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#### Abstract:

This research revolves around CAT tools and translation programs that most translators use to achieve accurate translation in a short period.

In this research, several popular translation tools were compared from different aspects. Such as Smartcat, Omegat, Wordfast anywhere, Matecat, and lastly Vertaal.

Each of the translation tools mentioned has pros and cons. However, the pros and cons differ depending on the translator and what they seek in a translation tool.

The aspects reviewed are the type of the platform, its cost, its simplicity, the translation type, its speed, Integrated Services, the type of files it accepts, the performance of the tool, the complexity of the tool, the quality, clarity, and accuracy of the translation, the error analysis, and the languages that the tool offers.

#### Introduction:

Translators around the world seek a satisfactory translation tool that satisfies their needs to achieve the desired accurate translation.

There are countless translation tools, and it would be time-consuming and confusing to try each one to find the perfect match. That's why I've decided to review a couple of translation tools, to help those who are indecisive and cannot find the perfect match for them. This research discusses the pros and cons of translation tools such as Smartcat, Omegat, Wordfast anywhere, Matecat, and Vertaal.

# 1) SmartCat:

CAT tool	SmartCat
Platform Type	Website
	Application
Cost	Free
Simple	High (simple)
Translation type	Cloud-based translation
Speed	Fast (Within 2-3 seconds)
Integrated Services	Estimates cost, finding translators, managing the whole process in one place
File types	DOCX, DOC, TXT, RTF, ODT, HTML, HