapo kuna kesi ya ukiukaji wa hakimiliki. Ikiwa unaamini kuwa una haki za kuchapisha maudhui yanayohusika hapa, unaweza kutuma arifa kinzani. Kwa maelezo zaidi kuhusu sera yetu ya DCMA, ikiwa ni pamoja na namna ya kuwasilisha arifa kinzani, tafadhali angalia https://support.google.com/legal/answer/1120734.</p>
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(2) Hi , Work smarter with Gmail and Google	Hujambo , Tumia Gmail na Google vizuri
(3) Hello , Blogger has been notified, according to the terms of the Digital Millennium Copyright Act (DMCA),	Hujambo , Blogger imearifiwa, kulingana na Sheria ya Millennia ya Hakimiliki Dijiti (DMCA)

Table 4.5: LTUs performing phatic function

Salutations are an important part of communication. They tell the other person that “I feel friendly about you” and they are maybe the start of a long conversation. Although there are many ways to salute people in English such as “hello”, “hi”, “how are you”, “hey”, “how are you rubbing”, “greetings” et cetera, our findings show that only two salutations are used in the source texts, that is, “hello” and “hi”. The rationale behind this is that whereas “hi” and “hello” are standard greetings for most English speaking locales, others such as “hey”, and “how are you rubbing” are cultural phaticisms which would require cultural equivalents in Kiswahili. Although there are such equivalents in Kiswahili, like *u hali gani* (how are yo?), *je, la utu?* (do you have any problem?) localisers general greetings, *hujambo* is used all through perhaps because it does not apply to any specific time of the day. The rationale of this is the user of the products can use them at any time of the day.

Such a problem is not even called for bearing in mind that the main function of the salutations in the ST is simple: calling upon or getting attention of the software user. As (Nord 2007: 171) puts it, is an empirical fact that the phatic function relies more on culture-specific conventions than any other function in communication. This means that translation can only work properly if the receivers recognize phatic elements as such.

Therefore, adaptation to target-culture conventions may very often be the best way to make sure that the phatic function "works" for them. Both ST salutations (hi and hello) are rendered as *hujambo* which is not only a general salutation for getting people's attention in Kiswahili but also the most culturally neutral salutation.

There are other phatic texts that aim at opening the communication channel with the software user and also winning his/her the confidence. The example below demonstrates this function where the compound word "thank you" in real sense is not used to express appreciation for what the addressee has done but rather to introduce the subject, that is they are doing something to respond to his/her request. Since the word is standard, it is rendered by a standard equivalent - *asante*.

<p>(4) Thank you for your report. We've processed your submission and have taken the valid URLs offline and alerted the content owner. We've also sent an email confirmation of this report to you as well as the Lumen Database clearing house. A summary of this submission is outlined below.</p>	<p>Asante kwa ripoti yako. Tumechakata wasilisho lako na kuondoa URL sahihi mtandaoni na tumemjulisha mmiliki wa maudhui. Tumekutumia barua pepe ya kuthibitisha upokeaji wa ripoti hii na tumetuma barua pepe hiyo pia kwa ofisi ya kupitisha Hifadhidata ya Lumen. Muhtasari wa wasilisho hili unapatikana hapo chini.</p>
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Table 4.6: LTUs performing phatic function

The other example of phatic function of the localised texts includes maintaining the communication.

(5) Of course, undoubtedly *bila shaka*

The example above (5) does not perform any other function other than ensuring that the communication remains open.

To conclude, Reiss () argues that the phatic function is realized in all the other basic forms of communication, and that it does not lead to particulars of the text construction. For instance in example (1) the user is being informed that Blogger has been notified, according to the terms of the Digital Millennium Copyright Act (DMCA), that certain content in his/her blog is alleged to infringe upon the copyrights of others and that the administrators have been forced to remove his/her blog for violating our policies: informative text that starts with phatic function. The last part of the text is an appeal to the user to visit the URL given for more information: appellative function. Furthermore,

although we have shown LUs and LTUS performing specific functions in a text, Newmark (1988:42) notes that, few texts perform purely a single function: most include two or more functions, with an emphasis on one of them. For example:

Improved user experience. • New attachments • Send multiple photos at once.	• Matumizi yaliyoboreshwa. • Viambatisho vipya • Tuma picha nyingi kwa wakati mmoja.
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Table 4.7: LTUs performing phatic function

In the example above, the text in bold above combines both appellative and referential functions. Appellative because the text is advertising a product and appraising it in a bid to woo buyers to purchase it, and referential because it is giving information about what the app can do.

4.3 Equivalence as Measure of *Skopos*

Equivalence is central in this study because it is closely linked to other important issues and notions in translation studies that we discussed earlier in this chapter. For example, it is central to the notion of various text functions or purposes of communication and suggests ways in which “equivalence of message” may be achieved in relation to the function which is in the original text. If the function is imperative, the translator must make sure that the target reader reacts to the message in the same way as the source reader. Equivalence here, as Baker (2004:) suggests, becomes a function of the *skopos*. Irrespective of changes in the translated version, equivalence is achieved if the target text succeeds in performing the function or purpose the same way it was intended by the source writer.

Before we, analyze equivalence as a measure of *skopos* in translation of software products, let us briefly discuss formal and dynamic equivalences particularly in the light of functions of lexical and terminological units of localised software products.

4.3.1 Formal Equivalence

Our analysis of formal equivalence of translated LTUs is guided by two views. First, that translation is a result or product, faced with two texts one of which is a translation of the other (Bolinger, 1966: 130) and second, a conclusion that translation is the replacement of textual material in one language (SL) by equivalent textual material in another language (TL) or more generally that it is the rendition of a text from one language to another (Bolinger, Ibid: 130). Equivalence would then exist between LTUs. In this view, we analyse data from the premise that for any LTU be it words/lexemes or a combination of words in the source language, there is an equivalent unit in the target language performing the same function as the source text and that it is translator's job to find that unit (Zecchini 2002:247). And as (Ivir 1981:54) points out, it is this formal correspondence holds together the source and target texts.

Formal equivalence was introduced by Catford (1965). It closely corresponds to the linguistic form of the source text. It covers formal relationships which exist when ‘a TL category can be found to have the same place in the SL category for example translating an adjective by an adjective or a noun by a noun. Here are examples:

Term (English)	Equivalent in Kiswahili
Beautiful (adjective)	<i>maridadi</i> (adjective)
Host (noun)	<i>mpangishaji</i> (noun)
Host (verb)	<i>pangisha</i> (verb)

There are many such examples in Google localised products in Kiswahili where an English LTU has a corresponding term in Kiswahili. Textual equivalence on the other hand takes place when the source text is translated by considering its linguistic form (Aulia 2012:1). Textual equivalence in this this research is sought by localisers in one instance: when any TL text or portion of text is observed on a particular occasion to be the equivalent of a given SL text or portion of text for example translating an verb by a phrasal verb. It means that, to get the appropriate equivalence in TL, a translator first try to see the linguistic form of the source text and then find the words with equivalent linguistic form in target language. The following are example from our data.

Term (English)	Equivalent in Kiswahili
Bold (adjective)	<i>-liyokolezwa wino</i>
Index (verb)	<i>nakili katika faharasa</i>
Hashtag (noun)	<i>lebo ya reli</i>

In all the three examples above, the linguistic form of Kiswahili as the TL does not allow to take a single word as equivalents of the three English LTUs. Such LTUs are many and affect all parts of speech. It is important to note that in a few instances, a phrase made up of two or three English words is given Kiswahili equivalent of fewer words, still to conform to Kiswahili structure, as in the case of the following examples:

Term (English)	Equivalent in Kiswahili
Fill out	<i>jaza</i>
Introduce yourself	<i>jitambulise</i>
Like the page	<i>penda ukurasa</i>

In the above examples, ‘fill out’ which is an English phrasal verb is translated as *jaza* in Kiswahili which is its textual equivalent. The equivalent for ‘introduce yourself’ on the other hand is *jitambulise* whereby because Kiswahili ...’yourself is represented by affix ‘*ji*’. In the third example, ‘the’ is left out in the translation because Kiswahili does not take articles.

4.3.2 Dynamic Equivalence

The second view is where we will look at translation equivalence with a dynamic view so that we look at it as a process rather than as a result. Here, then we will be speaking about substituting messages in one language for messages in some other language (Jakobson, 1959: 235) or reproducing in the receptor language the closest natural equivalent of the message of the source language (Nida, 1969: 495).

This later view of translation is the communicative view, and it sees, translation equivalence not as a static relationship between pairs of texts in different languages but rather as a product of the dynamic process of communication between the sender of the original message and the ultimate receivers of the translated message via the translator (Nida, Ibid). Under this view, what is held as equivalent are not LTUs but rather messages.

English Term	Kiswahili	Kiswahili
	Dynamic	Formal
	Equivalent	Equivalent
(1) Enter	<i>Weka</i>	<i>Ingiza</i>
(2) Enable	<i>Washa</i>	<i>Wezesha</i>
(3) Message	<i>Barua pepe</i>	<i>Ujumbe</i>
(4) Got it!	<i>Nimeelewa!</i>	<i>Nimepata!</i>
(5) Home	<i>Mwanzo</i>	<i>Nyumbani</i>
(6) Guest	<i>Aliyealikwa</i>	<i>Mgeni</i>

In seeking to communicate, in the target-language communicative situation, a message equivalent to the one received in the source language, the translator – as noted earlier – has at his disposal a different potential set of linguistic devices than that used for the coding of the message in the source language (Ivir 1981:57).

There are three matters, based on this, which we are looking at in analyzing equivalence of the lexical and terminological equivalents in the above examples as Larson (1984) discusses them. First, the concepts in the source text which in our case is English are known (shared) in the receptor language (Kiswahili), but which are translated by a non-literal equivalent. In example (1) ‘Learn more’ is translated as *pata maelezo zaidi* in Kiswahili. In this case, ‘learn’ is not translated as *jifunze* which is its formal equivalent but as *pata* (Get) because the sense in that term is that the software user is being asked to click on a link to ‘get’ more information about what s/he had just read. Similarly, in example (2) “enable” here is used to mean to turn on functionality for example of an App such as Hangouts. It does not in any way mean to provide with means, ability or

opportunity which is the encyclopedic meaning of the English term. This understanding prompts the localiser to use *washa* which means “turn on” instead of the formal equivalent *wezesha* (enable). Example (3) brings out this argument even in a clearer manner. The sentence “This **message** could not be encrypted.” is translated as *Barua pepe* (email) *hii haingeweza kusimbwa*. In this case, the term “message” which in all Google products is rendered with its formal equivalent as *ujumbe* is this time rendered as *barua pepe*. This is because the context provided is clear that the message is in the form of an email.

4.4 Evaluating *Skopos* Based on Typologies of LTUs (based on Baker (1992))

Text type is an important factor in deciding how much a translation should be equivalent as well as other factors such as translation purposes, demands of the clients and expectations of the target readers. When evaluating *skopos* on the basis of equivalence, the following were found to be the common possibilities:

- i. A certain LTU in the source language has one known equivalent in the target language.
- ii. A certain LTU in SL has a whole range of equivalents in the TL
- iii. A certain LTU in SL has no equivalent in the TL
- iv. A certain LTU has a peculiar meaning
- v. A certain LTU has a peculiar stylistic usage
- vi. Grammar rules apply in rendition of the target language term
- vii. The target language lacks a specific term
- viii. A certain LTU has a cultural connotation

Each of the above possibilities presents translation problems for the translator in a localisation project. Let us now discuss each possibility.

4.4.1 A Source Language LTU with One Known Equivalent

This is what Kade (1968) in Hatim 2014:33) is referring to as a one-to-one equivalence where there is a single expression in the TL for a single SL expression. In such a case, the TL term is fixed, almost cast in stone and cannot be replaced with another.

English Term	Kiswahili Equivalent
Account	<i>Akaunti</i>
Download	<i>Pakua</i>
Page	<i>Ukurasa</i>
Reply	<i>Jibu</i>
Save	<i>Hifadhi</i>

All the above equivalents are common in all Google product glossaries and when checked in all language resources such as bi-lingual dictionaries and glossaries, they are the same. In the case where an English term has a permanent equivalent, this is good for the translator. However, s/he has to deal with one problem. That is, s/he has to know the exact equivalent and be faithful to its use since s/he cannot change it. These equivalents are well shown in the authorized translation resources like general and product glossaries as well as in bilingual dictionaries. Any breach of their use compromises the term's ability to achieve its function in the target language users.

4.4.2 A Source Language LTU with Range of Known Equivalents

In the second scenario, there are English terms with two, three or sometimes more known Kiswahili equivalents as in the case of the examples below.

English Term	Possible Kiswahili Equivalents
(1) Manage	<i>simamia, dhibiti,</i>
(2) Edit	<i>hariri, badilisha</i>
(3) View	tazama, angalia,
(4) Enter	ingiza, weka, andika

Where an LTU in SL has a whole range of equivalents in the TL, the translator is faced with a wide range of translation challenges. First, s/he has to highly rely on context to offer the best equivalent. In the case of (1), for instance, *simamia* and *dhibiti*, are used in very different contexts. “*Simamia*” is used when the phenomena being managed are people to bring out the sense of supervision or managing something like a project. *Dhibiti* on the other hand is for managing inanimate things like Apps or situations. Thus a rendition like *Simamia akaunti yako* for “Manage your account” would be bringing out the sense of supervising one’s account which is nonsensical. The same applies in (2) in the case of *hariri* and *badilisha* where the former is used when modifying videos or photos and the later apply to changes on a document or settings.

The second problem is that the localiser has to adhere to the translation brief (Nord 1997: 30) or the commissioner (Nord 1991: 93) of the localisation project. This is because oftentimes there is no linguistic justification for choice of a certain term over another except that the commissioner of the project in his brief directed that this or that term be used here or there. In (3) for instance the Kiswahili equivalents of the English term are

actually synonyms but which are used in specific contexts as per the translation brief. *Tazama* is used, in reference to graphic things like videos and photos and *angalia* for textual phenomena like a person's profile, an advert, notice or email.

4.4.3 A Source Language LTU with No Equivalent in the Target Language

The other scenario is where a certain term in SL has no equivalent in the TL or what we can otherwise refer to as nil equivalence. This situation is usually brought about by the fact that most of the software on technology and marketing is highly dynamic and ever growing, with new terms coming up each day and which naturally do not come with equivalents in Kiswahili.

Terms like “ransomware” which is a type of malicious software that blocks access to the victim's data and threatens to publish or delete it until a ransom is paid is a very recent phenomena. This then calls for the translator as an expert in translatorial action to find acceptable equivalent for the term and others like it. Whichever strategy s/he opts to coin an equivalent Kiswahili term, is likely to be faced with challenges. Some of available options are rendering the English term by use of a superordinate “*virusi*” (virus). The problem that would arise from such a strategy then would be how would the Internet user differentiate it with other types of viruses like malware or Trojan? The second option would be to coin an equivalent for it. Here, there is a problem still in the sense that the equivalent will be a very unstable neologism known by very few people, perhaps only those who got involved in its coinage, yet this is a very serious threat to Internet users that everyone need to be aware of as fast as possible.

The next option is to naturalize the term and come up with something like “*Ransomwea*” which sounds strange. Yusuf (1994:9) emphasizes the need for a translation equivalent to be natural so that strategy would have defied that principle. The last option would then be transferring the English term as a pure loanword. Although there is a challenge for the users that have no understanding of English at all, this can be mitigated by following it with some explanation in Kiswahili of what it means.

4.4.4 A Source Language LTU with Peculiar Meaning

One of the most difficult problems in technical translations is to get peculiar meanings in different texts and consequently finding translation equivalents for the terms especially if those terms are not listed bi-lingual dictionaries and/or product glossaries.

Peculiar in this research is used in the sense of not having ordinary or usual meaning. Terms with peculiar meaning often have limited range of meanings and present one of the most characteristic features of specialized texts. They are mostly unstable neologisms.

- (1) Dogfood
- (2) Earthworm
- (3) Home

In (1) “dogfood” can easily be construed to mean food that dog feeds on and the localiser if not provided with enough context can render it as *chakula cha mbwa* which is way off the real meaning. Dogfood is actually a *slang* term used to refer to programmes or applications that internal users can use before they are released externally. With that

understanding, it is then justifiable to render it as *jaribio la kindani* which is a form of paraphrase. Similarly, “Earthworm” in (2) is a childish and playful name for the clam shell color that is shown in a tooltip when a user hovers over this color in the color selector and since the color of the clam shell is brown, then it is to be rendered as *hudhurungi*. It cannot be taken to mean those terrestrial worms that burrow into and help to aerate the soil and cannot be localised as *nyungunyungu*. Example (3) is even more common in localised products. Ordinarily, “home” means a residence but in IT, it is a link appearing at the bottom of many UI pages and takes the user to the homepage of the relevant product. Therefore, although there is temptation for many localisers to render it using the formal equivalence “*nyumbani*” the best translation is *mwanzo* (start) which is a dynamic equivalence for the term.

4.4.5 A Source Language LTU with Peculiar Stylistic Usage

In localizing some terms, both content and form are important considerations. However, there are many instances when the form of ST may have SL conventions that may be at so much variance with the TL form so that rendering the form would inevitably obscure the message or sense of the text or term (Hatim et al 2014:08).

Acronyms and abbreviations are an integral part of Google texts and are the ideal candidates in this category. There are English abbreviations with one-to-one Kiswahili equivalents as exemplified below.

- (1) e.g. (for example) - *k.m.* (*kwa mfano*)
- (2) etc. (et cetera) - *n.k.* (*na kadhalika*)

The problem arises when translators try to create their own where none exist for example:

English Abbreviation	Misrendered Kiswahili Equivalent
(1) i.e (that is)	<i>h.n. (hii ni)</i>
(2) AM (after mid-night)	<i>asb (asubuhi)</i>
(3) Ad (advertisement)	<i>Tang (tangazo)</i>

In other instances, some localisers are tempted to translate industry accepted/widely known abbreviations and acronyms such as SMS, 3G, EDGE or MB. These are the acronyms that are identical in the two languages: English and Kiswahili. They occur for the same reason that brings about the use of borrowed terms or loan words generally. One of those reasons is the language contact of various linguistic communities where there is a need to maintain originality or local nuance of the SL text in the TL text. And at times it is simply the case of a weaker culture being subsumed by the stronger one. This is the case with most of the modern IT acronyms. Other times, it is what some people call net culture where as long as one is a user of technology, there are certain terms that are common to all users regardless of their other orientations. One of the problems is borne out of the fact that such acronyms and abbreviations presume knowledge of English on the part of the user or that all the users belong to the net culture which is not always the case.

4.4.6 Grammar Rules Apply in Rendition of the Target Language Term

Another consideration that determines how lexical equivalents are used in localisation is the grammatical system of Kiswahili as the target language. This consideration arises from the fact that Kiswahili differs with English in terms of grammatical elements such as notions of gender, time, number, person and so on. There are many terms that when used, grammar rules like affixation and tenses apply. Kiswahili grammar is characterized by use of nominal clauses which are represented by specific affixes. Oftentimes, these affixes, which are usually prefixes, give the sentence a whole new meaning. In (1) below for instance, without context, a localiser may not tell what is being downloaded – is it a file, an attachment, a Sheet or what? In addition, are they in singular or plural form?

Depending on which noun we are talking about, then the English term “downloaded” can be rendered as *imepakuliwa* (in the case of file), *kimepakuliwa* (in the case of an attachment) or *limepakuliwa* (in the case of Sheet). This is with the assumption that the tense is present perfect, otherwise if it is past tense, prefix **-me-** is to be replaced with **-li-**. Moreover, the localiser will need to determine if the nouns are in plural or singular form in which case s/he has to use appropriate prefixes to denote that. The same applies to (2) whereby the localiser cannot tell if the term is in affirmative form or s/he is referring to a certain noun, in which case the former would be localised as *imeangaziwa* and the later, *iliyoangaziwa*.

English Term	Kiswahili Equivalent
Downloaded	Limepakuliwa
Featured	Imeangaziwa
You can view, search, and organize content	Unaweza ku angalia, ku tafuta, na ku panga maudhui

Table 4.6: Culture-specific LTUs

In (3) terms “view”, “search” and “organize” are translatable as *angalia*, *tafuta* and *panga* respectively. Kiswahili being a very contextual language, a problem might arise rendering these terms in their imperative form in order to have a construction like “*Unaweza ona, tafuta, na panga maudhui*”. Prefix **ku** is to be added to each verb to make it infinitive as Kiswahili grammar would demand.

4.4.7 A Certain LTU has a Cultural Connotation

Considering that Kiswahili is spoken in a large locale, sometimes localisers encounter terms which might have cultural connotation. When this happens, they are supposed to use words that are neutral enough to be enjoyed by users everywhere within the locale. Unfortunately, this is not always the case. Sometimes they are not aware that the terms have cultural connotation so they give equivalents that confuse, or even elicit unintended emotions or reactions.

English Term	Kiswahili Equivalent
(1) Drag and drop	<i>buruta na uangushe</i>
(2) Tap	<i>gonga</i>
(3) Emoticon	<i>kikaragosi</i>
(4) Share	<i>shiriki,</i>
(5) Standard	<i>muundo-msingi</i>
(6) Google effects	<i>madoido</i>

In example (2) “*gonga*” in many cultures within the Kiswahili speaking locale can be construed to mean “beat” and in most cases, with negative connotation. For example, where something or someone is struck forcefully may be to punish or inflict pain to them. This contradicts the *skopos* of the English text which means to lightly tap a touch-sensitive screen. Similarly in (2) “*kikaragosi*” which is the lexical equivalent of “emoticon” carries a cultural ambiguity. *Kikaragosi* is used to refer to a sycophant especially in literary works. If a Internet user construed it to carry this sense, then it would be way off the intended meaning which is, a small visual representation commonly used in chat messages, often of a facial expression. In (4) and (5), the problem is caused by the fact that *shiriki* culturally is commonly used in Tanzania. Most of Kenyan Kiswahili users, the first thing that come to their mind when they hear that word is “participate”. Equally, *muundo msingi* to a Kenyan user can only mean infrastructure and not one of the "view" options in Gmail, which shows the default feature set as the original *skopos* was meant to be.

4.5 Strategies to Overcome Non-equivalence and Achieve the Intended *Skopos*

Lexical and terminological non-equivalence means that the TL has no direct equivalent for the word or term which occurs in the ST. The nature of non-equivalence varies depending on the type and nature of the ST. Different kinds of non-equivalence require different strategies, some very straightforward, others more involved and difficult (Baker 2011: 08). The context and *skopos* of the translation will justify selection of some strategies over others. Let us now analyse the main strategies used by localisers in

dealing with non-equivalence at lexical level and consequently achieve the *skopos* for which the terms were intended to achieve.

4.5.1 Translation by More General Word

A general word, which Baker (2011:17) refers to as superordinate is used in order to overcome a relative lack of specificity in the TL compared to the SL; translators have to find a more general word that covers the core prepositional meaning of the missing hyponym in the TL (Chifane 2012: 79).

- (1) Purple dino, Blueberry – *zambarau*
- (2) App, Software, - *programmeu*
- (3) Control, manage, restrict – *dhibiti*
- (4) Edit, change, toggle - *badilisha*

In example (1) the translation unit being localised here is a color and color being culturally sensitive, must be handled with care. In western cultures, purple is used to denote royalty, nobility, mystery, magic (Maroto 2001:10). However, in many African cultures including those within Kiswahili speaking locale, purple has no cultural significance attached to it. For this reason, anything within the purple color shade is rendered generally as *zambarau*.

In examples (2), (3) and (4) however, translation by superordinate is motivated by a different reason, that is, in instances where Kiswahili is constrained by terminology, a general word that conveys the message is used. In example (2) for instance, App (a computer programme, designed for a specific task or use) and software (computer

programmes that can be used with a particular computer system) are rendered in Kiswahili as *programmeu*. Whereas English lexicalizes both phenomena because of course there is a slight difference in the sense that “App” is mainly associated with mobile devices and “software” with desktops and laptops, Kiswahili looks at both as “programmes” and give them a general equivalent. The same can be argued about (3) and (4) “control”, “manage”, and “restrict” are treated by localisers as synonyms and rendered generally as *dhibiti* in Kiswahili. In (4) the superordinate *badilisha* whose conceptual meaning is “change” is used as an equivalent for phenomena that have that sense but qualified with a noun, for example *badilisha picha* (edit a photo), *badilisha mandhari-nyuma* (edit background) and so on.

4.5.2 Translation by Use of a Loan Word

Translation by loanwords as a strategy refers to the borrowing of single terms either in their ‘pure’ form or naturalizing them by following the structure of the source text which is foreign to the target reader. This strategy was used to deal with non-equivalence for a number of categories of terms.

- (1) Hangouts,
- (2) YouTube, Facebook, Wallet, Hangouts
- (3) SMS, PDF, HTML, WI-FI
- (4) emoji, data, beta, Apache, and video

In the above examples the English terms have been reproduced in Kiswahili verbatim or without any structural deformation of English. However, the rationale for the use of this strategy varies in each pair. In the first example for instance, “hangout” is a term that is

used probably in all cultures and coining an equivalent term would confuse the software users. It is also meant to maintain a cultural contact between language communities that interact with the software product. Naturalizing the term to something like *hang'uti* would end up creating a 'queer' term that would not even sound natural.

It is also important to bear in mind that localisation is motivated mainly by business reasons and in some cases maintaining English word in the TL terms is a part of marketing strategy and consideration of customers' needs or habits. This is because very often English terms of information communication technologies are more familiar to people than their Kiswahili equivalents (Liubinienė 2007:). Considering the fact that people prefer English words for naming certain technologies, companies choose customer preferences instead of trying to introduce new Kiswahili words. This is how *netspeak* is created.

The second example comprises names of some of the Google products which the commissioner of the localisation assignment in his translation brief has instructed that they remain as international names, meaning they are to remain like that in all languages that the product is localised in.

In example (3), these are acronyms and abbreviations and since they are industry accepted and probably being used in all countries and cultures, they are transferred as pure loanwords. There are instances where the glossary does not even provide an acronym or abbreviation. In this case, the terms are spelled out in Kiswahili and the English acronym/abbreviation is put in brackets as in the following.

**English
Acronym/abbreviation**

Kiswahili Equivalentents

FAQs

Maswali yanayoulizwa sana (FAQs)

FTP

Itifaki ya Kutuma Fails (FTP)

HDCP

Mfumo wa Usalama wa (HDCP)

ISP

Mtoa Huduma za Intaneti (ISP)

If all the above acronyms and abbreviations were to be given an equivalent Kiswahili acronym or abbreviation, we would end up with things like MYS, IKF, MHI, for FAQs, FTP and ISP respectively. Although with time the Kiswahili acronyms and abbreviations would perhaps become stable neologisms the same way “VVU” is now recognized by many Kiswahili speakers to mean *Virusi vya Ukimwi*, initially they would confuse many software users. Consequently, the text functions they were meant to perform would not be realized.

In the case of (4) the terms which are all neologisms and have been transliterated from English to Kiswahili in their form since they already correspond to the Kiswahili structure.

The second category of loanwords identified in the versions studied represents loanwords which are adapted to the Kiswahili phonological system by adapting the loanwords to conform to the phonemic structure of Kiswahili whose words end in vowels. These form the majority of terms.

English Term	Naturalized Kiswahili Term
Account	<i>akaunti</i>
Byte	<i>baiti</i>
Computer	<i>kompyuta</i>
Film	<i>filamu</i>
Disk	<i>diski</i>
Label	<i>lebo</i>
Menu	<i>menyu</i>
Icon	<i>ikoni</i>

Naturalization as strategy to deal with non-equivalence is very useful in the case of neologisms. The justification is that it would be easier to naturalize a term than to replace an English neologism which may even be already stable, with another in Kiswahili.

4.5.3 Translation by Paraphrase

A paraphrase expresses a statement, a phrase or a single word, in some other words (Danielsson 2007:3). In software localisation, paraphrasing is used as a procedure to overcome non-equivalence because of many reasons: they are used to clarify, explain, describe, define, transfer and/or reformulate a term when an aspect of meaning is contentious or doubtful.

English Terms	Kiswahili Equivalent
(1) Sign - in	<i>ingia kwenye akaunti</i>
(2) Guest	<i>aliyealikwa</i>
(3) Phishing	<i>Kuhadaa ili kupata maelezo ya kibinafsi</i>
(4) Green room	<i>Chumba cha maandalizi</i>

The paraphrase strategy can be used when the concept in the source item is not lexicalized in the target language. The third example which is a term refers to a criminally fraudulent process of attempting to acquire sensitive information such as usernames, passwords and credit card details by masquerading as a trustworthy entity in an electronic communication, is paraphrased because it is a neologism and an equivalent Kiswahili term has not yet been coined for it. However, the case is different in the case of the second example where the English term is lexicalized in Kiswahili as *mgeni* but the need for paraphrasing is brought about by the fact that the meaning of the source item is complex in the target language in that it is not referring to a guest *par se* but a person who has been invited to a scheduled event like an Hangout. Therefore there is more clarity in the paraphrase than the formal equivalent.

The paraphrase strategy is also used instead of using related words; it may be based on modifying a super-ordinate or simply on making clear the meaning of the source item (*Owji 2013:13*). This explains why in the first example, localisers rendered “freeze” as *fanya safu zisisonge* instead of *gandiza* in order to eliminate contention or doubt in the meaning.

Another form of paraphrase is description of a term’s form or function or even an amplification or explanation of a SL term. In the case of example (4) “Green room” which is a virtual room where a user can set their webcam before entering a hangout and actually a term commonly used in the theatre industry to refer to a room where

performers can relax when they are not performing is rendered as *chumba cha maandalizi* (preparation room) since that is precisely its purpose.

4.5.4 Using Synonyms

Synonymy is a kind of semantic relation among words. Technically, it occurs when two or more linguistic forms are used to substitute one another in which their common meaning is not affected denotatively or connotatively (Shiyabi 2007).

The word 'synonym' in this research is used the sense that both terms that re considered to be synonyms serve the same *skopos* in the TL.

Nice	<i>bora/-zuri</i>
Alot	<i>mno/sana</i>
In	<i>kwenye/katika</i>

This procedure is used to remedy lexical non-equivalence for a SL word where there is no threat of a serious syntactic or semantic difficulty in the rendition. Also done with agreement with Nida's assertion that, when dealing with synonymous words, we must look at the different componential features of the meanings of these synonyms and "select only those meanings which compete in the same semantic fields" (Nida 1969: 64)

In localisation, some messages come with character limits because they have to fit in a dialog box that has a fixed size. In these cases, synonymy is an ideal strategy to deal with non-equivalence especially where the synonyms have varying characters. In example (1), *bora* has four characters and *-zuri* can take up to six characters depending on the prefixes that are used to denote the noun class for the noun in reference. So, if a localiser was

faced with the problem exceeding character limit by one or two characters, then *bora* is an automatic choice in that case. The same argument applies in (2).

4.5.5 Literal Translation

Literal translation is often associated with scientific, technical, technological or legal texts. It is in this light that it comes out as the basic translation procedure, both in communicative and semantic translation, in Google localised products. Newmark (1988b:47) believed that literal translation attempts to preserve the author's idiolect, his peculiar form of expression in reference to the 'spirit' of the source or target language. He further claimed that literal translation is suitable for expressive texts translation where specific language of the speaker or writer is as important as the content (Newmark 1988a). This argument explains the following localisation renditions:

I'm Feeling Lucky

Najisikia Nina Bahati.

Beautiful new user interface

Kiolesura kipya maridadi

Semantically, "I'm Feeling Lucky" is a Google search button that is made in such a way that if one is lucky, he can find exactly what he is looking for with just one click of the button because the "I'm Feeling Lucky" button skips the search results page and goes directly to the first ranked page for that search phrase.

Depending on one's search query, the first result is usually the very best guess, so hitting the "I'm Feeling Lucky" button saves you a few extra seconds parsing through the list of search results. This is an expressive text that requires an equally aesthetic style to transfer

the emotions through the language of the text. It is best to tackle it semantically and formally staying as close as possible to the author. The best way to do this then is to render each word with another in Kiswahili in a literal manner. The same applies in the second example where words that carry the same ‘weight’ as the ST are used.

Literal translation also expresses a language in a more precise way whereby there is no need to paraphrase in order for the term to be understood in the target language. It is particularly useful as a remedy of non-equivalence where we assume that most of the software and Internet users have some understanding of English and that there are many who rely on back-translation to help them understand various terms in localised products. LTUs such as these below are translated literally with an assumption that the user understands what they mean in IT and will be able to immediately relate with them.

Cloud	<i>Wingu</i>
Window	<i>Dirisha</i>
Hover (V)	<i>Elea</i>
Virus	<i>Virusi</i>
Landing page	<i>Ukurasa wa kutua</i>
Pinch	<i>Bana</i>

It is also expected that in addition to using back-translation to get the meaning of terms users can also leverage on context to understand the terms even better as in the case below.

<p>See more events at a glance with 7-day week view and pinch-to-zoom BREAK_1• Add Google Drive files to events.</p>	<p>Angalia matukio zaidi kwa kuchungulia tu ukitumia mwonekano wa wiki wa siku 7 na bana-ili-ukuze BREAK_1• Ongeza faili za Hifadhi ya Google kwenye matukio. Hifadhi ya Google itaangalia kama kila mtu anaweza kuzifungua.</p>
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The term ‘pinch’ (in bold) is literally rendered as bana. The use *-ili-ukuze* (-to-zoom) provides an extra context to enable the user decipher the meaning of the text since since logically there is no other way one would use their fingers to zoom an image on a gadget.

In addition to the above, a localiser uses literal translation to preserve the cultural homogeneity of net language (Bandia 1993:60). His effort is generally geared towards transferring the source-language culture into the target-language culture with a minimal distortion of both languages and cultures. This means that if the lexical meaning of “cloud” and “window” has been broadened to include a virtual place where web-based programmes live and a framed area on a screen containing a particular programme and content respectively, this should be transferred to Kiswahili language as well.

4.5.6 Using a Culturally-neutral Term

This strategy involves replacing a culture-specific item or expression with a TL item which does not have the same propositional meaning but is likely to have a similar impact on the TL (Chifane 2012:79). Considering that Kiswahili is spoken in a wide geographical area covering more than one country, there is need to use more neutral terms that are understandable across the language speaking locale.

English Text	Corrected Translation
<p>The title of the bundle is the list of senders within the bundle (Shoehop, Creek Farms, Dollar Auctions, Two Wheel Deals).</p>	<p>Kichwa cha sehemu ni orodha ya watumaji katika sehemu hiyo (African Boot, Mbuni Farm, Fulusi Forex, Dili Nzuri).</p>

The text above supports our argument well. The English words in bold representing names of popular businesses in the United States of America are localised using arbitrary names of similar businesses in the Kiswahili speaking locale. The Kiswahili equivalents are neutral in the sense that they are not brand names of real businesses that you can find say in Kenya, Tanzania Uganda or Burundi. The same case applies to the following example as well.

Don't forget Bob

Usimsahau Ali

“Bob” which is an English name is replaced by “Ali”, a common name in East Africa where Kiswahili is mainly spoken. In addition to proper names, there are also regular names that have potential of being culturally sensitive and which are rendered using a culturally neutral term. A typical example is “Purple dino” which is localised as *zambarau* which is also a general term.

4.5 Conclusions

In this chapter, we analyzed LTUs in localised software products. A few are standalone and others appear within texts. They are analyzed in order to determine whether the localised terms achieved the *skopos* they were intended to achieve. This, we did on appreciating the fact that the translator as the text producer aims at producing a text in such a way that it is not only communicative but that the receivers recognize the function for which it is intended. The goal of localised software quality assessment should be a determination of the degree of functional equivalence between the source and the localised versions of the application (Dunne 2009:215).

localisers succeeded in finding adequate equivalents for most of the linguistic units. As a result of this, text functions of most of the units were achieved in most instances. However, there are instances where some of the lexical equivalents within the larger texts were missed. Incidentally, missing the equivalents did not always result in compromising the *skopos* of the TT. For instance, rendering “European Union” as *Muungano wa Umoja wa Ulaya* instead of *Muungano wa Ulaya* did not in any way affect the software user’s ability to understand what the localiser as the text producer meant. Similarly, failing to put an exclamation mark after a Kiswahili intonation did not affect the sense and thereof the function of the term since the feelings being expressed are not situated in the exclamation mark but in the word itself. However, there are instances when text functions are seriously affected by the terminology equivalents chosen. A case in point is where the ST writer is informing software users about some of the things that are not acceptable in a blog and the localiser renders “violence” as *unyanyasaji* (exploitation)

instead of *ukatili*. Here, the informative function is not achieved because the ST writer was listing specific things.

The above results notwithstanding, findings revealed that lexical non-equivalence was the biggest huddle that localisers had to deal with when localizing software in Kiswahili. This is brought about by the fact that software is pragmatic, functional and informative in nature and the goal of localisation from the point of view of translation should be production of a target text that produces the same effect as the original. Kiswahili having terminology limitations is thus left with no option but to result to strategies such as generalization, paraphrase and borrowing among others. In many instances, these strategies succeed in achieving the intended purpose of the text despite the limitations associated with them. Paraphrase for example results in use of more words, something that renders it inappropriate in the case of texts that have character limitation.

It was also found that there are very few terms that are cultural-specific in all the products. Where there are, like proper names, they are retained as they are in the SL since it is assumed that the names have no connotation in the text. In a few instances though, they are localised by neutral names and where they are brand names, they are localised by use of neutral non-brand names.

CHAPTER FIVE: CONTEXTUAL FACTORS SURROUNDING TEXT

PRODUCTION PROCESS

5.1 Introduction

Localisation is a problem-solving activity and an expert skill and localisation translators are truly the foundation upon which any successful localisation project depends on. Given that the translators' performance impacts virtually every aspect of a translation or localisation project, if the translation team is not up to the challenge, there is little the agency can do to ensure success (Dunne 2006:82). In this regard, localisation translators are called upon to apply relevant strategies and solutions based on situation, context, client specifications and text function all of which require possession of relevant translatorial competences. In the following section we will analyse important translatorial competences, demonstrating how they impact on localisation quality and overall communicative effectiveness of the localised software products. Prior to this, let us briefly define the notion of competence as used in this research.

“Generally speaking, competence is a general ability to perform a specific task, action or function successfully on the grounds of the existing knowledge, skills and attitude system; a combination of knowledge, skills and attitudes appropriate to the context; the proven ability to use knowledge, skills and personal, social and/ or methodological abilities, in work or study situations and in professional and personal development” (Kaminskienė et al 2012: 138).

In this research, we look at translation competence as a multi-componential competence which comprises of sets of sub-competences: technological, cultural, linguistic skills and transfer, all of which are applied in a complementary manner to complete the translatorial action of the localisation process. This is because, majority of the models proposed for

translation competence by scholars (Lowe, 1987; Bell, 1991; Nord, 2005; Pym, 1993; Kiraly, 1995; Hatim and Mason, 1997; Hansen, 1997; Risku, 1998, cited in Lesznyak, cited in Pym, 2003; Neubert, 2000) emphasize the description of the component constituents of translation competence (Albir, 2007). Thus, these competences required for translation will be elaborated on in this section.

5.2 Linguistic Competence and Word Sense

Linguistic competence entails advanced knowledge for recognition and expression of speech acts in digital texts such as giving instructions, providing information, asking questions, giving commands and performing all other text functions that we discussed in the previous chapter. This competence is necessitated by the fact that texts produced in TL will demand clarity which requires use of Kiswahili terms with a certain level of specificity. English has a comparatively larger lexicon than Kiswahili and therefore English terms carry comparatively narrower lexical meanings than Kiswahili. Occasionally, the localisation translator into Kiswahili will use a more general term than the English term.

The linguistic problems confronting the team of localisers under this study fall under lexical category and are mainly terminological in nature. Top in this category was how to deal with neologisms that were being created each day as IT advanced. Neologisms are usually formed on the basis of words and morphemes that already exist in the language. While the analysis of these words and morphemes is an additional helpful tool in finding out the meaning of the neologism, 50% of localisation translators reckoned that in many

instances, these words and morphemes did not help them in even guessing the meaning of the SL neologism. Take an example of the term ‘string’ whose meaning in English before computer was ‘rope’ or something similar in form. But in computer terminology, ‘string’ means ‘word’ or ‘input in letter or a set of consecutive characters. If a translator relied on the original meaning of the English word to coin an equivalent, then s/he would end up coining a way-off-the mark term like *uzi* instead of *mkuatano* that captured the semantic meaning better.

The contextual factors for translation of neologisms also played a role in the problem that we are describing. Newmark (1988: 150) highlights these factors which we find some of them very relevant to our situation. First is the purpose of the neologism which as discussed in chapter four, most of them perform the informative and instructive function and therefore the translation technique chosen to render them must be cognizant of this fact. The second one is informed by the demand on language conciseness typical for technical translation which makes the translators to rely on very limited translation strategies for equivalence. These strategies employed were known to result to use of more words in Kiswahili. They included transliteration and paraphrase.

The other contextual factor by Newmark (ibid: 150) is the transparency or opaqueness of neologisms. In some cases words or commands in the ST are juxtaposed with no clearly visible sense. Here are two examples:

Use **in-store** by

You got the **oysters shuckers** opening **oysters**

Expressions above remains a closed book even for some reviewers because the localisation translator has no clear understanding of the way they were created, the pattern of their creation and so on. In the absence of this kind of information, then translation techniques such as literal translation were adopted, sometimes resulting in an equally opaque translation like.

Kuna wanaotoa gamba na mifupa

*Unapata wanaoshughulika na **chaza** wakifungua chaza* respectively.

Owing to the reality about massive use of neologisms in software products, it called for the localisation translator to have very high linguistic competence to deal with delicate language matters such as the terms above that no dictionary, glossary or style guide was able to put light to, and to discern which LTU is appropriate for which context.

Linguistic competence was necessary to know when to adjust grammar rules in order to achieve the required equivalence effect, when certain translation techniques like literal translations yield no sense and nonsensical equivalents, when to defy dictionary or glossary equivalents and so on.

English ST	Equivalent 1	Equivalent 2
(i) Cannot access SD card -	Haiwezi kufikia kadi ya SD	Imeshindwa kufikia kadi ya SD
(ii) Contact management	Wasiliana na usimamizi	Wasiliana na wasimamizi
(iii) Savings cards and credit cards supported	Kadi za kuhifadhi pesa na kadi za mkopo zinatumika	Kadi za kuhifadhi pesa na kadi za mkopo zinakubalika
(iv) Supported formats	Miundo inayotumika	
(v) Supported photo files	Faili zinazotumika	Faili zinazokubalika

Table 5.1: LTUs requiring special attention

In the examples above, although the LTUs in bold have a one-to-one equivalent in Kiswahili, linguistic competence had to be used in order to get rid of possible miscommunication resulting from their usage. In (i), ‘Cannot’ when rendered as *haiwezi* would have brought out the sense of ‘all the time’ yet in this context, the gadget is unable to perform the function of reaching the SD card for that particular moment. Similarly, ‘support’ is to be consistently rendered as *tumika* in all products and in all language resources as is in the case of (iv) but in the case of (iii) and (v)), if that equivalent is used, the meaning of the segment can be ambiguous and so semantic equivalence is applied as *kubalika*.

From the interviews with reviewers, problem of using terms exactly as directed in the language resources without being alive to the fact that sometimes ambiguity can arise as a

result the linguistic context within which such terms were being used. This was evident with translation localisers who were new in the project and had insufficient language and localisation project-related experience.

5.3 Cultural Competence and its Effect on Lexical Preferences

Culture is one of the things that serve as an orienting and guiding term for software localisation efforts and forms core localisation strategy. This is because localisation efforts normally rely quite a lot on target audience's constructed sense of locality and culture. For instance, if a localiser has to translate idiomatic expressions, such expressions need to conform or rather should be appropriate to the peculiar structural form of the target language (Olali 2014:6). The rationale for this is that text functions of localised materials of which majority are marketing materials risk being missed out, or worse, accidentally offend the users in the target culture if the localisation translators who are experts in the translatorial action are not alive to the fact that the user has a differing cultural background to that of the software developers. Consider the following example.

Samahani huna thamani ya kutosha

Sorry, you do not have sufficient value

The above Kiswahili translation of the English ST has potential to offend a user who may not easily and quickly know that *thamani* (value) simply means credit and instead, take it to mean they have less worth. This may not be the case in English where value has more popular senses a unit of currency being one of them. As put in earlier chapters, the problem is made worse by the fact that the translation does not come with broader context to aid the user. Perhaps the case would be different with a context like:

Tafadhali weka pesa kwenye simu kwanza na utume ombi lako tena
Please load airtime first and re-process your request

As Schäffner (2003:91) puts it, “if the professional task of a translator is defined as enabling communication between members of different cultures, this means that translators need to have a bicultural competence”. Having knowledge of both languages is integral in localisation. In addition, interpersonal behaviours of the two cultures in question and their ethos/ethics or form this bicultural competence. Witte (quoted in Schäffner: *ibid*) sets out to develop a concept of cultural competence as specific for translatorial action, thereby synthesizing insights from modern translation studies (especially functionalist theories) and from information communication systems.

According to Witte (*ibid*), translation-specific cultural competence is an integral component of a competence of translational action. “Translation-specific cultural competence is the ability to become aware of and check what is unconsciously known, the ability of consciously learning something which is not yet known in both one's own and the other (foreign) culture, and the ability to relate both cultures to each other, to compare them with the aim of purposeful and situation-adequate reception and production of behavior for the needs of at least two interacting partners from two different cultures in order to achieve communication between these interacting partners” (cf. Witte 2000: 163).

Localisation translators were constantly faced with the problem of how to treat the cultural aspects implicit in a ST and of finding the most appropriate technique for

successfully conveying these aspects in the TL. The translators also had to decide on the importance given to certain cultural features and to what extent it was necessary or desirable to translate them into the TL.

Data from LQEs and localised software revealed software products that contained terms created by means of metaphorical terminology referring to phenomena in terms of their function, form, or position. But even if the concrete form of an object had potential to lead to a similar cognitive concept in various cultures, this is not necessarily always the case. Often times, problems arose when the TL lacked capacity to produce equivalents that had metaphors that had the similar effect. Below are a few examples:

Wizard- *utaratibu uliofupishwa*

Rich media – *midia wasilianifu*

In the case of ‘wizard’, it is a term referring to a shortcut workflow that allows users to quickly and efficiently perform a complicated task especially that which he or she has to navigate through a series of menus. The term is metaphorical in the sense that derived from general English usage that refer to a person who has such an exceptional knowledge of expertise in a certain field that he or she appears to possess almost a supernatural ability (Search Windows Server). This is an expressive text that employed hyperbole to show how efficient the operation is. In order for the text to achieve its *skopos*, an equivalent TT that is equally hyperbolic and that is culturally acceptable by Kiswahili users is needed. This called for cultural competence to be able to avoid terms like *mchawi* which is its literal translation. However, the term was translated by paraphrasing it as *utaratibu uliofupishwa* which took away the aesthetic property of the ST expressive.

The second example, 'rich media' is metaphorical as well. It is synonymous with interactive media. The referent is 'rich' in a metaphorical sense in that as a technology it is able integrate audio, video, and high-resolution graphics. In order to render the term accurately, the localisation translator had first of all to understand what 'rich' means by use of his/her digital competence then use cultural competence to find the right equivalent that transfers this sense and therefore succeeds in performing the text function of the ST and at the same time, a term that is culturally acceptable by the TL users.

The other common cultural element found in the data was use of politeness whereby English and Kiswahili differs slightly. English makes use of more polite words such as "please", "thank you", "congratulations" and in deed it was found that they were used more frequently than in Kiswahili. In fact this was a key feature in expressive, instructive, and appellative texts that often contain phrases like "Thank you for...", "Please click here". The politeness level also changed according to the product. Despite the fact that all these have their equivalents in Kiswahili, there is slight difference in their usage because in some cultures where Kiswahili is spoken, there is usually a limit to the number of times one can for example, congratulate or thank another one.

Normally expressives and appellatives such as those discussed above are used sparingly in Swahili culture. While this is true of such texts and even emphasized in the localisation brief which cautioned localisation translators to be mindful of how many times they used them since Swahili culture, data revealed that they are given formal equivalents all the time they appear in the ST. This phenomenon can be explained by the fact that Internet

has developed its own culture and that it does not really matter where one comes from geographically, as long as one uses Internet then s/he subscribes to this culture. However, there are a few cases where terms that are culturally more polite were added to instructive and expressive messages, and which called for the localisation translators to possess the relevant cultural knowledge and competence in order to be able to select the right expressions.

English	Kiswahili formal equivalent	Kiswahili cultural equivalent
I understand and want to submit my name for review.	Naelewa na nataka kuwasilisha jina langu kwa ukaguzi.	Naelewa na ningependa kuwasilisha jina langu kwa ukaguzi.
Not interested in this product	Sipendi bidhaa hii	Sijavutiwa na bidhaa hii

Table 5.2: LTUs with culture-specific elements

The above terms (in bold) are examples presenting cultural differences in terminological concepts between English and Kiswahili. The term “want” is one of the most widely used terms in expressive and instructive messages as in: ‘do you want to exit wizard’, ‘do you want to close your account’, ‘do you want to join this Hangout’ and so on. In this particular case, localisers with cultural competence were well aware that the formal equivalent for the term is *nataka* which is considered impolite especially by Tanzanians and so they would pick on a more culturally polite term, *naomba*. The same applies in the second example where *sipendi* though a right equivalent, is substituted with *sijavutiwa* which is more culturally polite.

Having said that though, there are other instances when we would expect terms denoting politeness to be added in Kiswahili translations but they were never used as in the example below from the localisation brief.

English	Good Translation	Not-So-Good Translation
Please check your router/firewall settings to set GoogleEarth.exe as an exception.	Tafadhali chunguza mipangilio yako ya kionesha tariki/ukuta na uweke GoogleEarth.exe kama kighairi.	Tafadhali, twaomba chunguze mipangilio yako ya kionesha tariki/ukuta na uweke GoogleEarth.exe kama kighairi.

Table 5.3: LTUs with cultural significance

“-omba” is a common word especially among Kiswahili speakers within Tanzania and Kenyan coastal regions whenever one wants to request for something. But data has not revealed anywhere such words have been added to the translation for the purposes of achieving cultural equivalence. The justification for this is obvious though- that the text genre is technical and such texts are required to be short, clear and concise and does not allow redundancy, so that as long as the word *tafadhali* has been used, it is assumed that the politeness notion has been taken care of.

5.4 Assessing Technological Competence in Localisation Translational Process

Technological competence, also commonly referred to as digital competence is an essential element in facilitating translatorial action in software localisation. It includes the ability to find and use information, interaction, collaboration and teamwork, social awareness and creation of new information among other literacies (Digital and Information Literacy Framework, 2012).

In this research, we categorize digital competence according to Larraz (2013) (in Gallardo-Echenique et al. 2015:10) who made an attempt to combine several literacies under digital competence, which involves: information literacy, computer literacy, media literacy, and communication literacy. These literacies have direct or indirect link to terminology and lack of any of them was found to undermine the localiser's ability to achieve optimal localisation quality.

This was one of the competences that all localisation translators said they possessed with one of the six localisers claiming to have an outstanding abilities in it while three rated their abilities as 'good' and the remaining two rated it as average. As a result, all the localisers were able to manage digital information and data contained in GTT, the CAT tool that used by localisers for the purposes of information retrieval, extraction and processing. For example, all the six localisation translators reported that this competence was key among other competences and that for instance they were relied on it to leverage on past translations stored in the TM to find equivalents and that it was the second most useful terminology look-up tool for terms that no other resource (glossaries, dictionaries) could provide equivalents. Although the equivalents provided by the CAT tool were not

always 100% reliable, 60% of the localisation translators reckoned that from the alternatives provided by various search engines like the Alternative Translation Search, Custom Translation Search and MT helped them to compare the alternatives and hence pick the most appropriate one to suit the context in question.

The other sub-competence under digital competence is computer literacy which involves ability by the localisation translator to process data in different formats such as word processing, handling different file formats and how to separate translatable from non-translatable texts. Knowledge about word processing and Microsoft Office generally, had an effect on how localisation translators handle typographical aspects like capitalization placeholders and tags, and punctuation in general. Although all the six localisation translators rated their IT proficiency as either good or outstanding, which is enough to enable them in word processing and formatting in general, 50% of those interviewed admitted that typological errors accounted for over 20% of errors recorded on any month. This situation however could have been caused by other factors like strict deadlines/time constraints or level of difficulty of the ST, as reported by some respondents as none of the respondents cited unfamiliarity of the translation tools as a likely cause of translation inaccuracies.

In order to achieve accuracy in translation of software product, wider product knowledge was thus crucial as it means the localisation translator who possesses these competences was able to adequately understand the nuances of the industry's jargon and stand a better chance to render them accurately, clearly and concisely in the TL. For instance, there are

hundreds of neologisms that were coined by giving old terms new senses, for example ‘string’, ‘abort’, ‘button’, ‘status’, ‘collapse’, ‘cookies’, ‘driver’, and ‘feed’. Understanding what they mean in the digital realm was an added advantage to localisers who had better digital competence as this enabled them to avoid literal translations which would sometimes be ‘ridiculous’ and uncommunicative. This can be illustrated by an example of a term like ‘collapse’ which if taken literally would mean ‘to break down suddenly’ instead of ‘folding down a menu or window into a more compact shape by hiding the sub-entries’. Without this kind of understanding, its formal equivalence of *zirai*, which is way off the mark, would come in the mind of a translator instead of *fanya safu zisisonge*.

Communication literacy sub-competence was important for it enabled effective participating in digital environments. It facilitated ease in exchange and communication of information among team members and enabled them to participate in collaborative networks and online forums such as Google Hangouts via the Internet. Google localisation being an ongoing project, there arose need to have online meetings/Hangouts now and then to give communication about issues to do with terminology for example how to handle 100% matches and fuzzy matches, how to deal with synonymy, polysemy, cultural references, how to distinguish translatable and non-translatable string elements, and so on. Such forums were rated by all respondents as having played key role in harmonizing terminology in order to have consistency in its use.

5.5 Source Text Transference: a Summation of all Localisation Competences

According to Neubert (2000:12), transfer competence is the integral competence since it integrates all other competences. In this research, we evaluate transfer competence according to Malmkjær (2009:126) who describes it as the knowledge of the translational relationships that allows a translator to match languages appropriately when translating, as distinct from their ability to use their languages individually. It is the kind of competence that comes about when the localisation translator is able to marry subject equivalence with linguistic, textual and cultural competences to deliver a localised text material that functions successfully in the target audience.

According to general localisation guidelines, transfer competence is a key component in software localisation as it is the one responsible for ensuring the localised texts adhere to structural and semantic requirements of technical texts that are a characteristic of software, key among them being clarity, conciseness and brevity. This is done for the simple reason that the primary function of LSP (where software localisation falls) is the conveyance of information. Usability research has also shown that users normally do not have all the time to scan screens to find the content that interests them. Therefore a brief, unambiguous text would help in decreasing their processing cognitive load and highlighting the specific content that they are interested in on a particular page. In order to achieve this goal, unnecessary repetitions and content that is common knowledge among the targeted discourse community is avoided (Price and Price 2002:88).

Conciseness and clarity in software is essential for its usability. As Jiménez-Crespo (2002:13) observes software users have less tolerance for ambiguity in interactive screen texts than in printed texts. At the lexical level, clarity at the source is a major factor in creating localised target texts that equally clear and usable. From the questionnaire responses, conciseness and clarity in the ST scored 100% among the localisers who acknowledged the fact that the ST was well authored and that lexical and syntactical ambiguities in the ST were never a source of transfer problems into Kiswahili.

By looking at the data, there was evidence of extensive use of simple sentence constructions with segments that were between one and five words on average. Data also revealed extensive use of active voice something that lessened localisation translators work of decoding the meaning of constituent lexical units. The terminology was well explained in the product-specific glossaries and a myriad other resources provided by the client. But this is understandable because preparing source content for localisation is a very intensive undertaking by source language experts who make sure that source text is easy to translate for this ultimately lowers translation cost and overall cost of localisation.

However, whereas this applies to English as the ST, differences in lexical and semantic range between Kiswahili and English presented major transfer related challenges to the translator's linguistic judgement and word selection while translating into Kiswahili. Let us now discuss linguistic issues operative in the transfer competence of the localisers as technical/scientific translators. Features from components of the grammar and discourse elements that are within the scope of this research will be discussed.

5.5.1 Where the ST Referent Does Not Show Clear Grammatical Markers

Although there are some broad similarities between Kiswahili and English morphology, Kiswahili has some characteristics that differ with English, for example the fact that Kiswahili nouns are often bound and need a prefix, unlike in English, where most nouns are free. Other times, essential part(s) of English grammatical structure are embedded in the grammatical structure resulting in vague use of reference and pro-forms that may confuse the translator. This problem is particularly common with segments that are truncated or made up of single word LTU as demonstrated in the following examples:

Completed

Processing

The terms above lack important linguistic cues that would assist the localisation translator to understand what they represent. Firstly, it is not clear which noun that is being referred to, whether inanimate or animate. This is because Kiswahili verbs must take an affix denoting the noun. The problem with lexical units such as the ones above was that if the localisation translator made an error by assuming the wrong referent, this had serious implication on the message and distorted the meaning significantly. From reviewer interviews, this was cited as one of the biggest source of errors by localisation translators accounting to 75% of errors resulting from ST grammatical elements such as gender and tense.

In cases where context was not sufficient to tell what the referent is, only project experience would help imagine that in such cases, it is the device that is doing a task and not a human being. Otherwise without such experience, the localisation translator would

resort to guesswork which has potential of producing a misleading Kiswahili equivalent. If, for instance, he assumed the referent is animate and rendered the term ‘completed’ as *amekamilisha* instead of *imekamilika*, the message would be substantially distorted thereby preventing achievement of ST informative *skopos*. Such errors are quite intolerable among software users.

The second problem is tense. Due to message truncation, the localisation translator is unable to tell whether the ST is in past tense or in the present perfect tense. In Kiswahili, both tenses are marked differently. In the above case, it was difficult to tell whether the verb is in simple past tense or in perfect past tense since in digital texts, non-finite verbs such as the one in our example are used in nominal and adjectival function because there is no need for tenses, other than the present tense.

5.5.2 Polysemy

Polysemy was also identified as a major cause of transfer problems and it was found to exist in virtually all parts of speech: nouns, verbs, and adjectives. Data revealed a number of common content terms in the ST that one would expect to carry simple, single meaning but instead were found to carry a number of related meanings, or senses in localisation context.

One critical aspect of such polysemous terms that we found is that their different senses though closely related they were not very similar to each other. As (Klein and Murphy 2001, 2002) notes, there is evidence showing that there is little semantic overlap between

senses, supporting the view that senses of a polysemous word must then be represented separately. This, we can illustrate using a commonly used term “open” which when used in one sense it means ‘make operational’, as in *open an Hangout* versus senses of ‘turn on’, as *Open the App*.

The senses above are clearly closely related, as they are both carrying the sense of ‘starting something’. Nonetheless, one is not conceptually similar to the other and there are specific contexts when their senses must be brought out with utmost specificity, lest the message is distorted or missed altogether. The former has the sense of ‘starting’, and the later, ‘turning on’. Incidentally, one of these senses is usually core, in the sense that it is fairly constant across different senses. For this case, the sense of ‘starting’ is the core, meaning that it is the dominant sense.

When encountering a polysemous word with no biasing context, it was reported by localisation translators and revisers that there was a tendency of simply retrieving the core meaning and applying it. This is supported Duffy, Morris, & Rayner, (1988) argument that if one meaning is significantly more frequent than the other, then that meaning tends to be more activated, and the less frequent one less so.

Transfer problems caused by polysemy emanated from the fact that there were instances when the peripheral sense was to be applied. Thus, it called for transfer competence by localisation translators were thus required to discern this difference and offer the right equivalent for the peripheral sense, which, often times it was not provided for in the

glossaries and language resources such as bi-lingual dictionaries. A common example from the data and which runs across all products is *information*. The most common context of its usage is in informative messages where users are provided with a link to access more information about software functionalities. In all the cases, ‘details’ is core sense. However there are other peripheral senses such as ‘news’ and ‘explanation’ as demonstrated in the sentence below.

We have received **information** that your blog has been soliciting user’s sensitive personation **information** such as passwords, credit card details etc.

The first ‘information’ in the above sentence brings out the sense of ‘news’ and the second one, details. A combination of both linguistic and transfer competences are necessary to spot this unique context where a sense different from the core is required in order to correctly achieve its *skopos* in the TT by rendering it as:

Tumepokea habari kuwa blogu yako inajaribu kukusanya habari nyeti za binafsi za mtumiaji kama vile nenosiri, maelezo ya kadi za mikopo n.k

5.5.3 Multifunctional Words

Words that can be used as different parts of speech were also found to cause transfer problems as they caused the segments containing such words to have deeper structures, hence resulting in different comprehensions as exemplified by the following:

English	Equivalents +parts of speech
Display	<i>onyesho</i> (noun) A visual output device used to display information. <i>onyesha</i> (verb) To show something; often used in the context of displaying ads <i>Onyesho</i> (adjective)
Search	<i>Tafuta</i> (Verb) <i>Utafutaji</i> (Noun)
Set	<i>Weka</i> (verb) <i>Seti</i> (noun)

Table 5.4: Multi-functional LTUs

From a linguistic point of view, the localisation of multi-functional terms such as the ones above was problematic when they appeared as stand-alone and context was lacking or insufficient. Often times, the content to be translated is usually disembodied due to the format in which the content is authored, stored, and/or maintained. A common example is the database content used to drive many software applications which occurs in strings that may be displayed as labels in the software interface, values in menus, pull-down lists, dialog boxes or within pop-up messages that inform the user about the status of the application (Dunne, 2006:81). If a word such as *display* stands alone, the task of translating is daunting since the localisation translator cannot tell if it is referring to the noun, verb or even an adjective. Even when there is a context but which is insufficient, the problem still can present itself as in the following case.

Search word graph

Search term

When presented with a multi-word lexical unit like the one above the dilemma that the localisation translators were faced with was really to tell what the term like “search” meant? Is it referring to a noun (term used for searching some other information) or a verb that is giving a command (search for the term)?

The fact that the developers usually do not export information to help the translator identify the subject associated with the string and to see which texts belong together was identified as the main cause of this problem. The two senses have a very wide semantic gap making guesswork not an option, lest the communicative effectiveness of the text is lost. A localisation translator who renders a similar LTU “Search views” as *tafuta mara ambazo umetazamwa* (literally, search the number of times you have been viewed) instead of *mara ambazo umetazamwa kupitia utafutaji* (literally, the number of times you were viewed through engine search), changes the text function from instructive to informative thereby distorting the *skopos* of the ST. It thus called for rigorous query filing with the client to get more context about the use of such terms.

Unfortunately, localisation projects come with a reasonable amount of pressure due to time constraints, with ‘crazy’ deadlines and penalties for the team in case such deadlines are not met. In fact five out of six respondents reckoned that time constraints and short deadlines would either most likely or likely affect their ability to render a translation accurately. This scenario coupled with the fact that filing such queries is a process that requires some level of digital competence, five out of six respondents reported that they relied on their project-related experience to solve transfer problems of such texts, which sometimes did not result to accurate renditions.

5.5.4 Proper Names

Proper names present in the data covered several categories: names of persons, countries, software products and Applications, geographical places, and festivals. In order to be able to present and discuss transfer problems caused by proper names, we further divide them into two categories according to Fernandes (2006: 49): conventional proper nouns and loaded proper nouns since each of them presented unique transfer problem.

Conventional proper nouns are those that seem to have no obvious semantic meaning; their morphology and phonology do not need to be changed to fit in the target language, or they have an international status (Fernandes *ibid.*:49). Loaded proper nouns on the other hand are proper names which are not being used purely as ‘identification marks’ (Bączkowska 2016:5) but carry semantic load. These required a great deal of transfer expertise in order translate them, without affecting their cultural and communicative value.

A general observation about proper names was that regardless of the category, proper names were identified by both localisation translators and reviewers as among LUs that presented transfer problems as a result of many factors. The first one is lack of consistency in their translation whereby loaded proper names particularly names of countries, on the other hand presented difficulty since there wasn’t a clear criteria for translating them. Whereas there are names of countries with one-to-one equivalents in Kiswahili, for example Unites States of America- Marekani, Russia – Urusi, there were others that did not have such equivalence. There are also those ST proper names that have

both Kiswahili and English correspondences. A good example is Ethiopia whose Kiswahili correspondence is *Uhabeshi* and Ethiopia in English.

Data revealed lots of inconsistencies and instability due to the adoption and application of more than one translation method or technique. It was difficult to tell for instance, when foreignization was to be adopted and which situations called for naturalization since there was no clear criterion for doing so. For example, it is not clear why ‘Cape Verde’ was translated as *Kepuvede*, which not only defies Kiswahili phonological pattern that could have borne *Kepuvade* but also the noun structure when it is rendered as one word instead of two as is in the original. Similarly it is not understood why Argentina, Guinea, were naturalized as *Ajentina* and *Gine* respectively while Kuwait and Brazil are not. Faced with this state of affair, neither general localisation knowledge nor project-specific experiences are adequate in dealing with the transfer problem. The tricky part comes in when the source word is not well-known

English common nouns that were converted into proper names was another category of loaded proper names that caused transfer problems to the localisation translators. These terms caused ambiguity between name readings and common nouns. Good examples are ‘Ideas’, a Google programme that connects users, experts and engineers to conduct research and feed new technology-driven initiatives, versus ‘Ideas’ the thoughts/conception, or ‘Instant’ a Google messaging tool versus ‘Instant’ an adjective referring to an action occurring at once or immediately. The problem was caused by the fact that although in English, capitalization usually disambiguates proper names and

common words, this was not possible at sentence beginnings and in single-term segments, which formed the bulk of terms. This complex localisation issue called for a combination of many other competences and project-experience to aid transfer of information.

Data from LQEs, glossaries and Google products also revealed that there was over-use of capitalization where segments show titles in title case and since descriptions do not specify that they are titles, localisation translators confuse some of the constituent words as proper names. Consider the following message segments:

*Google+ **Birthdays** only come from the contacts in 'Your Circles',*

In the example above, it was difficult to determine whether 'Birthdays' was a proper name or a common noun since the description just gave it as a label explaining the birthday settings.

Data revealed lack of clear strategy to localise source culture names. In some instances such names were substituted with target-culture names through neutralization. There are also cases where culture-specific proper nouns English were replaced with cultural-neutral proper nouns in Kiswahili, for example Jack for Ali, or Musa. The challenge here being that Kiswahili speaking locale is very multicultural and therefore localisation translators expressed difficulties in selecting a name that is 'neutral' enough to take care of this diversity.

5.5.5 Acronyms and Abbreviations

Use of abbreviations has been constantly increasing in computer technology. Their use in computer terminology has been explained by many (Bankole 2006, Tracy 2016) as both complex and attractive. But generally they are used for technical reasons, key among them being to avoid long names and descriptions (Medina 2017:67). They are also complex because of their multiple combinations and their unpredictable nature and because most of them are hard to translate into other languages without losing part of their nature or their meaning (Medina 2017:69). In fact there are very few abbreviations that have successfully been translated in Kiswahili and their contracted nature maintained. Examples are *www* (World Wide Web) in English and *www* (*Wavuti wa Walimwengu*) in Kiswahili. These are exceptions to the common tendency of pure borrowing.

As mentioned in chapter four, examples such as GIF, FAQs, RAM, ROM are present in virtually all software products. The main problem transferring such acronyms and abbreviations in Kiswahili which we found is that whereas Kiswahili may be rich in other word forming processes: derivation, borrowing, and neology, it lacks capacity to create words through acronymy and abbreviating as compared to English. As a result, there are many English acronyms and abbreviations that localisers were unable to give equivalents in Kiswahili for fear of losing their semantic meaning. Consequently majority of them were transferred verbatim even when there was clear risk of compromising their communicative effectiveness.

The other problem was the inconsistency in rendition of abbreviations and acronyms in the translation resources available to the localisation translators. In some cases, the acronym is first spelled out in Kiswahili then the English one put in brackets as is the case of the first three examples in the list below. Other times, they are transferred as they are in English as shown in the fourth example.

CRM – *mfumo wa kuratibu mahusiano na wateja* (CRM)

DMCA *Sheria ya Millennia ya Hakimiliki Dijiti*

FAQs *Maswali Yanayoulizwa Sana*

LOL *Angua kicheko*

CVC DNS EPC EV, EULA FTP GEG

The above acronyms and abbreviations are found in the general glossary which is a key reference material for the localisation translators. Looking at the ST acronyms and abbreviations, they are look-alike in form and one cannot quite understand why the same rule is not applied in their rendition. In (a), the abbreviation is spelled out in Kiswahili and the ST form closed in brackets. In (b), (c) and (d) they are rendered like the first one but without the ST in brackets. The list in (d) is transferred verbatim. Lack of standard criteria of transferring this type of LTUs made work of localisation translators be that of guesswork while transferring new acronyms and abbreviations that come up every day with advancement in technology.

The localisation brief contained in the style guide provided linguistic rules to be followed in coining acronyms and abbreviations. The brief stipulates that where the glossary does not provide an acronym or localised term, the localisation translator should spell the acronym out in Kiswahili and put the English acronym/abbreviation in brackets. Despite

this guidance, all the localisation translators interviewed revealed that the guidelines are flouted by the revisers thus complicating the matter further. This has not been followed strictly as in the following examples:

CPC' (pay-per-click) *gharama ya kila mbofyo*

OTP' (one-time pin) *nenosiri la wakati mmoja*

In both cases, the English acronyms are not reflected anywhere in brackets.

The lack of enough capacity by Kiswahili to create words through acronymy and abbreviating as compared to English compounded the problem of transferring days and months which are a common phenomenon in all text types. In the translation files sent to localisation translators, months (January, February, March and the rest are abbreviated as Jan, Feb, Mar etcetera any time they appear in the ST. Likewise, days of the week (Sunday Monday, Tuesday all the way to Saturday) are abbreviated as Mon, Tue, Wed, Thur, Fri, Sat and Sun as shown in the screenshot below.

Message 51	VegaAndroid : 5573111768585039681
-------------------	--

Message text

Tue

Description

Day of week: Tuesday. [CHAR LIMIT=3]



Message 52	VegaAndroid : 5203182613553690259
-------------------	--

Message text

Wed

Figure 5.1: A screenshot of an abbreviated ST

The main technical reason for abbreviating them is the fact that dialog boxes which house most messages have finite sizes and shapes and therefore there is character limitation for both the ST and the TT. This scenario was found to present localisation translators with a dilemma as whether to abbreviate such strings or not. If they decided to abbreviate them in Kiswahili in order not to exceed the character limit set, they then risked coming up with abbreviations that made no sense to the software users. While some months like April, June, September, October and November can be abbreviated as Apr, Jun, Jul, Sep and Nov respectively, others like March would yield an abbreviation like Mac which may be totally alien and incomprehensible to many Kiswahili speakers.

For week days, the situation is even worse due to the fact that all of them except Alhamisi (Thursday) and Ijumaa (Friday) take the morpheme ‘juma’ thus it would be tricky

abbreviating them keeping the morpheme and a part of the other morpheme while at the same coining an abbreviation that is comprehensible.

ST acronyms and abbreviations that had plural markers like PCs, GIFs SMSs presented transfer problem especially when they appeared as standalone terms in which case it was impossible to mark plural in Kiswahili.

Say more with photos and GIFs.	<i>Sema Zaidi ukitumia picha na GIF.</i>
Send SMSs	<i>Tuma SMS</i>
PCs/MACs	<i>PC/MAC</i>

The messages above perform referential as well as appellative functions. The first one for example is appealing to the user to use photos and GIFs (Graphics Interchange Format) to add flare to their stories. Plural markers for the referents (GIFs and PC/MAC) are essential in bringing clarity to the message because in their singular form, the said referents may not be able to achieve the effects required, which could be “types”(of GIFs, PCs/MACs). Unfortunately, there is no way that plural can be marked in Kiswahili without adding an adjective like “*nyingi*”. If this was the case, then the rationale of using acronyms and abbreviations to avoid long names would be lost.

5.6 Lexical Choice Dilemmas: Loanwords vs Precise Technical Terms

Lexical choice, one of the main problems in localisation at the lexical level, gave rise to two transfer dilemmas whereby localisation translators were required to make a decision whether to use neologisms versus loanwords and the second dilemma involved choice

between use of precise technical terms versus general terms. Consider the following examples:

Celebs	<i>Watu mashuhuri</i> versus <i>Maseleb</i>
Sticker	<i>Kibandiko</i> versus <i>stika</i>
Media	<i>Kiambatisho</i> versus <i>midia</i>

As for the first dilemma, results obtained from the localisation translators who participated the study revealed that borrowed words were preferred to coined ones. The participants stated that the rationale behind such a preference is that the coined neologisms stood the risk of not conveying the information inherent in the original terms. The reason for this failure can be explained by Talebinejad et al (2016:182) claim that neologisms are primarily coined with regard to the linguistic aspects of the terms, or rather breaking the terms into their linguistic components. As a result of this, term like media was rendered as *kiambatisho*. This is after considering its semantic meaning that ‘media’ are just ‘tools used to store and deliver information or data’. Thus, they share the same semantic field with *kiambatisho* (attachment). The same applied to celebs, a term which simply means a person who is well known and gets lots of public attention, or attention from other people. The term was rendered as *watu mashuhuri* (literally important people).

The above lexical/terminological choices to a great extent risk disregarding the informative aspects central to effective communication. Whereas ‘*maseleb*’ and ‘*midia*’ cannot be construed to mean anything else, *watu mashuhuri* could be taken to generally mean important people based on their place in the society and whether they are valued by

the society regardless of their socio-economic status. This is quite different from a celebrity who is famous and highly honoured person because of his/her achievements. With *Kiambatisho*, elsewhere in other products, the term is a known equivalent for ‘attachment’, therefore using it to mean anything else creates a high possibility of causing ambiguity to the product users.

As the respondents observed, most of the time coined Kiswahili terms risked failing to convey the information embedded in the original technical term, and so they preferred to use the borrowed term. Moreover, the fact that Internet has ‘exposed’ most of the target users, it is then expected that borrowed terms would be easier to recognize than new coinages which, as we have seen above, some have potential to be ambiguous.

As for the second dilemma, localisation translators were confronted with situations where they were to choose between two competing terms, one being a precise but technical equivalent of the ST and the other one, a general term that is communicative but less specific. We use ‘technical’ here in the sense of being not comprehensible by many Kiswahili speakers because it is either a low frequency term, or they are restricted to a specific region within the Kiswahili speaking locale. Of course their decision was highly influenced by the text type and function. The following are examples from data.

Deadline exceeded	<i>Imepita tarehe ya kumalizika</i> versus <i>makataa</i>
Share	<i>Shiriki</i> versus <i>tumia na</i>

In the first example, *makataa* is the formal equivalent for ‘deadline’ but it is known to very few language speakers, mainly the Kiswahili language technocrats. So, although this

would be the most specific, localisation translators settled for *Imepita tarehe ya kumalizika* which is a less specific but more communicative paraphrase. As pointed in the previous paragraph, the text is informative and since the message is meant for all users including the ‘laymen’ then communication takes precedence over accuracy.

The second example is different though. The term (*shiriki*) is one of the most used terms especially in social media and interactive Apps like Google+, Google Photos, Youtube and Hangouts, where ‘share photos, video, emoji, location and so on is common. Among Tanzanian users, *shiriki* is the known equivalent for ‘share’. However, Kenyan users prefer *tumiana*. Despite this fact localisation translators chose *shiriki*. Due to the high frequency usage of the term, it is picked with hope that eventually it will gain acceptance and popularity among Kenyan users as time goes by.

5.7 Context Problems

The issue of lack of or inadequate context was cited by 100% of localisation translators as another cause of transfer problems. This is largely because localisation of a software product involves translating text embedded in various parts of the software interface and deconstructing that context is required in order to access the information to be translated (Dunne 2006:78). This deconstructive process represents one of the greatest challenges for translators working today. Figure 2 shows an example of a software interface (in this case, a dialog box) as it appears in English. Figure 3 shows the source file with which the translation team must work in order to localise the software.



Figure 5.2.GUI (dialog box) of English software to be localised.

SOURCE: Dunne 2006:79

```

IDD_OPTIONS_WRAP DIALOG DISCARDABLE 0, 0, 280, 86
STYLE WS_CHILD | WS_VISIBLE | WS_DISABLED | WS_CAPTION
FONT 8, "MS sans serif"
BEGIN
    GROUPBOX                "word wrap", IDC_BOX, 7, 7, 128, 72
    CONTROL                  "&No wrap", IDC_WRAP_NONE, "Button", BS_AUTORADIOBUTTON |
        WS_GROUP, 13, 21, 81, 10
    CONTROL                  "&Wrap to window", IDC_WRAP_WINDOW, "Button",
        BS_AUTORADIOBUTTON, 13, 39, 81, 10
    CONTROL                  "wr&ap to ruler", IDC_WRAP_RULER, "Button",
        BS_AUTORADIOBUTTON, 13, 57, 81, 10
    GROUPBOX                "Toolbars", IDC_BOX2, 144, 7, 128, 72
    CONTROL                  "&Toolbar", IDC_CHECK_TOOLBAR, "Button", BS_AUTOCHECKBOX |
        WS_GROUP | WS_TABSTOP, 153, 21, 68, 10
    CONTROL                  "&Format bar", IDC_CHECK_FORMATBAR, "Button",
        BS_AUTOCHECKBOX | WS_TABSTOP, 153, 35, 68, 10
    CONTROL                  "&Ruler", IDC_CHECK_RULERBAR, "Button", BS_AUTOCHECKBOX |
        WS_TABSTOP, 153, 49, 68, 10
    CONTROL                  "&Status bar", IDC_CHECK_STATUSBAR, "Button",
        BS_AUTOCHECKBOX | WS_TABSTOP, 153, 63, 68, 10
END

```

Figure 5.3.Source file of same GUI in which localisers work.

Source: Dunne (2006:79)

The above file is an example of what gets to the localisation translator finally to translate. It is a file with isolated language strings that provides a completely different context from that of a file containing a full dialog box. Neither the situational nor the linguistic context is provided. A novice localisation translator who doesn't have adequate general localisation knowledge and adequate digital competence about things like tags and placeholders may not even pick out what is translatable from context.

What makes transfer of texts in this format become difficult is because localisation translators may look at neighboring text to try to maintain a sense of context, but oftentimes their view becomes myopic as they become lost among the thousands of text strings (Dunne 2006:81). This is what Melby (2010:7) refers to co-text, that is the surrounding text within a particular version of one document, and which if it lacks, the localisation translator has to rely on other contexts and expertise to localise.

Although description of what each text segment does was usually provided, including which strings to translate and which to leave in English, there are situations in which translators needed extra information to interpret the source accurately without which, their work became a guessing game [and no one likes guessing games] as exemplified in the following.

Message 230	AndroidPlusOne : 2178399411223699506
-------------	--------------------------------------

Message text

Moderator

Description

Text shown under circle's name in navigation if they are a **square moderator** [project:]
[stringname:../../../../vendor/unbundled_google/packages/PlusOne/res/values/strings.xml:s
tring:square_badge_moderator_navigation]

Figure 5.4: A screenshot of a message description in GTT

The description though lengthy does not give the localisation translator sufficient linguistic context which would help him/her to understand what the term means. In fact the description has added another jargon 'square' making things even more complicated. This hampers understanding of the term and other situational contexts. In fact, all the respondents interviewed indicated that description did not help them all the time to figure out the meaning of the strings or terms. When further interrogated why this was the case, two of them cited inadequate information while two others said it was because some descriptions were equally too technical.

Related to this is the fact that localisation translators lacked real-world experience using the products as it takes time to embed the translations in the software itself. Ideally, such experience would have cultural and linguistic significance in localisation. Just the way a translator would stand a better chance to produce a more accurate translation of a

documentation for a piece of machinery if s/he was given an opportunity to first operate it, or see it being operated by another person or in a video, a localisation translator would benefit more if they had an experience with the software in the devices that are using it.

5.8 Conclusions

In conclusion, we see that the balancing act of maintaining clarity and using precise technical terms constitutes a very important aspect of transfer competence. On one hand, sometimes use of precise, accurate technical terms might baffle most readers thereby failing to achieve the intended purpose of the translation. On the other hand, in the quest to achieve clarity, localisation translators can opt for general terms which might as well fail to communicate the nuances embedded in the messages. But depending on the text function, s/he has to make a decision as an expert in translatorial action on the best approach to use in order to transfer the right ST function to the TT. Where a specific but little-known technical term is essential, then it is used consistently with the hope that with time, users will get used to its sense. On the other hand, a general term is used in cases where it does not compromise on the communicative effectiveness of the term.

We have also demonstrated that understanding message strings sufficiently to be able to translate them communicatively required more than description provided by the client about where such messages are to be used on the screen. It requires broader linguistic context as well as competencies key among them being transfer competence and communicative situation to solve instances of lack of context in the comprehension of a text segment (Jimenez 2013:179).

CHAPTER SIX: SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

In this last chapter we make conclusions. First, we will make a summary based on the findings in chapter one to five. We will then show how this research will contribute to the body of knowledge in the area of software localisation. Finally, we will make recommendations for further research.

6.2 Summary

This study set out to evaluate the linguistic and cultural implications of localising software in Kiswahili. It sought to understand how linguistic and cultural elements in terminology impact on the quality of the localised software in terms of their communicative effectiveness and overall achievement of the purpose that they were intended to achieve. The study did this by undertaking four specific objectives as outlined in chapter one:

1. To discuss the localisation process including cultural markers available in products that are localised in Kiswahili;
2. To establish the strategies and procedures used in localizing lexical and terminological units (LTUs) from English to Kiswahili;
3. To evaluate the communicative functions of localised software/google products; and
4. To determine contextual factors surrounding localisation of software in Kiswahili

The first objective aimed at discussing the localisation process including identifying cultural markers available in products that are localised in Kiswahili. To do this, the research started by discussing the important stages in a localisation project. These are globalisation, internationalization and finally localisation. In the globalisation stage, the study found out that the main task here is designing the software products in a way that it was possible to use them in Kiswahili speaking locale. Internationalization on the other hand, involved generalizing the software products so that they can handle multiple languages and cultural conventions without need for redesign. In other words, a global template is created from which versions for many locales can then be built. Finally, localisation, which was the interest of the research involved adapting the international template to specific markets bearing in mind specific and unique linguistic and cultural norms and conventions of that particular locale. It is at localisation stage where linguists who are native speakers of Kiswahili and who possessed requisite cultural understanding of the target users come to play.

In the case of localisation, the research established that in addition to globalisation and internationalization a host of many more other processes were involved, each of which required specific translatorial actions and localiser-competencies. Key among these competencies is terminology management which is necessitated by the fact that the localisation project involves enormous number of terms which needed to be managed properly in order to ensure that they were easily retrievable by the localisers and that there was consistency in their usage within and across different software products. In order to manage terminology well, the research established that a Translation Memory

Tool which in the case of Google was the Google Translator Toolkit (GTT) was essential. The role of technologically savvy linguists was found to be crucial to inform how the terms are to be created, stored and retrieved for future work.

The research also examined linguistic, cultural and technical dimensions of localisation as these were of interest to the research in terms of bringing to light what role they play in a localisation process. The study found out that cultural models of ice-berg model, the onion model, the objective-subjective model and the met-model proposed by Hoft (1996) applied in software localisation albeit in varying degrees. All the models showed that there exist cultural elements in software products. Furthermore, it was revealed that these culture elements exist in what can be described as layering, meaning there are those that are easily visible and distinguishable by people while others are hidden and sometimes difficult to distinguish them from ordinary lexical and terminological units. The Ice-berg model for example placed culture-specific elements in the data into two categories: those that are visible and which formed a smaller percentage than those that were hidden and formed the larger percentage. Terms such as names of popular people and places, Swahili salutations and mannerisms were the most visible across software products. However, just like in the case of an ice-berg where only a small part is usually visible to people, the culture elements that can be isolated by all software users as being so were found to be very few. On the other hand, there were other cultural terms that were not distinguishable on the surface as culture-specific. These were many and their classification as being cultural terms is subjective and depends on who is looking at them.

The second objective aimed at establishing the strategies and procedures used in localising lexical and terminological units (LTUs) from English to Kiswahili. This was done first by examining the existing localisation models: mechanical, cultural and political. The significance of this was that each model led to a different translation strategy in the localisation process. For instance, mechanical perspective led to compensatory strategies like borrowing (by transference or naturalization) use of descriptive equivalents, expansion and reduction whereas cultural model resulted in strategies like use of cultural equivalents (gallons with 5 ltrs), borrowing (for terms that were deemed to be understood across digital culture, domestication, interpretation).

The role of the localisation translators was found to be key in transcreation, adapting texts for the target recipients and generally mediating meaning and culture between the SL and TT. This is because it was revealed that despite the many localisation resources (glossaries, term banks, TMTs, it is seldom the case that the author of the ST will supply the localisation translator with the entire context and enough of such resources needed to accomplish the task of localisation. Even when equivalents are provided by the CAT tool and other language resources, sometimes such equivalents may not be adequate and may call for the localisation translator to rely on a host of competencies to coin an equivalent that is fully communicative. Secondly, CAT tool equivalents for example are based on mechanical analysis of the text rather than understanding of it. Therefore, the importance of the localisation translator was to evaluate such equivalents and if they were not fulfilling the *skopos* of the ST, they looked for a better term.

The findings of the study are in agreement with Nida and Taber (2003), who argues that for any linguistic unit in the SL there is an equivalent unit in the TL and that the localisation translator's role as an expert in the translatorial action was to find or produce that equivalent. It emerged that in a number of occasions, one-to-one lexical or terminological equivalence was not possible due to the fact that English has a larger lexicon than Kiswahili. Consequently, called for compensatory problem-solving strategies that explication, paraphrase, simplification or modifying the original text at a certain point (Stolze 1993). Nevertheless, when translation was viewed with a communicative angle, and if the purpose of a translation is the conveyance of referents from an SL to a TL in which these referents do not exist, the localisation translator's role in such circumstances is to produce the closest natural equivalent of English (SL) in Kiswahili (TL).

The study revealed that borrowing was employed more than other translation strategies where terms were transferred either in pure or naturalized form. This paralleled studies by (Molina, Albir, 2002 & Byne, 2014) who found that terminology of computer science is almost universally understood and accepted in its predominantly English form. An interesting phenomenon, however, is the fact that new English scientific and technical terms are assimilated into Kiswahili language and become part of the active language of the general populace.

The third objective aimed at evaluating translation methods and strategies used to achieve communicative functions of localised software products. This was done by first interrogating the text functions performed by ST so that then we would compare that with the TT with the aim of assessing if such text functions were achieved in the TT.

The study found out that the ST terms performed four key functions which are referential, expressive, appellative and phatic functions. However, it emerged that due to the nature of our texts which fell under the technical genre, these functions are played in varying degrees. It emerged that the referential and appellative functions were more prominent than the rest. This finding is attributed to the fact that marking the core motivation of software localisation and therefore most texts are informing, teaching or giving instructions about various aspects of the software or appealing to potential buyers to purchase a certain software product.

The research found out that these functions despite having been achieved to a large extent there were instances when they were not transferred correctly in the TT. This was attributed to equivalence problems. It emerged that when localisers lacked adequate equivalents they resulted to generalizations even in situations where absolute specificity was required. As a result of these generalizations, communicative effectiveness of the TT and therefore *skopos* of the same could not be achieved in such instances.

It was observed that the notion of equivalence was central in assessing the extent to which *skopos* of the ST was achieved in the TL. For example it was central to the notion of various text functions or purposes of communication since the equivalence of

“message” between the ST and the TT must always be the goal of the localisation translator in a translational action. Unless the TT succeeds in performing the function or purpose the same way it was intended by the source writer, then the translational action is defective.

The study revealed several equivalence related scenarios, each of them presenting unique translation problems to the localisers. These scenarios include where certain LTUs in the source language had one known equivalent in the target language, where some LTUs in SL had a whole range of equivalents in the TL. There were instances where a LTU in SL lacked equivalent or a specific term in the TL or had a cultural connotation among other scenarios. When the localisation translator was faced with all these scenarios, he was expected to employ compensatory strategies to deliver the message in the SL in the best communicative manner.

The fourth objective aimed at determining contextual factors surrounding localisation of software in Kiswahili. This was done by analyzing the text production process particularly assessing the role of the localisation translator in producing a ST that was communicative and as well as creating an equivalent or near equivalent effect to that of the ST. This was done by examining the various competencies that s/he as the expert in the translatorial action processed to enable him/her achieve this kind of effect. These competencies were technological, cultural, linguistic and transfer.

The study found out linguistic and transfer competence were the most important competencies in the translational action. For linguistic competencies its importance emanates from the fact that since English has a broader lexicon than Kiswahili resulting to more specificity in the way things are called in English, Kiswahili often times lacked specific terms for the ST references. Owing to this fact, the localisation translator required to employ the most appropriate translation strategy to translate the terms in a manner that their communicative effectiveness in not compromised.

The research also found that due to fast advancement in technology a lot of new terms were being created every day. Most of these terms were neologisms which did not have Kiswahili equivalents in the available localisation language resources such as glossaries termbases and bilingual dictionaries. Due to this reality, it called for the need to have localisation translators with the capacity to explore linguistic possibilities available in order to be able to coin appropriate equivalents. It also emerged that despite the availability of adequate terminology look-up tools such as glossaries, oftentimes terms deviated from the norm depending on the linguistic situations in which such terms were being used. Therefore it called of great linguistic abilities which may not necessarily be borne from the fact that one is a native speaker of Kiswahili but has a good grasp of its grammar to be able to explore ‘extraordinary’ translation strategies and provide good equivalents.

Transfer competence was found to play a key role in transferring ST to TT in a clear, concise and communicative manner. It was found that sometimes, these attributes of

software translation had an overriding importance to readability which many translators claim should take precedence/be given priority (Acar 2017, Fallah, 2016, Mujiyanto, 2016). The research found out that technical texts such as those found in software, unlike other text genres required skillfulness to handle things like character limits, tags and placeholders.

Another thing that the study revealed was that there were many stylistic inconsistencies and instability in the way terms were created and that could have hampered the ability of localisers to create equivalents for the new terms especially proper names, acronyms and abbreviations. The fact that Kiswahili generally uses more words than English put a challenge for message strings that had character limits because the boxes that they were to be fitted in were inflexible.

The issue of inadequate or lack of context was found to undermine the localisers ability to transfer ST texts to TT. This was particularly a problem with single word terms, which were sometimes hard to tell which part of speech they belonged to. It was noted that this situation was aggravated by the fact that the author of the message strings sometimes provided inadequate or equally technical descriptions that were meant to provide context for the message strings.

Technological/digital competence was found to play a key role in the translational action. It emerged that due to fact that so much new terms are being churned out as a result of advancements in IT, there arouse need by all players in the localisation project: linguists

and project managers to be tech-savvy. This would enable them to maintain collaboration on digital platforms such as Hangouts for the purposes creating updating, standardizing, seeking clarifications on all matters to do with terminology. Localisers with enough of this competence and real world experience with the products in SL are likely to have an upper hand in understanding terms especially neologisms that were coined by way of giving old terms new senses.

Localisers with proper grounding on technology are also able to deal with basic Word processing better than those with less of it and therefore are able to avoid typological errors which could have negative impact on overall acceptability of the product reputation of company. This is important because as already mentioned, users of software products have less tolerance to typological errors and can easily refuse to purchase the product because of such errors.

On culture, although localisation theory places cultural competence as one of the most important competence in localisation, it was found that on the contrary. It emerged that there were few culture-specific terms in software. Even when such terms appeared in the ST, they were rendered by their formal equivalents most of the times. It appeared that a culture has emerged that can be described as digital culture whereby anyone that uses Internet by extension subscribes to this culture. This culture was found to supersede national cultures in the way people interact with the web.

6.3 Conclusion

One of the conclusions to draw is that mediating message from SL to TL is satisfactory judging from a linguistic and cultural perspective. There is no doubt that Kiswahili is adequate linguistically and rich culturally to deal with any translation issue including in technical environments such as software localisation. In deed no linguistic unit in English, the language of software authorship is not transferrable into Kiswahili even in software localisation environment.

However, methodologically, it is not an easy task to tell with certainty whether the localised software products achieved the intended function, i.e. whether or not the target message was as efficient as the source message. This is because the study was not able to establish how the localised products were received by the end users, which is a very important consideration in evaluating quality in such translations. As Al-Qinai (2000) claims, reception of the TT is the ultimate assessment of quality and processes that any translation for 'public purposes' must be checked to ascertain that ST writer and TT recipients have their expectation fulfilled.

Another conclusion is that due to the dynamism and interactivity of online environments culture-based approach would not be sufficient in orienting localisation endeavors. This conclusion results from the fact that users' culture in online environments is neither stable nor static. On the contrary, culture in online environment is often more complex and slippery. This diminishes culture's usefulness as a guiding term for software localisation strategies. Instead contextual factors such user's level of exposure to online environment plays a more pivotal role.

6.4 Rationale/contribution of the Research

There are many Kiswahili localisation projects currently being undertaken by software companies like Google and Microsoft and other companies especially electronics companies like Huawei and LG as they strive to penetrate East African market where Kiswahili is spoken. Companies are appreciating the fact that Internet space is expanding and now even people who do not understand English which is mainly the original language of these products can be reached through smart phones.

There is a growing conviction by such companies that the best way to appeal to users to buy their products is by using the language that they understand best. In the case of the East and Central Africa, Kiswahili is indeed a prominent language of communication to many people. As a result, some of them like Google, Microsoft, Huawei, LG are investing a sizeable amount of money to localise their products into Kiswahili. Others like Facebook are using crowdsourcing model to translate their IU.

In this backdrop, the findings of this research will offer insights on the linguistic and cultural potentials as well as bottlenecks that localisers are likely to deal with when localizing software into Kiswahili. This is important for clients so that as they prepare localisation briefs style guides, manuals and other localisation resources they are alive to these realities and thus be able to mitigate the challenges accordingly. This knowledge is also important for developers so that as they design dialog boxes they are alive to the fact that due to some limitations inherent in Kiswahili, sometimes translations can vary considerably with ST English terms in length and density and often there isn't enough space strings might overlap other controls and affect the interface or even the last few

characters are cut as in the following example from Gmail: *Ujumbe uliokuwa kwenye Barua taka zaidi ya siku 30 utafutwa kiotomati* where characters ‘ki’ have been cut.

The findings also will shed light on what kind of localisation competencies language service providers should be looking for in linguists for future Kiswahili localisation projects. An important point to note regarding these competencies particularly, is the fact that transfer, linguistic, and digital competencies in that order supersede cultural competence which all along has been thought to rank higher than transfer and digital competencies.

6.5 Recommendations

The current study focused on terminology and studied it from a linguist’s perspective. A follow-up research is necessary to assess communicative effectiveness of localised products on users. This is because as Al-Qinai (2000:517) puts it, reception of the TT is the ultimate assessment of quality and processes that any translation for ‘public purposes’ must be checked to ascertain that ST writer and TT recipients have their expectation fulfilled. Thus, it is important to establish if users have a different perspective towards the localised software from the one expressed in this research. Despite the research labelling some terms ‘correct’ or ‘incorrect’, adequate or ‘inadequate’ we still are of the view that this judgement is not absolute and that we need to address the question of ‘for whom’ the localisation was done. This is because the question of whether the localised software is localised correctly should be determined by the extent to which the users of such localised products whom the localisation was intended to benefit are able to understand it correctly.

A comparative study between products that were localised using different approaches would be necessary. In mind here, is Facebook and Google, where the former crowdsourced their localisers and the later used linguists who had good understanding of the TL culture. The crowdsourced localisers employed by Facebook have heavily used literal translation such as ‘nyumbani’ for ‘home’ (the first page that a user interacts with when s/he visits a website) while Google localisers were keen on semantics of the terms. It would be particularly interesting to find out whether users in Kiswahili speaking locale who are deemed to have some understanding of English would prefer Facebook’s approach over Google’s since back translation can sometimes aid them in comprehending difficult terms.

The researcher also recommends that a study be done on syntax in localised software products. This is motivated by the fact that this research restricted itself to LTUs yet it is cognisant of the fact that the basic thought-carrying element of language is its grammar. As a matter of fact, localisation translators did not localise isolated words but rather terms that were sometimes bound by their syntactic and situational contexts. For instance, it would also be worthy finding out how syntax of a sentence such as this one below would affect comprehension of the message:

Owner response author's profile photo
majibu

Picha ya wasifu ya mwandishi ya

Even if Kiswahili terms used were deemed adequate as in the above case, perfect grammatical sentences are a must in order to guarantee an intelligible text that is cohesive. Another justification for another research on syntax is owed to the fact that scientific and technical texts generally tends to display less correspondence, a characteristic feature that challenges even the most astute translator.

In the backdrop of recent and rapid growth of social media such as Facebook, Twitter and Whatsapp, another area that would be of interest to study may be localisation of social media in terms of expanding the context of web localisation research. It may be interesting for instance to see how companies that are using social media widely in their marketing are localizing their social media efforts to meet different socialization norms of countries in which they are operating.

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APPENDICES

APPENDIX 1: LOCALIZATION TRANSLATORS' QUESTIONNAIRE

Section A: Personal Information

Please answer by filling the blank space or by ticking (✓) the box next to the question.

1. Nationality: _____
2. Which country have you lived in the last five years? _____
3. Rate yourself in terms of familiarity with the culture of the country you recorded in (3) above (Where 1= Very Bad, 2= Bad, 3= Average, 4= Good, 5=Outstanding)

1. [] 2. [] 3. [] 4. [] 5. []

4. Languages: A_____ B_____
5. Which is your highest qualification for Kiswahili
Phd []
Masters []
Bacherors degree []
Diploma []
Certificate []
Other (Specify) []

Section B: About your Localization Experience

1. Have you been working in the localization industry?

Less than 1 year []
How long 1-2 years []
2-3 years []
4-5years []
More than 5 years []

2. Are you IT literate? Yes [] No []

3. Rate yourself in terms of IT expertise (Where 1= Very poor, 2= Poor 3= Average 4= Good 5= Outstanding)

1. [] 2. [] 3. [] 4. [] 5. []

4. Which translation memory tool did you use in localization?

- Google Translator Toolkit
- MemoQ
- SDL Trados
- Devaju
- Other (Specify)

5. Mark the tasks you performed in the project (You can mark more than one)

- Translation
- Post editing
- Reviewing

6. a) Please estimate by marking with a tick (✓) how likely each of the following statements would apply if context and available language resources cannot help you get terminological equivalent?

Statement	Most likely	Sometimes	Rarely	Never
(i) Fudge/fake (because I do not know which of two or more possible meanings is intended?)				
(ii) Consult a colleague				
(iii) File a query				

b) If answer to 4(iii) is rarely or never, give a reason (Tick where appropriate).

Reason	Tick where appropriate
The process is tedious	
I did not know how	
Response was slow	
Responses were not helpful	
Any other reason	

7. Were you provided with any translation brief before starting the project?

Yes [] No []

8. If yes in (7) above, what kind of information (Tick whatever applies)

Statement	Tick where appropriate
Readership/ Target audience	
Purpose of the localization	
Reference resources	
Tools	
Other (Specify)	

9. Did you receive other briefs during the course of doing the project?
 Yes [] No []

10. If yes in (9) above, list the kind of information provided in those briefs

.....

Section C: About Your Opinions

1. What is your opinion about the importance of the following information in choosing terminological equivalents:

Information	Not Useful	Less Useful	Useful	Most Useful	It doesn't matter
Purpose of the text					
Localization brief					
Context					
Past choices					

1. How important are the following experiences in dealing with non-equivalence during localisation?

Experience	Not important at all	Quite important	Very important	It doesn't matter
Project related experience				
Real world experience				

3. How likely were to consult the following reference sources in equivalence search?
(Where 1= Never 2 = Rarely, 3= Sometimes, 4= Likely, 5= Most Likely)

Reference Source	1	2	3	4	5
Glossaries					
Dictionaries					
Terminology lookup					
Past translations					
Style guides					
Others (Specify)					

4. Please estimate how likely each of the following would affect your ability to render a translation accurately:

Statements	Never	Rarely	Sometimes	Likely	Very Likely
Time constraints/short deadlines					
Motivation					
Level of difficulty of the Source Text					
Unfamiliarity of the Translation Tools					
“Over assessment” of target language errors					
Others (Specify)					

5. From your own experience, rate each of the following text types in terms of difficulty in their translation:

Statements	Very Easy	Easy	Neutral	Difficult	Very difficult
Neologisms					
Abbreviations and acronyms					
Proper names					
Others (Specify)					

6. Please indicate the extent to which you agree with each of the following statements relating to Translation Problems

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Most of the translation problems emanated from the ST					
Translation problems emanated from lack of comprehension of the ST					
Translation problems emanated from inadequate technological knowledge					
Translation problems emanated from inadequate context					
Translation problems emanated from unclear context					

7. Please indicate the extent to which you agree with each of the following statements.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Subject-matter expertise specific to the software is very essential in producing acceptable TT					
Solid understanding of the software's purpose is very essential in producing acceptable TT					
Knowledge of user's terminological preferences and usage are key in settling for the right equivalents					

8. Rate the importance of these competencies in increasing your productivity and accuracy; (Where 1= not important at all 2= slightly important 3= quite important 4= important and 5 Very important)

Statements	1	2	3	4	5
Linguistic competence					
Technological competence					
Cultural awareness					
General transfer (translation) competence					

9. What was the most frustrating thing in your experience in localization: (Tick where appropriate)

Statement	Tick where appropriate
Lack of equivalence	
Insufficient context	
Translating culture-bound terms/words	

1. a) Which of these statements best describe quality of ST? (Tick where appropriate)

It was well authored []

It was poorly authored []

b) If (b) please tick which of the following applies (you can tick many boxes)

Statements	Tick wherever appropriate
Typological and structural errors	
Lacked clarity	
Very technical	
inconsistent terminology and usage	
Ambiguous terms	
Unfinished sentences	
Incorrect factual information	
Poor orthography	
Bad punctuation	
Others (specify)	

Section D: Finally

Is there anything else that you would like to add relevant to this topic that we might not have asked you? Please feel free to comment.

.....

.....

.....

.....

.....

APPENDIX 2: INTERVIEW GUIDE

Section A: Personal Information

A1. What is your name?	
A2. Which are your active and passive languages?	
A3. What is your highest level of education?	
A4. Which is your highest professional level?	
A5. Which country have you resided in the last 5 years?	

Section B: Localisation Experience

B1. For how long have you localised software for Google?	
B2. Which position do you hold in the localisation project? (localizer, reviewer, team leader etc)	
B3. Which specific software products do you localise?	
B4. How big is your team?	
B5. Which CAT tool do you use for the localization project?	
B6. Other than Google, do you localise for other companies?	
B7. If yes in B6, which are they?	
B8. If yes in B6, how does the experience in localising for those other companies help in the Google project?	

Section C: Nature of the Source Text

C1. What is your opinion about source text authorship in terms of its general language quality?	
C2. Are there instances when you failed to understand the source text? (if the answer is yes in C2, why)	
C3. Which type of translation units were most problematic localising in Kiswahili (e.g. proper nouns, abbreviations, collocations, etc.) and why?	
C4. How did you deal with the above mentioned difficulties?	
C5. Were you always successful in dealing with the above-mentioned problems?	
C6. If no in C5, how were they finally resolved by the team leader?	
C7. Which single most important skill do you think give you an upper hand in doing your tasks (eg computer savvy, linguistic skills, translational skills etc.)	

Section D: The Localised Products

D1. Which software products or Apps have already been localised in Kiswahili	
D2. Are you using any the products you you mentioned in D1?	
D3. If yes in D2, which ones?	
D4. Tell me briefly about the user experience.	
D5. Do you think the experience of using the localised software help you in localising other products?	
D6. If yes in D5, how?	
D7. Does the team leader encourage you to use the localised products and Apps?	
D7. Do you think your teammates should be compelled by the client to use the already-localised products in order to have firsthand experience with the products?	

Section E: Vendor Obligations

D1. Do you feel that the vendor was supportive to the localisers all the time?	
D2. If the answer to D1 is in the affirmative, what kind of help did you receive?	
D3. If the answer to D1 is no, what kind of assistance do you expect from the vendor?	
D4. Did you have localisation briefs at the begaining of the project?	
D5. If the answer to D4 is no, how did you know of your obligations and other project requirements?	

D6. If the answer to D4 is yes, what kind of information was availed to the team?	
D7. Do you have other briefs in the process of undertaking the project?	
D8. If the answer to D7 is yes, how often and about what?	
D9. In your own opinion, what do you think the vendor should consider most when hiring new localisers?	
D10. Are there things that you feel could have been improved to make your productivity better?	

APPENDIX 3: GOOGLE LOCALISATION GLOSSARY

English	Kiswahili	Word Category
+1	+1	noun
+1	+1	verb
+1 annotations	ufafanuzi +1	noun
+1 button	kitufe cha +1	noun
+Jobs	+Nafasi za Kazi	noun
+mention	Taja kwa ishara ya +	verb
+Page	Ukurasa+	noun
+Pages Analytics	Uchanganuzi wa Kurusa za Google+ Matangazo kutoka Machapisho ya	noun
+Post ads	Google+	noun
+You	Wewe+	noun
-1	-1	verb
2-step verification	uthibitishaji wa hatua mbili	noun
3G	3G	noun
abort	ghairi	verb
About Google	Kuhusu Google	noun
abuse	matumizi mabaya	noun
Acceptable Use	Matumizi Yanayokubalika	noun
access	idhini ya kufikia;uwezo wa kufikia	noun
access	fikia	verb
access token	data ya ufikiaji zana za walio na matatizo ya kuona au	noun
accessibility	kusikia	noun
account	akaunti	noun
Account Activity	Shughuli za Akaunti	noun
Account Chooser	Kichagua Akaunti	noun
account creation page	ukurasa wa kufungua akaunti	noun
account holder	mmiliki akaunti	noun
account menu	meyu ya akaunti	noun
account preferences	mapendeleo ya akaunti mbinu za kurejesha uwezo wa kufikia	noun
account recovery	akaunti	noun
account settings	mipangilio ya akaunti	noun
account verification	uthibitishaji wa akaunti durara za jamaa;Miduara ya	noun
acquaintances circle	unaowafahamu	noun
action	kitendo	noun
Action	Vitendo	noun
action button	kitufe cha kutenda	noun
Ad Innovations	[name not final - use English name]	noun

add	ongeza	verb
additional account	akaunti ya ziada	noun
Add-on	Programu jalizi	noun
add-on	programu jalizi	noun
adhere	tii	verb
Admin console	Admin console	noun
administration console	dashibodi ya udhibiti	noun
administrator	msimamizi	noun
adult content	maudhui ya watu wazima	noun
advanced filter	kichujio mahususi zaidi	noun
advanced search	utafutaji wa kina	noun
advertisement	tangazo	noun
advertising program	mpango wa matangazo	noun
AdWords account	akaunti ya AdWords	noun
AES encryption	usimbaji fiche wa AES	noun
affiliate	mshirika	noun
affiliate ad	tangazo kwenye mtandao wa washirika Kituo cha Kuboresha Utangazaji wa	noun
Affiliate Optimization Center	Washirika	noun
after the jump	muhtasari	noun
agenda	ajenda	noun
agent	dalali	noun
aggregate liability	dhima ya juu	noun
agreement	mkataba;makubaliano	noun
album	albamu	noun
album cover	jalada la albamu	noun
Alerts	Arifa za Google	noun
align	pangilia	verb
alternate email address	anwani mbadala ya barua pepe	noun
Alumni	Watumiaji Bingwa wa Zamani	noun
amplify	ongeza	verb
Android Q	Name is not final - please use English name for now	noun
annotation	maelezo	noun
antispymware	kingavidadisi	noun
Apache	Apache	noun
API	API	noun
app	programu	noun
applet	kijiprogramu	noun
applicable	-a kutumika	noun
application	programu	noun
application programming interface	Kusano ya Kusanifu Programu	noun
Application Security	Usalama wa Programu	noun

Apps for Business	Apps for Business	noun
Apps for Google Drive	Programu za Hifadhi ya Google	noun
arbitration	upatanishi	noun
arcade	arcade	noun
archive	kumbukumbu	noun
archive	hifadhi kwenye kumbukumbu	verb
archive	weka kwenye kumbukumbu	verb
Art Project	Art Project	noun
ASCII	ASCII	noun
asparagus	kijani	noun
assign	hawilisha	verb
assignment	utawaza	noun
asynchronous JavaScript code	msimbo wa JavaScript usiolandana	noun
Atom	Atom	noun
attachment	kiambatisho	noun
attack site	tovuti ya mashambulizi	noun
attendee	atakayehudhuria	noun
attribute	kipengele	noun
Audience Questions	Maswali ya Watazamaji	noun
audience segment	kikundi cha watumiaji	noun
audio	sauti	noun
authentication	uthibitishaji	noun
authorization	uidhinishaji	noun
Authorship	Uandishi	noun
Authorship analytics	Takwimu za uandishi	noun
Auto Awesome	Umaridadi Papo Hapo	noun
Auto Backup	Hifadhi Nakala Kiotomatiki	noun
Auto Enhance	Uboreshaji wa Kiotomatiki -a kujaza kiotomatiki;-a kukamilisha	noun
autocomplete	kiotomatiki	noun
autocomplete	kiotomatiki 2. jaza kiotomatiki;1. kamilisha	verb
autocomplete	ujazaji kiotomatiki;ukamilishaji	noun
autocompletion	kiotomatiki	noun
auto-expand creative	maudhui ya tangazo yanayoweza kujipanua	noun
Auto-Expunge	Futa Kiotomatiki	verb
automotive	motokaa	noun
autosave	hifadhi kiotomatiki	verb
available	anapatikana	noun
B	Samawati	noun
B&W	Nyeusi/Nyeupe	noun
B2B	Biashara kwa Biashara	noun
Back	Nyuma	noun
back up	hifadhi nakala rudufu	verb

background image	picha ya mandhari-nyuma	noun
backlink	viungo rejeshi;kiungo rejeshi	noun
backup	hifadhi rudufu	noun
backup ad	tangazo mbadala	noun
backup verification code	msimbo mbadala wa uthibitishaji	noun
badge	beji	noun
ban	piga marufuku	verb
bandwidth	kipimo data	noun
bank account	akaunti ya benki	noun
bank transfer	hawala ya benki	noun
banner	bango	noun
bar chart	chati ya miraba	noun
basic HTML	HTML msingi	noun
battery	betri	noun
bcc	nakala fiche kwa	noun
beta	Beta	noun
beta test	jaribio la beta	noun
beta version	toleo la beta	noun
billing statement	taarifa ya malipo	noun
bind	shurutisha	verb
BizBuilder	BizBuilder	noun
bleach bypass	bila kutumia kemikali za kuosha picha	noun
Bleached	Kuondoa rangi	noun
block	zuia	verb
blocked	amezuiwa	noun
blog	blogu	noun
blog post	Chapisho kwenye blogu	noun
Blogger Buzz	Blogger Buzz	noun
Blogger Template Designer	Zana ya Blogger ya Kuunda Violezo	noun
blogroll	orodha ya blogu	noun
Blogs	Blogu	noun
blue velvet	samawati iliyokolea	noun
Bluetooth	Bluetooth	noun
bookmark	alamisho	noun
bookmark	alamisha	verb
bookmarklet	kijialamisho	noun
Boolean	Boolean	noun
boot	washa	verb
bootleg copy	nakala haramu	noun
borough	manispaa	noun
BrailleBack	BrailleBack	noun
breach	kiuka	verb
break apart	tenganisha	verb

brick-and-mortar	duka halisi	noun
brilliance	mng'aro	noun
bring forward	leta mbele	verb
bring to front	leta juu	verb
browse	vinjari	noun
browse	vinjari	verb
browser	kivinjari	noun
browsing data	data ya kuvinjari	noun
bubble	kiputo	noun
bubble gum	rangi ya waridi	noun
buffer	akiba	noun
bug	hitilafu	noun
bug fix	kurekebishwa kwa hitilafu	noun
build	muundo	noun
Bulk Hardware	Mfumo wa Kununua Vifaa vya Google kwa Wingi	noun
bulk upload	kupakia ... nyingi	noun
bulksheet	jedwali kubwa	noun
bullying	uchokozi	noun
business	biashara	noun
business account	akaunti ya biashara	noun
Business Builder	Business Builder	noun
business info card	kadi ya maelezo ya biashara	noun
business information	maelezo ya biashara	noun
business practice	desturi za biashara	noun
business-to-business	biashara-kwa-biashara	noun
busy	ana shughuli	noun
button	kitufe	noun
buyer	mnunuzi	noun
by default	kwa chaguo-msingi	noun
byte	baiti	noun
cache	akiba	noun
cached link	kiungo cha zilizoakibishwa	noun
calendar	kalenda	noun
Calendar	Kalenda	noun
Calendar Labs	Majaribio ya Kalenda	noun
call	simu, piga simu	noun
call	piga simu	verb
Call phone	Piga simu	verb
cancel	ghairi	verb
captcha	captcha	noun
caption	manukuu	noun
Capture	Piga Picha	noun

car insurance	bima ya magari	noun
card	kadi	noun
cardinal	nyekundu	noun
Careers	Nafasi za Ajira katika Google	noun
cart	kikapu	noun
Casanova	Casanova	noun
case study	kielelezo	noun
cc	nakala kwa	noun
Celebs	Watu Mashuhuri	noun
cell	kisanduku	noun
certificate	cheti	noun
CGI script	hati ya CGI	noun
challenge	alika kushindana	verb
change history	historia ya mabadiliko	noun
character limit	idadi ya juu ya herufi	noun
character set	misimbo ya herufi/mfumo wa kusimba	noun
chargeback	herufi	noun
Charms	urejeshaji pesa	noun
chart	Menyu Nyepesi	noun
chat	chati	noun
chat	Piga gumzo;sogoa	noun
chat client	piga gumzo	verb
Chat for Google	kiteja cha gumzo	noun
chat history	Gumzo la Google	noun
chat roster	hsitoria ya gumzo	noun
chat status	orodha ya majina ya gumzo	noun
check box	hali kwenye gumzo	noun
check in	kisanduku cha kuteua	noun
checkbox	jitokeze	verb
check-in	kisanduku cha kuteua	noun
Checkout Sandbox	Ingia	noun
child sexual abuse imagery	[name not final - use English name]	noun
child-directed treatment	maudhui yanayoonyesha unyanyasaji wa ngono dhidi ya watoto	noun
chocolate ice cream	ichukuliwe kama inayowalenga watoto	noun
chromatic aberration	kahawia	noun
Chrome for Android	kubadilika kwa mwangaza	noun
Chrome for Business	Chrome ya Android	noun
Chrome to TV	Chrome ya Biashara	noun
Chromebooks for Business	Chrome kwa Runinga	noun
Chromebooks for Education	[name not final - use English name]	noun
circle	[name not final - use English name]	noun
circle volume	durara;Mduara	noun
	nafasi ya mduara	noun

city location	eneo la jiji	noun
claim	daawa	noun
claim token	ishara umiliki;msimbo wa kudai	noun
claimant	mdaawa	noun
Classic	Kawaida	noun
classic template	kiolezo msingi	noun
Clean	Safi	noun
click	mbofyo	noun
click	bofya	verb
click fraud	udanganyigu wa kubofya	noun
click spam	mibofyo taka	noun
click-through rate	asilimia ya mibofyo	noun
client	-teja	noun
clipped highlights	sehemu zilizofutika	noun
clipped shadows	vivuli vilivyofutika	noun
closed captions	manukuu	noun
cloud	wingu	noun
cloud computing	matumizi ya kompyuta kwenye wingu	noun
cloud device	kifaa cha wingu	noun
cloud messaging	kutuma ujumbe kupitia wingu	noun
cloud printer	printa mawingu	noun
CNAME	CNAME	noun
code	msimbo	noun
codec	kodeki	noun
coding	usimbaji	noun
collaborate	shirikiana	verb
collaborator	mshirika	noun
collapse	kunja	verb
color palette	safu ya rangi	noun
column	safu wima	noun
Comfortable	Starehe	noun
command	amri	noun
comment	maoni	noun
comment	toa maoni	verb
comment notification	Maoni;arifa za maoni	noun
comment-only mode	hali ya kutoa maoni tu	noun
Comments	Maoni kupitia Google+	noun
Comments	Maoni kupitia Google+	noun
commercial	wa biashara	noun
commercially reasonable	adilifu kibiashara	noun
commission rate	asilimia ya faida	noun
common name	jila la ukweli	noun
communications manager	msimamizi wa mawasiliano	noun

Communities	Jumuiya	noun
community	jumuia	noun
Community	Jumuia	noun
community standards	viwango vya jumuia	noun
commute	safari	noun
commute	safiri	verb
Compact	Kushikamana	noun
comparison shopping engine (CSE)	huduma ya utafutaji ya kulinganisha bei za bidhaa (CSE)	noun
complaint	malalamiko	noun
comply	tii	verb
compose	tunga	verb
compromised site	tovuti iliyoathiriwa	noun
computer	kompyuta	noun
confidential	siri	noun
confidentiality	usiri	noun
confidentiality agreement	mkataba wa usiri	noun
configure	(ku)sanidi	verb
conflict of laws provisions	masharti kwa sheria pinzani	noun
connect	unganisha	verb
Connected Accounts	Akaunti Zilizounganishwa	noun
consequential	-a kuambatana	noun
constitute	-wa sehemu ya, anzisha, -wa na	verb
construe	chukuliwa kumaanisha	verb
Consumer Premium	Consumer Premium	noun
contact	unayewasiliana naye	noun
contact information	anwani ya mawasiliano	noun
Contacts	Anwani	noun
contemporaneous	sambamba	noun
content	maudhui	noun
Content License Agreement	Mkataba wa Leseni ya Maudhui	noun
content management	udhibiti maudhui	noun
content management system	mfumo wa kudhibiti maudhui	noun
content policy	sera ya maudhui	noun
context menu	menyu	noun
Contrast	Utofautishaji	noun
control panel	paneli dhibiti	noun
control points	vituo vya udhibiti	noun
Control Room	Kituo cha Vidhibiti	noun
conversation	mazungumzo	noun
conversation view	mwonekano wa mazungumzo	noun
conversion	kushawishika	noun
conversion rate	asilimia ya walioshawishika	noun

cookie	kidakuzi	noun
Cool	Baridi	noun
copy	nakili	verb
copyright	hakimilki	noun
copyright claim	madai ya hakimiliki	noun
copyright infringement	Ukiukaji wa hakimilki	noun
cost	bei;gharama	noun
cost-per-click	gharama ya kila mbofyo	noun
counter notification	arifa ya kukanusha	noun
coupon	kuponi	noun
court decision	uamuzi wa mahakama	noun
court order	amri ya korti	noun
covenant	maagano	noun
covenant	ahidi	verb
cover photo	picha ya jalada	noun
coworker	mfanyikazi mwenzi	noun
Cozy	Kutosha	noun
CPC	gharama ya kila mbofyo	noun
CPU	kiini cha kompyuta (CPU)	noun
crash	kuacha kufanya kazi	noun
crash	acha kufanya kazi	verb
crawl	kutambaa	noun
crawl	tambaa	verb
crawler	programu ya kutambaa	noun
creative	faili za tangazo	noun
Creative Kit	Furushi la Ubunifu	noun
credentials	kitambulisho	noun
CRM	mfumo wa kuratibu mahusiano na wateja (CRM)	noun
Cross	Mchanganyiko	noun
cross-posting	kuchapisha kwingineko	noun
cross-sell	uza kwa wateja waliopo	verb
cross-selling	kuuza kwa wateja waliopo	noun
Crowd Surfing	Dandia Hangout	noun
CSAT	Kuridhika kwa Wateja	noun
CTR	asilimia ya walioshawishika	noun
Currents	Currents	noun
custom	maalum	noun
custom domain	kikoa maalum	noun
customer service	huduma kwa wateja	noun
customer service representative	mwakilishi wa huduma kwa wateja	noun
Customer Support	Usaidizi kwa Wateja	noun
customize	badilisha kukufaa;weka mapendeleo	verb

CVC	CVC	noun
daily agenda email	Barua pepe ya ajenda ya kila siku	noun
Dark	Nyeusi	noun
Dashboard	Dashibodi	noun
dashboard	dashibodi	noun
data center	kituo cha data	noun
data liberation	ukombozi wa data	noun
database	hifadhidata	noun
date range	kipindi	noun
debit authorization	fomu ya kuidhinisha utozaji	noun
debug	tatua	verb
debugger	kitatuzi	noun
decryption	usimbuaji	noun
default	chaguo-msingi	noun
default account	akaunti ya msingi	noun
default page	ukurasa chaguo-msingi	noun
default program	programu chaguo-msingi	noun
defendant	Mshtakiwa	noun
delegate	toa mamlaka	verb
delegate	teua mwakilishi;wekea majukumu	verb
delegation	uwekaji kaumu	noun
delete	futa	verb
delete forever	futa milele	verb
demote	shusha hadhi	verb
denim	samawati	noun
density	uzito	noun
Department of Commerce	Idara ya Biashara	noun
deprecate	acha kuendesha huduma	verb
deprecation	kuacha kuendesha huduma	noun
depth	kina	noun
derivative	miigo ya	noun
desert sand	Hudhurungi	noun
desktop	eneo-kazi	noun
desktop computer	kompyuta ya mezani	noun
desktop shortcut	mkato wa eneo-kazi	noun
developer	msanidi programu	noun
developer console	kiweko cha wasanidi programu	noun
Developers Console	Developers Console	noun
device	kifaa	noun
digest	muhtasari	noun
digest inbox	kikasha cha muhtasari	noun
direct	-a moja kwa moja	noun
Direct Connect	Direct Connec	noun

direct debit	kutoza akaunti moja kwa moja	noun
directory	saraka	noun
disable	zima	verb
discard	tupa	verb
disclaimer	kanusho	noun
disclosure	ufumbuzi	noun
disconnect	ondoa	verb
Discover	Gundua	noun
discretion	hiari	noun
discussion group	kikundi cha majadiliano	noun
dismiss	ondoa	noun
display	onyesho	noun
display	onyesha	verb
dispute	mabishano	noun
dispute	pinga	verb
DMCA	DMCA (Sheria ya Millennia ya Hakimilki Dijiti)	noun
DNS	DNS	noun
DNS suffix	Kiambishi cha DNS	noun
do not disturb	usinisumbue	verb
doc	hati	noun
Docs	Hati	noun
Docs editors	Programu za kuhariri hati	noun
document	hati	noun
dogfood	jaribio la kindani	noun
dogfood	shiriki katika jaribio la kindani	verb
domain	kikoa- neologism	noun
domain extension	kiambishi cha kikoa-ambiguous	noun
domain name	jina la kikoa	noun
domain name registrar	msajili wa majina ya viko	noun
Domain Name System	Mfumo wa Majina ya Vikoa	noun
domain suffix	Kiambishi cha kikoa	noun
domestic partner	mwenzi wa nyumbani	noun
Don't forget Bob	Usimsahau Ali	verb
donut chart	chati yenye tundu	noun
donut hole	tundu la chati	noun
doodle	Doodle	noun
Doodle 4 Google	Shindano la Doodle 4 Google	noun
double click	bofya mara mbili	verb
DoubleClick for Advertisers	[name not final - use English name]	noun
DoubleClick for Publishers	[name not final - use English name]	noun
double-tap	gonga mara mbili	verb
downgrade	shusha kiwango	verb

download	kipakuliwa;upakuaji	noun
download	pakua	verb
draft	rasimu	noun
drag and drop	buruta na uangushe	noun
Drama 1	Chuku 1	noun
Drama 2	Chuku 2	noun
Draw	Chora	noun
drawing	mchoro	noun
Drawings	Michoro ya Google	noun
drive	hifadhi	noun
Drive	Hifadhi	noun
Drive storage	[name not final – use English name]	noun
driver	kiendeshaji	noun
drop-down	-kunjuzi	noun
drop-down box	kisanduku kunjuzi	noun
drop-down list	orodha kunjuzi	noun
drop-down menu	menyu kunjuzi	noun
duplicate	nakala rudufu	noun
duplicate host	seva rudufu	noun
dynamic brightness	ungavu maalum	noun
Dynamic Views	Miundo Myepesi	noun
e.g.	k.m.	noun
earnings per click	mapato kwa kila mbofyo	noun
Earth	Google Earth	noun
earthworm	hudhurungi	noun
Easel	Kiegemeza	noun
eBook	kitabu pepe	noun
eBookstore	Duka la Vitabu Pepe	noun
echo cancellation	kuondoa mwangwi	noun
e-commerce	biashara za mtandaoni	noun
e-discovery	upelelezi mtandaoni	noun
edit	mabadiliko	noun
edit	badilisha	verb
editorial guidelines	mwongozo wa uandishi	noun
editorial policies	sera za uandishi	noun
eligibility guidelines	masharti ya kujiunga	noun
email address	anwani ya barua pepe	noun
email client	programu ya barua pepe	noun
Email preferences	Mapendeleo ya barua pepe	noun
Email Settings	Mipangilio ya Barua Pepe	noun
email verification	uthibitishaji wa anwani ya barua pepe	noun
embed	pachika	verb
emoji	emoji	noun

emoticon	kikaragosi	noun
emotion	hisia	noun
enable	washa	verb
encode	simba	verb
encoding	usimbaji	noun
encrypt	simba kwa njia fiche	verb
encrypted	-liosimbwa kwa njia fiche	noun
encryption	usimbaji fiche	noun
end time	tukio litakwisha	noun
end user	mtumiaji wa hatima	noun
Enterprise Partner Search	[name not final – use English name]	noun
Enterprise Support Portal	Enterprise Support Portal	noun
entity	huluki	noun
EPC	EPC	noun
equitable relief	faraja ya utendezaji	noun
Eraser	Kifutio	noun
error	hitilafu	noun
error code	msimbo wa hitilafu	noun
error message	ujumbe kuhusu hitilafu	noun
EULA	EULA	noun
EV	EV	noun
event	tukio	noun
event log	kumbukumbu ya matukio	noun
Events	Matukio	noun
Excel	Excel	noun
exception	-siofuata kanuni	noun
exclusive	kwa upekee	noun
execute	tia sahihi	noun
exemplary	-a adhabu	noun
expand	panua	verb
express warranties	arabuni hususan	noun
expressly disclaim	kanusha mahsusni	noun
extended circles	mduara mpana	noun
extended network	mtandao mpana	noun
extension	kiendelezi	noun
external image	picha geni	noun
fair use doctrine	mafundisho ya matumizi mazuri	noun
false representation	uwakilishi wa uongo	noun
family circle	durara ya familia;Mduara wa familia	noun
FAQ	Maswali Yanayoulizwa Sana	noun
feature phone	simu ya msingi	noun
feed	mipasho	noun
feed item	maudhui katika mipasho	noun

field	sehemu	noun
Field Trip	Field Trip	noun
file extension	kiambishi cha faili	noun
file format	aina ya faili	noun
File Transfer Protocol	Itifaki ya Kutuma Faili (FTP)	noun
file type	aina ya faili	noun
Filed	Iliyokwanguliwa	noun
fill out	jaza	verb
Film	Filamu	noun
filter	kichujio	noun
filter	chuja	verb
Find My Face	Nitafute	noun
firewall	kinga-mtandao	noun
firmware	programu dhibiti	noun
Fit	Fit	noun
fitness	kufaa	noun
fixed	pasipobadilika	noun
flag	tia alama	verb
flaky connection	muunganisho hafifu	noun
flash memory	kumbukumbu pesi	noun
Flipcard	Kadi	noun
follow	fuata	verb
follow	fuata	verb
follow	fuata	verb
Follow	fuata	verb
follower	anayefuata	noun
font family	jamii ya fonti	noun
for the avoidance of doubt	ili kuepuka tashwishi	noun
force majeure	force majeure (nguvu kuu)	noun
form	fomu	noun
Forms	Fomu za Google	noun
formula	fomula	noun
Forums	Mijadala	noun
forward	sambaza	verb
frame	fremu	noun
framing	kufremu	noun
Fraud	ulaghai	noun
fraudulent	kwa ulaghai	noun
Free Zone	Free Zone	noun
Free Zone powered by Google	Free Zone powered by Google	noun
freeware	programu dezo	noun
freeze	fanya safu zisisonge	verb
Frequently Asked Questions	Maswali Yanayoulizwa Sana	noun

friend	rafiki	noun
friend	rafiki	noun
friends circle	durara ya marafiki;Mduara wa marafiki	noun
Friends List	Orodha ya Marafiki	noun
from	kutoka kwa	noun
FTP	FTP	noun
full force and effect	inaendelea na kutumika kikamilifu	noun
full size	ukubwa kamili	noun
function	chaguo za kukokotoa	noun
fwd	fwd	verb
G	Kijani	noun
game console	kifaa cha michezo ya video	noun
Games	Michezo	noun
gateway	lango	noun
GB	GB	noun
GDN	GDN	noun
GEG	GEG	noun
getting started guide	mwongozo wa kuanza kutumia	noun
ghost artifact	mazigazi	noun
ghost reduction	kupunguza mazigazi	noun
GIF	GIF	noun
gigabyte	Gigabaiti	noun
Global Positioning System	Mfumo wa GPS	noun
global variable	vipengee vya jumla	noun
Gmail	Gmail	noun
Gmail chat	Gmail soga	noun
Gmail Checker	Kichuguza Gmail	noun
Gmail for Business	[name not final - use English name]	noun
Gmail Notifier	Gmail Arifa	noun
Gmail Offline	Gmail Nje ya Mtandao	noun
Gmail Offline Sync Optimizer	Zana ya Kuboresha Arifa za Gmail Nje ya Mtandao	noun
Gmail SMS	Gmail SMS	noun
GME Portable	GME Portable	noun
good faith	nia njema	noun
good standing	hadhi nzuri	noun
goodie	mazuri	noun
goodwill	Sifa	noun
Google Account	Akaunti ya Google	noun
Google Account Activity	Shughuli za Akaunti ya Google	noun
Google Account Video Purchases	[name not final - use English name]	noun
Google ad	Tangazo kutoka Google	noun
Google Ad Innovations	[name not final - use English name]	noun

Google Admin	Google Admin	noun
Google Ads	Matangazo ya Google	noun
Google Alerts	Arifa za Google	noun
Google and its subsidiaries	Google na biashara inazomiliki	noun
Google Application Security	Usalama wa Programu za Google	noun
Google Apps Device Policy	Google Apps Device Policy	noun
Google Apps Directory Sync	[name not final - use English name]	noun
Google Apps for Business	Google Apps for Business	noun
Google Apps for Education	Google Apps for Education	noun
Google Apps for ISPs	[name not final - use English name]	noun
Google Apps for Teams	[name not final - use English name]	noun
Google Apps Migration for Microsoft Exchange	[name not final - use English name]	noun
Google Apps Vault	Google Apps Vault	noun
Google Art Project	Google Art Project	noun
Google Authenticator	Kithibitishaji cha Google	noun
Google Authorship	Uandishi kwenye Google	noun
Google BrailleBack	Google BrailleBack	noun
Google Bulk Hardware	Mfumo wa Kununua Vifaa vya Google kwa Wingi	noun
Google Business Builder	Google Business Builder	noun
Google Business Solutions	Nyenzo za Biashara kutoka Google	noun
Google Calendar	Google Kalenda	noun
Google Careers	Nafasi za Ajira katika Google	noun
Google Cast device	Kifaa cha Google Cast	noun
Google Census	Sensa ya Google	noun
Google Cloud Print	Google Cloud Print (now corrected in the Docs TD) Name not final – use English name for now	noun
Google Connect		noun
Google Dashboard	Dashibodi ya Google	noun
Google Developers	Google Developers	noun
Google Developers Console	Google Developers Console	noun
Google Docs	Hati za Google	noun
Google Domains	Vikoa vya Google	
Google Domains Registrar	Vikoa vya Google	
Google Domains Registry	Huduma ya Google ya Kusajili Vikoa	noun
Google Drawings	Michoro ya Google	noun
Google Drive	Hifadhi ya Google	noun
Google Drive Apps	Programu za Hifadhi ya Google	noun
Google Drive for Business	Hifadhi ya Google kwa Biashara	noun
Google Drive for Mac/PC	Hifadhi ya Google ya Mac ama PC yako	noun
Google Drive on the web	Hifadhi ya Google kwenye wavuti	noun
Google Drive storage	Nafasi ya Hifadhi ya Google	noun

Google Drive Viewer	Kitazamaji cha Hifadhi ya Google	noun
Google Earth	Google Earth	noun
Google Earth Outreach	Uhisani wa Google Earth	noun
Google Educator Group	Not launched, please keep in English.	noun
Google Effects	Madoido	noun
Google Enterprise Search	Utafutaji wa Google kwa Biashara	noun
Google Enterprise Support Center	Name not final; use English name	noun
Google Enterprise Support Portal	Google Enterprise Support Portal	noun
Google Events	\[name not final - use English name\]	noun
Google Fit	Google Fit	noun
Google Food Service	[name not final - use English name]	noun
Google for Education	Google for Education	noun
Google for Entrepreneurs	Google kwa Wajasiriamali	noun
Google for Humanity	[name not final - use English name]	noun
Google for Nonprofits	Google kwa mashirika yasiyo ya faida	noun
Google Forms	Fomu za Google	noun
Google Fusion Tables	Google Fusion Tables	noun
Google Games	Michezo ya Google	noun
Google Groups for Business	[name not final - use English name]	noun
Google Guide	Mwelekezi kutoka Google	noun
Google Handwrite	Andika kwa Mkono na Google	noun
Google History	Historia yako kwenye Google	noun
Google Home	Ukurasa wa Kwanza wa Google	noun
Google Hotpot	Google Hotpot	noun
Google Ideas	Google Ideas	noun
Google Image Labeler	[name not final - use English name]	noun
Google Inactive Account Manager	Kidhibiti cha Akaunti Isiyotumika kutoka Google	noun
Google Introductions	[name not final - use English name]	noun
Google Jobs	Google Kazi	noun
Google Keep	Google Keep	noun
Google Location Manager	Kidhibiti Matawi cha Google	noun
Google Maps	Ramani za Google	noun
Google Maps Coordinate	Google Maps Coordinate	noun
Google Maps Engine	Google Maps Engine	noun
Google Maps Engine Lite	Google Maps Engine Lite	noun
Google Maps Engine Portable	Google Maps Engine Portable	noun
Google Maps Engine Pro	Google Maps Engine Pro	noun
Google Maps Pro	Google Maps Pro	noun
Google Marketing Tools	[name not final - use English name]	noun
Google Merchant Center	Google Merchant Center	noun
Google Mobile Terms of Service	Masharti na Huduma ya Google Mobile	noun

Google Music	Google Music	noun
Google Music (Short)	Google Music	noun
Google My Business	Biashara Yangu kwenye Google	noun
Google My Business Locations	Maeneo ya Biashara Yangu kwenye Google	noun
Google Notes	Daftari la Google	noun
Google Now	Google Msaidizi	noun
Google Now Launcher	Kifungua Google Msaidizi	noun
Google Online Assessment	[name not final - use English name] do not localize – please leave in English	noun
Google Orders	Kituo cha Washirika wa Google	noun
Google Partner Center	Kituo cha Washirika wa Google	noun
Google Partner Inventory Management System	[name not final - use English name]	noun
Google Partners Community	Jumuia ya Washirika wa Google	noun
Google Payments Merchant Center	Kituo cha Google cha Malipo ya Wauzaji	noun
Google Places	Google Places:[name not final - use English name]	noun
Google Places for Business	Google Places kwa Biashara	noun
Google Play	Google Play	noun
Google Play artist hub	Kituo cha Wasanii cha Google Play	noun
Google Play Books	Vitabu vya Google Play	noun
Google Play Games	Michezo ya Google Play	noun
Google Play Magazines	Majarida ya Google Play	noun
Google Play Movies	Filamu za Google Play	noun
Google Play Movies & TV	Filamu na TV kwenye Google Play	noun
Google Play Music	Muziki wa Google Play	noun
Google Play Music Manager	Kidhibiti Muziki cha Google Play	noun
Google Play Newsstand	Rafu ya Google Play	noun
Google Play services	Huduma za Google Play	noun
Google Play Store	Duka la Google Play	noun
Google Plus	Google Plus	noun
Google Politics & Elections	Tovuti ya Siasa na Uchaguzi kutoka Google	noun
Google Polls	[name not final - use English name]	noun
Google Product Forums	Mijadala ya Bidhaa za Google	noun
Google properties	Huduma za Google	noun
Google Publisher Console	Paneli ya Wachapishaji wa Google	noun
Google Registry	Huduma ya Google ya Kusajili Vikoa	noun
Google Reminders	Vikumbusho kutoka Google	noun
Google Rewards	[name not final - use English name]	noun
Google Scheduler	Kiandaa Ratiba cha Google	
Google Script	Google Script	noun
Google Search	Tafuta na Google/Huduma ya Tafuta na Google	noun

Google Security Key	Funguo Salama kutoka Google	noun
Google Sheets	Majedwali ya Google	noun
Google Slides	Slaidi za Google	noun
Google Storage	Hifadhi ya Google	noun
Google storage plan	Huduma ya hifadhi kutoka Google	noun
Google Street View for Business	Google Street View kwa Biashara	noun
Google Talk for Business	[name not final - use English name]	noun
Google Talk Meeting Room device	Kifaa cha Google Talk kwa Vyumba vya Mikutano	noun
Google Talk with Meetings	Google Talk na Mikutano	noun
Google Terms of Service	Google Sheria na Masharti	noun
Google Tips	Vidokezo vya Google	noun
Google Top Contributor	Mtumiaji Bingwa wa Google	noun
Google Top Contributors	Watumiaji Bingwa wa Google	noun
Google Top Contributors Summit	Kongamano la Watumiaji Bingwa wa Google	noun
Google trademark	chapa biashara ya Google	noun
Google Translation Manager	Mfumo wa Kutafsiri kutoka Google	noun
Google Translator Toolkit for Apps	Zana ya Kutafsiri Programu kutoka Google	noun
Google Travel	Usafiri	noun
Google Trusted Stores	Name not final – use English name	noun
Google universal privacy policy	Sera ya faragha ya bidhaa zote za Google Timu ya Maarifa ya Watumiaji wa Google	noun
Google User Experience team	Google	noun
Google Video	[name not final - use English name]	noun
Google Video for Business	[name not final - use English name]	noun
Google Voice Typing	Andika kwa Kutamka na Google	noun
Google Wallet	Google Wallet	noun
Google Web Site Hosting	[name not final - use English name]	noun
Google+	Google+	noun
Google+ badge	beji ya Google+	noun
Google+ bar	mwamba wa Google+	noun
Google+ Brands	Google+ kwa Chapa Biashara	noun
Google+ Business	Google+ kwa Biashara	noun
Google+ Celebs	Google+ Watu Mashuhuri	noun
Google+ Comments	Maoni kupitia Google+	noun
Google+ Communities	Jumuiya za Google+	noun
Google+ Community	Jumuia ya Google+	noun
Google+ connection	Mtu mnayehusiana kwenye Google+	noun
Google+ for Business	Google+ kwa Biashara	noun
Google+ for Businesses	Google+ kwa Biashara	noun
Google+ for Celebs	Google+ kwa Watu Mashuhuri	noun
Google+ for Media	Google+ kwa Vyombo vya Habari	noun

Google+ for mobile	Google+ kwa vifaa vya mkononi	noun
Google+ for Nonprofits	Google+ kwa mashirika yasiyo ya faida	noun
Google+ for Politics	Google+ kwa Siasa	noun
Google+ for Sports	Google+ kwa Michezo	noun
Google+ for Universities	Google+ kwa Vyuo Vikuu	noun
Google+ Hangouts On Air	Google+ Hangouts za Hewani	noun
Google+ Insights	Maarifa ya Google+	noun
Google+ Jobs	Google+ Nafasi za Kazi	noun
Google+ Local	Google+ Karibu Nawe	noun
Google+ Local page	Ukurasa wa Biashara kwenye Google+	noun
Google+ Media	Google+ Vyombo vya Habari	noun
Google+ Mobile	Google+ kwa Vifaa vya Mkononi	noun
Google+ mobile app	Programu ya Google+ kwa simu za mkononi	noun
Google+ Names Policy	Sera Majina kwenye Google+	noun
Google+ Page	Ukurasa wa Google+	noun
Google+ Pages	Kurasa za Google+	noun
Google+ Photo Editor	Zana ya Kuhariri Picha za Google+;Google+ Fotoredigeraren	noun
Google+ Photos	Picha za Google+	noun
Google+ Platform Insights	Takwimu za Mfumo wa Google+	noun
Google+ Politics	Google+ Siasa	noun
Google+ profile	Wasifu kwenye Google+	noun
Google+ Recommended People	Watu Waliopendekezwa na Google	noun
Google+ Ripples	Viwimbi vya Google+	noun
Google+ Safety	Kituo cha Usalama	noun
Google+ Safety Center	Kituo cha Usalama cha Google+	noun
Google+ Sign-In	Kuingia kwa Kutumia Google+	noun
Google+ SMS	Google+ SMS	noun
Google+ Sports	Google+ Michezo	noun
Google+ Stories	Hadithi za Google+	noun
Google+ Universities	Google+ Vyuo Vikuu	noun
Google+ Your Business	Biashara Yako kwenye Google+	noun
Googlebot	Googlebot	noun
Googler	MwanaGoogle	noun
Google's Now Service	Msaidizi wa Google	noun
Got the wrong Bob	Umemwadikia Ali ambaye hukumkusudia	verb
governed by	-simamiwa na	noun
GPRS	GPRS	noun
graph	grafu	noun
graphic sexual activity	vitendo wazi vya ngono	noun
graphical user interface	kiolesura cha michoro	noun

green room	chumba cha maandalizi	noun
grooming	kupevua	noun
group chat	gumzo la kikundi	noun
Group Scratchpad	Daftari ya Kikundi	noun
GSM	GSM	noun
guarantee	dhamana	noun
guest	aliyealikwa	noun
guest chat	gumzo la wageni	noun
GUI	kiolesura cha michoro	noun
hacker	mvamizi	noun
Handwrite	Andika kwa Mkono	noun
Hangout	Hangout	noun
Hangout Captions	Manukuu ya Hangout	noun
Hangout history	Historia ya Hangout	noun
Hangout party	Mkutano wa Hangout	noun
Hangouts	Hangouts	noun
Hangouts Capture	Kipiga Picha cha Hangout	noun
Hangouts On Air	Mikutano Hewani	noun
Hangouts Plugin for Microsoft Outlook	Hangouts Plugin for Microsoft Outlook	noun
Hangouts video call	Hangout ya Video	noun
hard drive	diski kuu	noun
hardcode	fanya isibadilike kwa urahisi	verb
hardware	maunzi	noun
hardware acceleration	kuongeza kasi kwa kutumia maunzi	noun
harrassment	unyanyasaji	noun
hashtag	lebo ya reli	noun
hate speech	matamshi ya chuki	noun
HDCP	HDCP	noun
HDR	HDR	noun
Help	Usaidizi	noun
Help Center	Kituo cha Usaidizi	noun
help group	kikundi cha usaidizi	noun
High-bandwidth Digital Content Protection	Mfumo wa Usalama wa HDCP	noun
high-end mobile device	simu mahiri	noun
highlight	angazia	verb
highlights	vivutio	noun
highlights	sehemu zenye ung'avu zaidi	noun
hijacker	mtekaji	noun
histogram	histogramu	noun
History	Historia	noun
hold harmless	-toichukulia kuwa na hatia	verb
Home	Mwanzo	noun

Home	Mwanzo	noun
Home screen	Skrini ya kwanza.	noun
homepage	ukurasa wa kwanza	noun
host	mpangishi/seva pangishi	noun
host	pangisha	verb
hosted application	programu iliyopangishwa	noun
hosting	upangishaji	noun
hosting provider	mtoa huduma za upangishaji	noun
hostname	jina la mpangishaji	noun
Hotpot	Hotpot	noun
hover	elea jua ya	verb
hovercard	hovercard	noun
HTML tag	lebo ya HTML	noun
hyperlink	kiungo	noun
IBAN	IBAN	noun
icon	ikoni	noun
ID	KITAMBULISHO	noun
Ideas	Ideas	noun
idle	hafanyi kitu	noun
IIS	IIS	noun
IM	Ujumbe wa papo kwa papo	noun
I'm Feeling Lucky	Najisikia Nina Bahati	noun
image	picha	noun
image	picha	noun
image file	faii ya picha	noun
image format	muundo wa picha	noun
image map	ramani ya picha	noun
IMAP	IMAP	noun
imminent harm	tishio la hatari	noun
impersonation	Uigaji	noun
implied warranties	arabuni zisizotajwa	noun
importance marker	alama za umuhimu	noun
importance ranking	upangaji kwa umuhimu	noun
Important first	Muhimu kwanza	noun
impression	onyesho	noun
Inactive Account Manager	Kidhibiti cha Akaunti Isiyotumika	noun
inbox	kikasha	noun
incidental	-a kuambatana	noun
Incoming	Yanayoingia	noun
incoming call	simu inayoingia	noun
incoming chat	gumzo linaloingia	noun
indemnification	ahadi ya kulipa	noun
indemnify	fidia	verb

independent contractor	kontrakta wa nje	noun
index	faharasa	noun
index	nakili katika faharasa	verb
indirect	-a kuambatana	noun
influencer	mshawishi	noun
infringement	ukiukaji	noun
initialize	anzisha	verb
injunction	kizuizi	noun
injunctive or equitable relief	faraja ya uzuizi au utendezaji	noun
inline	kulingana na maandishi	noun
input	vifaa vya kuingiza sauti	noun
input method	mbinu ya kuingiza data	noun
input mode	programu ya kuingiza data	noun
Input Tools	Zana za Kuingiza Data	noun
install	kusakinisha	noun
install	sakinisha	verb
instance	mara	noun
Instant	Papo Hapo	noun
intellectual property rights	haki za uvumbuzi	noun
interest	Maslahi	noun
interface	kiolesura	noun
Internet	Intaneti	noun
Internet Protocol address	Anwani ya IP	noun
Internet service provider	Mtoa Huduma za Intaneti	noun
intranet	intraneti	noun
inure	kutumiwa	verb
invalid	batili	noun
invisible	huonekani	noun
invisible circle	durara isiyoonekana	noun
invitation	mwaliko	noun
invite	alika	verb
invitee	aliyealikwa	noun
invitee list	orodha ya walioalikwa	noun
IP address	Anwani ya IP	noun
irreparable	-sioweza kurekebishwa	
ISP	Mtoa Huduma za Intaneti	noun
Java	Java	noun
JavaScript	JavaScript	noun
jitter	kusita	noun
Jobs	Google Kazi	noun
joint venture	juhuri ya pamoja	noun
jump break	muhtasari	noun
jurisdiction	eneo la mamlaka	noun

KB	KB	noun
Keep	Google Keep	noun
keyboard shortcut	mikato ya kibodi	noun
keyword	neni muhimu	noun
kick	fukuza	verb
kilobyte	kilobaiti	noun
Koleksi Nik daripada Google	Nik Collection by Google	
lab	majaribio	noun
LAB	LAB	noun
label	lebo	noun
label	weka lebo	verb
Labs	Maabara	noun
landing page	ukurusa wa kutua	noun
landscape	mlalo	noun
landscape	mandhari	noun
laptop	komputa ndogo	noun
latency	muda wa kusubiri;muda wa kukawia	noun
law	sheria	noun
layout	Mpangilio;muundo	noun
Learn with Google	Jifunze na Google	noun
legacy	-liopitwa na wakati	noun
legal notices	ilani za kisheria	noun
legal requirements	mahitaji ya kisheria	noun
legal terms	masharti ya kisheria	noun
Levels & Curves	Viwango na Vipindo	noun
liability	dhima	noun
liable	wajibika	noun
license	leseni	noun
license	pea leseni	verb
licensee	mwenye leseni	noun
licensing	utoaji leseni	noun
licensor	mtoa leseni	noun
Lift	Punguza Vivuli	noun
light temperature	halijoto ya mwangaza	noun
lightbox	kidirisha cha kuchungulia	noun
limitation of liability	kikomo cha dhima	noun
limited audience	hadhira chache	noun
line item	kipengee	noun
line weight	upana wa mstari	noun
link	kiungo	noun
link	unganisha	verb
List view	Orodha	noun
Listens	Ulizosikiliza	noun

litigation	manza	noun
litigation hold	kipindi cha kuhifadhi taarifa za kesi	noun
live streaming video	video inayotiririshwa moja kwa moja	noun
load	pakia	verb
Local	Google+ Karibu Nawe	noun
local Google+ page	ukurasa wa biashara kwenye Google+	noun
local page	ukurasa wa biashara	noun
local search	Utafutaji wa karibu	noun
locale	lugha	noun
location	mahali	noun
Location Manager	Kidhibiti Matawi	noun
Location Services	Huduma za Mahali Sheria na Masharti ya Matumizi ya	noun
Location Terms of Service	Data ya Eneo	noun
lockdown	funga	noun
log	kumbukumbu	noun
log file	faili ya kumbukumbu	noun
log in	ingia katika akaunti	verb
log out	ondoka	verb
login	kuingia katika akaunti	noun
login email	anwani ya barua pepe unayotumia	noun
login email	kuingia	noun
macaroni	manjano	noun
macro	makro	noun
Magazine	Gazeti	noun
maiden name	jina la ukoo	noun
Mail	Barua Pepe	noun
Mail Fetcher	Kileta Barua	noun
mail relay	kielekezi cha barua pepe	noun
mailing list	orodha ya wanaopokea barua pepe	noun
malware	programu hasidi	noun
mandatory email service announcement	tangazo la lazima kuhusu huduma kwa njia ya barua pepe	noun
manifest	faili ya maelezo	noun
map view	mwonekano wa ramani	noun
Maps	Ramani	noun
Maps Coordinate	Maps Coordinate	noun
Maps Engine	Maps Engine	noun
Maps Engine Lite	Maps Engine Lite	noun
Maps Engine Portable	Maps Engine Portable	noun
Maps Engine Pro	Maps Engine Pro	noun
Maps Pro	Maps Pro	noun
market mapping	uwekaji wa takwimu za masoko kwenye ramani	noun
markup language	misimbo ya kubadilisha muundo	noun

mars orange	rangi ya machungwa	noun
mashup	programu ya kuchanganya	noun
mass storage	hifadhi kubwa	noun
master	ruwaza	noun
material;materiality	umuhimu;muhimu	noun
materiality	umuhimu	noun
MB	MB	noun
Media	Vyombo vya Habari	noun
media device	kifaa cha kuhifadhia data	noun
mediation	upatanisho	noun
megabyte	megabaiti	noun
membership group	aina ya uanachama	noun
mention	taja	noun
menu	menyu	noun
Merch Store	Duka la Mashabiki	noun
merchant	muuzaji	noun
merchantability	ubora kwa mauzo	noun
merge across	unganisha kwenda upande	verb
message	Ujumbe	noun
Messenger	Mjumbe	noun
meta tag	meta tagi	noun
metadata	metadata	noun
metatag	metatagi	noun
microblog	blogu ndogo	noun
midtones	toni za kati	noun
migration	uhamishaji	noun
minor	mtoto	noun
mirroring	uakisi	noun
Mix	Mchanganyiko	noun
mlat	mlat	noun
MMS	MMS	noun
mobile	kifaa cha mkononi;simu ya mkononi	noun
mobile	kifaa cha mkononi	noun
mobile ad	tangazo kwenye kifaa cha mkononi	noun
mobile app	Programu ya vifaa vya mkononi	noun
mobile data service	huduma ya data kwa vifaa vya mkononi	noun
mobile device	kifaa cha mkononi	noun
mobile Internet	intaneti kwenye vifaa vya mkononi	noun
mobile network	mtandao wa simu	noun
mobile product	bidhaa ya vifaa vya mkononi	noun
mobile search	utafutaji kwenye vifaa kwa mkononi	noun
Mobile Terms of Service	Masharti ya Huduma ya Simu	noun

mobile web	wavuti wa vifaa vya mkononi	noun
mobile website	tovuti ya vifaa vya mkononi	noun
Modern	Kisasa	noun
module	sehemu	noun
moment	tukio	noun
monetization	uchumaji wa mapato	noun
mood	hali	noun
Moody	Sununu	noun
moral rights law	hakimilki za waundaji	noun
Mosaic	Vigae	noun
Motion	Mwendo	noun
mountain grey	kijivu	noun
mouse	kipanya	noun
Movie	Filamu	noun
MTP	MTP	noun
multiplayer	wachezaji wengi	noun
multiple sign-in	uwezo wa kuingia katika akaunti nyingi kwa wakati mmoja	noun
Music Manager	Kidhibiti-Muziki	noun
mute	-liopuuzwa	noun
mute	komesha arifa	verb
My Business	Biashara Yangu	noun
my circles	miduara yangu;Miduara yangu	noun
My Diary	Shajara Yangu	noun
My Drive	Hifadhi yangu	noun
NACE	NACE	noun
naked domain	kikoa kilicho wazi	noun
name icon	ikoni ya jina	noun
name tag	tagi ya jina	noun
Named and protected ranges	Safu zilizopewa jina na kufungwa	noun
native advertising	utangazaji asilia	noun
NCSA	NCSA	noun
NDA	NDA	noun
Nearby Offers	Use English name – do not translate	noun
need to know	hitaji kujua	noun
negligence	ulegevu	noun
negligent	legevu	noun
network	mtandao	noun
Network Time Protocol	Itifaki ya Muda Mtandaoni	noun
newsletter	jarida	noun
next	inayofuata	noun
nickname	jina la utani	noun
nickname	jina la utani	noun

Nik Collection	Nik ಸಂಗ್ರಹಣೆ	
non-disclosure agreement	mkataba wa kutofichua siri	noun
None	Hamna	noun
non-performance	kutotimiza	noun
Nonprofits	Mashirika Yasiyo ya Faida	noun
non-sublicensable	-sioweza kutolewa kijimkataba	noun
not applicable	haitumiki	noun
notebook	kompyuta ndogo	noun
Notes	Daftari	noun
notification	arifa	noun
notification bar	sehemu ya taarifa	noun
notwithstanding	hata hivyo	noun
Now	Msaidizi	noun
Now cards	Kadi za Msaidizi	noun
nudity	uchi	noun
null and void	batili na ghairi	noun
obligation	wajibu	noun
occurrence	-napotokea	noun
off the record	haitahifadhiwa	noun
offensive	-a kukera	noun
offline	-a nje ya mtandao	noun
Offline Docs	Hati za Nje ya Mtandao	noun
Offline Google Mail	Gmail Nje ya Mtandao	noun
Offline Google Mail beta	Gmail Nje ya Mtandao (Beta)	noun
offline mail	barua pepe nje ya mtandao	noun
old red brick	wekundu wa tofali	noun
On Stage	Kwenye Jukwaa	noun
on the go	popote ulipo	noun
on the record	itahifadhiwa	noun
one-time password	nenosiri la wakati mmoja	noun
online help	usaidizi wa mtandaoni	noun
oops	lo!	noun
open source	programu huria	noun
OpenID	OpenID	noun
operating system	mfumo wa uendeshaji	noun
operator	ishara maalum ya utafutaji	noun
opt in	jjumuishe	verb
opt-in	chagua kuingia	noun
organic keyword	nenosiri muhimu halisi	noun
organic search	matokeo halisi	noun
OS	mfumo wa uendeshaji	noun
OTP	nenosiri la wakati mmoja	noun
Our Mobile Planet	Our Mobile Planet	noun

outbox	kikasha toezi	noun
output	vifaa vya kutoa sauti	noun
overlay	gaga	noun
overlay	wekelea	verb
override	batilisha	verb
owner	mmiliki	noun
Oyster	Oyster	noun
page	ukurasa	noun
page break	nafasi ya kugawa kurasa kipengee cha ukurasa;kipengele cha	noun
page element	ukurasa	noun
PageRank	PageRank	noun
pageview	mara -liotazamwa	noun
paid-to-click	kulipwa kubofya	noun
Paint format tool	zana ya kunakili fomati	noun
panel	kidirisha	noun
Pano	Pana	noun
parse	changanua	verb
parser	kichanganuzi	noun
Partner Dash	Partner Dash	noun
Partner Search	[name not final – use English name]	noun
partnership	ushirikiano	noun
Party Mode	Sherehe	noun
passback	passback	noun
passcode	nambari ya siri	noun
passphrase	kauli ya siri	noun
password	nenosiri	noun
password reset	kuweka upya nenosiri	noun
password strength	uthabiti wa nenosiri	noun
paste	bandika	verb
path	njia	noun
pattern recognition	utambuzi wa ruwaza	noun
pay-per-click	lipa kwa kila mbofyo	noun
PDF	PDF	noun
People	Watu	noun
People and Pages	Watu na Kurasa	noun
People and Pages	Watu na Kurasa	noun
People Search	Kutafuta Watu	noun
people widget	wijeti ya watu	noun
perform	tekeleza	verb
performance	utendaji	noun
PERL	PERL	noun
permalink	kiungo cha kudumu	noun

permission	ruhusa	noun
permission	ruhusa	noun
Personal	Binafsi	noun
personal circle	durara za kibinafsi	noun
personal information	maelezo ya kibinafsi	noun
personal level indicator	ishara za kiwango binafsi	noun
personalize	weka mapendeleo;badilisha kukufaa	verb
phishing	kuhadaa ili kupata maelezo ya kibinafsi	noun
phone	simu	noun
Photo Editor	Fotoredigeraren;Zana ya Kuhariri	
Photo Sphere	Picha	noun
Photo Sphere	Photo Sphere	noun
photo spot	eneo maarufu kwa upigaji picha	noun
Photos	Picha	noun
Photostream	mkondo wa picha	noun
PHP	PHP	noun
Phrasebook for Google Translate	Kitabu cha Tafsiri za Google	noun
physical store	duka halisi	noun
picker	mchumaji	noun
Picnick	Picnick	noun
Picnik	Picnik	noun
pie chart	chati duara	noun
PIN	PIN	noun
pinch	bana	verb
ping	mwito	noun
ping	ita	verb
ping	ping	noun
ping	ping	verb
pinpoint location	mahali halisi ulipo	noun
placeholder	kishikilia nafasi	noun
Places	[name not final - use English name]	noun
Places for Business	Google Places kwa Biashara	noun
Play Books	Vitabu vya Google Play	noun
Play Games	Michezo ya Google Play	noun
Play Magazines	Majarida ya Google Play	noun
Play Movies	Filamu za Google Play	noun
Play Music	Muziki wa Google Play	noun
Play Newsstand	Rafu ya Google Play	noun
Play Services	Huduma za Google Play	noun
Play Store	Duka la Google Play	noun
plugin	programu-jalizi	noun
plug-in	programu-jalizi	noun
policy	sera	noun

Politics	Siasa	noun
Politics & Elections	Tovuti ya Siasa na Uchaguzi	noun
pool	maji	noun
Pop	Msisimko	noun
POP Download	Upakuaji POP	noun
POP Troubleshooter	POP	noun
pop-in	rejesha ndani	noun
pop-out	chomoza nje	noun
pop-under	dirisha ibukizi	noun
pop-up	dirisha ibukizi	noun
Portable	Portable	noun
Portable Document Format	muundo wa PDF	noun
portrait	wima	noun
portrait	wima	noun
post	chapisho	noun
post	chapisha	verb
post template	kiolezo cha chapisho;kiolezo chapisho	noun
post-view	baada ya kuona tangazo	noun
power button	kitufe cha kuwasha/kuzima	noun
power cycle	zima na kuwasha	verb
PowerPoint	Powerpoint	noun
preliminary injunction	kizuizi cha muda	noun
present	wasilisha	verb
presentation	wasilisho	noun
presenter	mwasilishaji	noun
press@google.com	press@google.com	noun
preview	onyesho la kuchungulia	noun
preview	chungulia kwanza	verb
previous	Iliyotangulia	noun
Primary	Cha Msingi	noun
primary email address	anwani msingi ya barua pepe	noun
print	chapisha	verb
print layout	mpangilio wa kuchapisha msimbo mbadala unaoweza	noun
printable backup code	kuchapishwa	noun
prior art	sanaa ya awali	noun
priority date	tarehe ya maombi ya hakimilki	noun
Priority Inbox	Kikasha Muhimu	noun
privacy	la faragha	noun
privacy	faragha	noun
privacy controls	vidhibiti vya faragha	noun
privacy notice	Ilani ya Faragha	noun
privacy policy	sera ya faragha	noun

privacy practices	desturi za faragha	noun
privacy rights law	Sheria ya haki za faragha	noun
privacy team	timu ya masuala ya faragha	noun
private	-a faragha	noun
product ID	Kitambulisho cha Bidhaa	noun
profile	wasifu	noun
profile	mfumo	noun
profile photo	picha ya wasifu	noun
profile prediction	ubashiri wa mfumo	noun
profile summary	muhtasari wa wasifu	noun
Profiles in Search	Maelezo Mafupi katika Utafutaji	noun
Profiles in Search	Maelezo Mafupi katika Utafutaji	noun
program policies	sera za mpango	noun
program policy	sera ya Programu	noun
Promo app	Programu ya matangazo	noun
promo card	kadi ya matangazo	noun
Promotions	Matangazo	noun
Promotions app	Programu ya matangazo	noun
proponent	mnenea	noun
proprietary	inamilikiwa	noun
prosecution	(upande wa) mashtaka	noun
protocol	itifaki	noun
proximity authentication	uthibitishaji wa vifaa vilivyo karibu	noun
proxy	seva mbadala	noun
proxy server	seva mbadala	noun
public	umma	noun
public domain	miliki ya umma	noun
publicity rights law	Sheria ya haki za utangazaji	noun
publisher	mchapishaji	noun
Publisher Opportunity Center	Kituo cha Fursa kwa Wachapishaji	noun
pull-down menu	menyu kunjuzi	noun
punitive damages	fidia ya adhabu	noun
purchase order	hati ya ununuzi	noun
purple dino	zambarau	noun
purple rain	mvua ya zambarau	noun
push notification	arifa kutoka kwa programu	noun
Q&A	Maswali na Majibu	noun
QR code	msimbo wa QR	noun
query token	ishara ya hoja	noun
Quick apply	Tumia haraka	verb
quick start guide	mwongozo wa kuanza kutumia	noun
QuickPDF	QuickPDF	noun
Quickpoint	Quickpoint	noun

Quicksheet	Quicksheet	noun
Quickword	Quickword	noun
R	Nyekundu	noun
radio button	kitufe	noun
rainy sky	mvua angani	noun
range	masafa	noun
rank	nafasi	noun
ranking	nafasi	noun
rating	alama	noun
re	kuh	noun
read	zilizosomwa	noun
read-only mode	hali ya kusoma tu	noun
reasonable	adilifu	noun
reboot	washa tena	verb
Receipts	Stakabadhi	noun
recipe	viungo	noun
recommendation engine	mfumo wa mapendekezo	noun
recommended for you	ulizopendekezewa	noun
recovery email	barua pepe ya kurejesha akaunti	noun
recurring event	tukio la mara kwa mara	noun
redirect	elekeza kwengine	verb
redirect URL	kiungo kinachoelekeza kwingine	noun
redo	rudia	verb
refine	chuja	verb
refresh	onyesha upya	verb
register	jisajili	verb
regular expression	Kilinganishi	noun
release notes	maelezo kuhusu toleo	noun
relevance	uhusiano	noun
reliance	utegemezi	noun
reload	pakia upya	verb
remedy	suluhu	noun
reminder	kikumbusho	noun
Reminders	Vikumbusho	noun
Remote Desktop	Kompyuta ya Mbali	noun
remote mute	nyamazisha kutoka mbali	verb
reply	jibu	noun
reply	jibu	verb
reply to all	jibu wote	verb
reply-to address	anwani ya kujibu	noun
report	ripoti	verb
repository	hazina	noun
represent and warrant	kuwakilisha na kuthibitisha	verb

representative	wawakilishi	noun
request	ombi	noun
required field	sehemu hii sharti ijazwe	noun
reseller	muuzaji	noun
reserve the right	hifadhi haki ya	noun
reset	weka upya	verb
reshare	shiriki tena	verb
resolution	ubora	noun
resume	endelea	verb
Retrolux 1	Retrolux 1	noun
Retrolux 2	Retrolux 2	noun
return	leta	verb
return on investment	faida	noun
retweet	tweet tena	noun
retweet	tuma tena	verb
revert	rejesha nakala ya awali	verb
Review Center	Kituo cha Ukaguzi	noun
Reviews	Maoni	noun
revision	nakala	noun
revision history	historia ya mabadiliko	noun
revocable	izezayo kughairiwa	noun
RGB	RGB	noun
ribbon	utepe	noun
rich media	media wasilianifu	noun
right	haki	noun
Ripples	Viwimbi	noun
Rising Star	Wachangiaji Chipukizi	noun
ROI	faida	noun
rollover	kupitisha kipanya juu	noun
Round	Duara	noun
row	safu mlalo	noun
run	tekeleza	verb
safeguard	kinga	noun
safeguard	linda	verb
sales representative	mwakilishi wa mauzo	noun
SAML	SAML	noun
sandbox	sehemu ya majaribio	noun
save	hifadhi	verb
scalability	unyumbufu	noun
scalable	nyumbufu	noun
scam	ulaghai	noun
Scheduler	Kiandaa Ratiba	noun
Scrapbook	Kitabu cha picha	noun

Scratchpad	Daftari	noun
Scratchy	Mikwaruzo	noun
screen reader	kisoma skrini	noun
screencast	kionyesha skrini	noun
screencasting	kuonyesha skrini	noun
screenshot	picha ya skrini	noun
Scribbles	Chora	noun
Script	Hati	noun
script	hati	noun
Script Gallery	Ghala la Misimbo	noun
scripting language	lughu ya kusimba	noun
scroll	sogeza	verb
scroll bar	sehemu ya kusogeza programu inaypiba (mapato/wageni kwenye tovuti)	noun
scumware		
sea foam	povu ya bahari	noun
search	utafutaji	noun
search	tafuta	verb
search ad	tangazo la utafutaji	noun
search box	kisanduku cha kutafutia	noun
Search charm	Zana ya kutafuta	noun
search engine	mtambo wa kutafuta	noun
search engine results page (SERP)	ukurasa wa matokeo ya utafutaji (SERP)	noun
search history	historia ya utafutaji	noun
Search Planner	Zana ya Kupanga Matangazo ya Utafutaji	noun
Search plus Your World	Utafutaji na ulimwengu wako	noun
Search plus Your World	Utafutaji na ulimwengu wako	noun
search query	hoja ya utafutaji	noun
search result	tokeo la utafutaji	noun
search results page	ukurasa wa matokeo ya utafutaji	noun
search term	hoja ya utafutaji	noun
search warrant	idhini ya kusaka	noun
secondary connections	muunganisho zisizo muhimu	noun
second-factor authentication	uthibitishaji wa hatua mbili	noun
secure socket layer	usalama wa SSL	noun
security key	ufunguo wa usalama	noun
Security Key	Funguo Salama	noun
security question	swali la usalama	noun
seizure warrant	idhini ya kutwaa	noun
selfie	picha ya kujipiga mwenyewe	noun
Seminars for Success	Warsha za Ufanisi	noun
send	tuma	verb

send backward	weka nyuma	verb
send to back	weka chini	verb
sensitivity	ung'avu	noun
sent mail	barua zitokazo	noun
separator	kitenganishi	noun
series	mfululizo	noun
server	seva	noun
Server Side Includes	usimbaji wa SSI	noun
server software	programu ya seva	noun
service level agreement	mkataba wa huduma	noun
service provider	mtoa huduma	noun
session	kipindi	noun
settings	mipangilio	noun
sexual content	maudhui ya ngono	noun
shadows	vivuli	noun
shake to send feedback	tikisa ili utume maoni	verb
share	shiriki	verb
Share	Shiriki	verb
share	gawa tena	noun
share	shiriki	verb
share box	gawa kasha	noun
shared circle	durara zilizogawa	noun
Shared Endorsements	Mapendekezo kutoka miduara yako	noun
shared storage	hifadhi iliyoshirikiwa	noun
shared with me	zilizoshirikiwa nami	noun
sheet	laha	noun
Sheets	Majedwali ya Google	noun
shell page	ukurasa usioonekana hadharani	noun
shift	shift	noun
shocking or disgusting content	maudhui ya kugutusha au kuchukiza	noun
shopper	mnunuzi	noun
short name	jina fupi	noun
Sidebar	Utepe	noun
sign in	ingia katika akaunti	verb
Sign Language Interpreter	Mkalimani wa Lugha ya Ishara	noun
sign out	ondoka kwenye akaunti	verb
sign up	jisajili	verb
signature	sahihi	noun
Sign-In	Kuingia kwa Kutumia Google+	noun
site	tovuti	noun
sitelink	kiungo cha tovuti	noun
sitemap	ramani ya tovuti	noun
skip	Ruka	noun

slide	slaidi	noun
Slides	Slaidi za Google	noun
slideshow	onyesho la slaidi	noun
slime green	kinamasi kijani	noun
Smart mute	Nyamazisha kistadi	verb
SmartLabels	Lebo Nadhifu	noun
smartphone	simu mahiri	noun
Smile	Tabasamu	noun
SMS	SMS	noun
SMTP server	seva ya SMTP	noun
snap to	linganisha	verb
Snapshot	Vijipicha	noun
snapshot	muhtasari	noun
snapshot	picha:picha ya haraka	noun
snippet	kijisehemu	noun
snooze notifications	sitisha arifa	noun
Social	Mitandao Jamii	noun
social	jamii	noun
social app	prog za jamii	noun
social application	programu ya kijamii	noun
social connections	muunganisho za jamii	noun
social content	maudhui ya jamii	noun
social network	Mtandao Jamii	noun
social security number	nambari ya usalama wa jamii	noun
soft contrast	utofauti mwepesi	noun
softkey	kitufe nyumbufu	noun
software robot	programu ya kutambaa	noun
Solid State Drive	Diski Pepe (SSD)	noun
sort	panga	verb
Sound Search	Utafutaji wa Sauti	noun
Sound Search for Google Play	Utafutaji wa Sauti wa Google Play	noun
spam	taka	noun
spam	barua taka	noun
spearmint	kiungo cha kutafuna	noun
special	maalum	noun
special character	herufi maalum	noun
spell check	kikagua maendelezo	noun
SPF	mfumo wa SPF	noun
spider	programu ya kutambaa	noun
sponsored link	kiungo kilichodhaminiwa kudanganya kwa kuonyesha mtumaji	noun
spoofing	bandia	noun
Sports	Michezo	noun

spreadsheet	lahajedwali	noun
spyware	vidadisi	noun
SSH public key	ufunguo umma wa SSH	noun
SSL	SSL	noun
stacking	kupanga kwa rafu	noun
stalk	kunyatia	verb
stalking	(ku)nyatia	noun
stamp	muhuri	noun
standard	muundo-msingi	noun
star	nyota	noun
star	tia nyota	verb
star	star	noun
star	weka nyota	verb
starred	-enye nyota	noun
starred	-enye nyota	noun
Starred first	Zenye nyota kwanza	noun
start time	tukio linaanza	noun
status bar	sehemu ya kuonyesha hali	noun
status code	nambari ya kuonyesha hali	noun
statutory warranty	arabuni za kisheria	noun
sticker	kibandiko	noun
sticky click	bofya asalie katikati	verb
stock photo	picha za matumizi ya kibiashara	noun
stopword	neni la kupuuzwa	noun
storage plan	hifadhi ya kulipia	noun
storefront	mbele ya duka	noun
Stories	Hadithi	noun
stream	tiririsha	verb
Stream	Mipasho	noun
streaming	kutiririsha	noun
streaming video	video ya kutiririsha	noun
Street View	Taswira ya Mtaa	noun
Street View for Business	Street View kwa Biashara	noun
string	mfuatano	noun
structure	muundo	noun
Studio Mode	Hali ya Studio	noun
style	muundo	noun
stylizing	kuweka mitindo	noun
subcontract	kijimkataba	noun
subdomain	kijikoa	noun
subheading	kichwa kidogo	noun
subject	kichwa	noun
subject matter	maudhui	noun

subject prefix	kiambishi awali cha kichwa -enye leseni inayoweza kutolewa kwa wengine	noun
sublicensable	kijileseni	noun
sublicense	amri kufika kortini	noun
subpoena	amrisha kufika mahakamani	verb
subscription	usajili	noun
subsidiary	kampuni zinazomilikiwa	noun
substring	kiambishi cha msimbo	noun
subtab	kichupo kidogo	noun
success story	habari ya mafanikio	noun
successors and assigns	waandamizi na watawazwa	noun
sufficient	-a kutosha	noun
suggestive	-a kuchochea ngono	noun
summons	amri kufika kortini	noun
superpower	taifa kubwa	noun
supersede	chukua nafasi	verb
survive	dumu	verb
suspend	simamisha	verb
suspension	kuahirisha	noun
sync	usawazishaji	noun
sync	sawazisha	verb
tab	kichupo	noun
table	jedwali	noun
table	jedwali	noun
tablet	kompyuta kibao	noun
tag	tambulisha;weka lebo	verb
tag cloud	wingu la maneno muhimu	noun
tag line	mstari wa tagi	noun
tagging	kuweka lebo	noun
Take Action	Chukua Hatua	noun
take out	ondoa	verb
taken over	imetekwa	noun
takeout	ondoa	noun
TalkBack	TalkBack	noun
TCP/IP	TCP/IP	noun
template	kiolezo	noun
terminate	simamisha;futa	verb
termination	kumaliza	noun
Terms & Conditions	Sheria na Masharti	noun
Terms and Conditions	Sheria na Masharti	noun
Terms of Service	Sheria na Masharti	noun
Terms of Use	Sheria na Masharti	noun

test harness	muunganisho wa majaribio	noun
tethering	sambaza mtandao	noun
text message	SMS	noun
text to speech	ubadilishaji wa maandishi kwenda usemi	noun
theme	mandhari	noun
theme	mandhari	noun
theme	mandhari	noun
third-party beneficiary	wafaidi wa nje	noun
third-party software	programu ya kampuni nyingine	noun
thread	mazungumzo	noun
threaded commenting	utoaji maoni kwa mnyororo	noun
thumbnail	kijipicha	noun
Timeslide	Utatu	noun
timestamp	muhuri wa muda	noun
tip	kidokezo	noun
Tips	Vidokezo	noun
title	Kichwa;milki	noun
to	kwa	noun
to the fullest extent permitted by law	kadri inavyoruhusiwa na	noun
token	tokeni	noun
tone compression	kurekebisha kivuli	noun
tool	zana	noun
tooltip	kidirisha cha vidokezo	noun
Top Contributor	Mtumiaji Bingwa	noun
Top Contributor Program	Mradi wa Watumiaji Bingwa	noun
Top Contributors	Watumiaji Bingwa	noun
Top Contributors Summit	Kongamano la Watumiaji Bingwa	noun
top mover	maarufu	noun
top-level domain	kikoa cha ngazi ya juu	noun
tort	sheria za ulegevu	noun
touchpoint	mahali pa mgusano	noun
touchscreen	skrini ya kugusa	noun
toy eggplant	rangi ya zambarau	noun
trackball	mpira wa kuelekeza	noun
trade secret law	Sheria ya siri za biashara	noun
trademark complaint	malalamiko kuhusu chapa ya biashara	noun
trademark owner	mmiliki Chapa Biashara	noun
traditional	vya asili	noun
Translation Manager	Mfumo wa Kutafsiri	noun
Translator Toolkit for Apps	Zana ya Kutafsiri Programu	noun
trash	tupio	noun
trash	tupa	verb

Travel	Usafiri	noun
troubleshoot	tatua	verb
troubleshooter	kitatuzi	noun
troubleshooting	utatuzi	noun
Trusted Stores	Name not final – use English name	noun
trusted tester	Mchunguzaji Mwaminiwa	noun
tutorial	mafunzo	noun
TV show	kipindi cha televisheni	noun
tweet	tweet	noun
tweet	tuma ujumbe wa twitter	verb
two-step verification	Uthibitishaji wa hatua mbili	noun
unban	ondoa marufuku	verb
unblock	ondoa kizuizi	verb
underscore	mstari chini	noun
undo	tendua	verb
unenforceable	-sioweza kutekelezwa	noun
unfair competition law	sheria ya ushindani usio wa haki	noun
uninstall	ondoa	verb
unique user	mtumiaji mahususi	noun
Universities	Vyuo Vikuu	noun
unlink	kutenganisha	verb
unlisted Hangout On Air	Hangout Hewani isiyotangazwa kwa wengi	noun
unlock	fungua	verb
unmute	rejesha	verb
unmute	rejesha sauti	verb
unread	hajijasomwa	noun
Unread first	Ambazo hazijasomwa kwanza	noun
unreasonable	-sio adilifu	noun
unshare	ghairi kushiriki	verb
unsubscribe	kujiondoa	verb
untitled	isiyo na kichwa	noun
update	sasisho	noun
Updates	Taarifa	noun
upgrade	pata toleo jipya	verb
upload	pakia	verb
up-sell	shawishi mteja anunue zaidi	verb
up-selling	kushawishi mteja anunue zaidi	noun
URI	URI	noun
URL	URL	noun
US safe harbor	kizuia dhima Marekani	noun
usage rights	haki za matumizi	noun
usage statistics	takwimu za matumizi	noun

user	mtumiaji	noun
user account	akaunti ya mtumiaji	noun
user agent	ala ya mtumiaji	noun
user experience	mazingira ya mtumiaji	noun
user guide	mwongozo wa mtumiaji	noun
user interface	kiolesura	noun
User Management	Name not final; use English name	noun
user privacy	faragha ya mtumiaji	noun
user-expand creative	tangazo linalopanuliwa na mtumiaji	noun
username	jina la mtumiaji	noun
vacation responder	jibu la kiotomatiki ukiwa likizoni	noun
Value Added Tax	Kodi ya Ongezeko la Thamani	noun
vanity number	nambari maalum	noun
vanity phone number	nambari maalum ya simu	noun
VAT	VAT	noun
VAT ID	Nambari ya VAT	noun
Vault	Vault	noun
VC bridge	Nambari ya VC	noun
venue	mahala pa kesi	noun
verification badge	beji ya uthibitishaji	noun
verification code	nambari ya kuthibitisha	noun
verification email	barua pepe ya kuthibitisha	noun
verification link	kiungo cha kuthibitisha	noun
verify	thibitisha	verb
vern fern	Vern jimbi	noun
version	toleo	noun
video	video	noun
video blog	blogu ya video	noun
video call	Hangout ya Video	noun
video chat	gumzo la video	noun
video clip	klipu ya video	noun
video conference	mkutano wa video	noun
video log	blogu ya video	noun
video party	Hafla ya Video	noun
Video Planner	Zana ya Kupanga Matangazo ya Video	noun
video stream	video ya kutiririsha	noun
view	mwonekano	noun
view	angalia/tazama	verb
View	Kidirisha	noun
view	tazama	verb
view only	kuangalia tu	noun
viewer	mtazamaji	noun
view-only mode	hali ya kuangalia tu	noun

viewport	sehemu ya kutazamia	noun
visibility	kuonekana	noun
visibility	mwonekano	noun
visibility score	jumla ya waliotazama	noun
visit	tembeleo	noun
visitor	anayetembelea (tovuti/ukurasa)	noun
vlog	blogu ya video	noun
voice chat	gumzo la sauti	noun
voice search	kutafuta kwa kutamka	noun
Voice Typing	Andika kwa Kutamka	noun
VoiceSearch Operator Console	[name not final - use English name]	noun
waive	achilia	verb
waiver	kusalimisha	noun
Wallet	Wallet	noun
Warm	Moto	noun
warrant	thibitisha;hakikishia	verb
warranties	dhima	noun
Watches	Ulizotazama	noun
W-CDMA	WCDMA	noun
web	wavuti	noun
web address	anwani ya wavuti	noun
Web address mapping	Uelekezaji wa anwani za tovuti	noun
web app	programu ya wavuti	noun
web application	programu ya wavuti	noun
web browser	kivinjari	noun
web camera	kamera ya wavuti	noun
web clip	klipu wavuti	noun
web clipboard	ubao wa kunakili kwenye wavuti	noun
web forgery	tovuti za kuiga	noun
web page	ukurasa wa wavuti	noun
web property	tovuti	noun
Web Property ID	kitambulisho cha mali wavuti	noun
web search	kutafuta kwenye wavuti	noun
webmail	huduma ya barua pepe	noun
webmaster	msimamizi wa tovuti	noun
website	tovuti	noun
website owner	mmiliki wa tovuti	noun
website translator	zana ya kutafsiri tovuti	noun
What's hot	Maarufu	noun
What's this song?	Huu ni wimbo upi?	noun
whitelist	orodha ya walioidhinishwa	noun
whitelist	toa idhini	verb

wholly-owned subsidiaries	biashara zinazomilikiwa kikamilifu	noun
Wi-Fi	Wi-Fi	noun
wiki	wiki	noun
wild strawberries	stroberi mwitu	noun
wildcard	herufi wakilishi	noun
window	dirisha	noun
wire transfer	hawala ya fedha ya kielektroniki	noun
without giving effect to its conflict of laws provisions	bila kupatia mamlaka masharti yake kwa sheria pinzani	noun
without limitation	bila kikomo	noun
without limiting the foregoing	bila kukomesha yaliyotangulia	noun
wizard	utaratibu uliofupishwa	noun
Wonders	name not final - use English name	noun
Word	Word	noun
working hours	saa za kazi	noun
World Wonders	World Wonders	noun
Worn	Chakavu	noun
XML schema	muundo XML	noun
XML specification	ainisho ya XML	noun
XML validator	kithibitishaji cha XML	noun
yellow cab	Teksi ya manjano	noun
You+more	Wewe+zaidi	noun
Your Business	Biashara Yako kwenye Google+	noun
YouTube for Schools	YouTube ya Shule	noun
YouTube Merch Store	Duka la Mashabiki la YouTube	noun
zoom	kuza	noun
zoom in	kuza	verb
zoom out	fifiza	verb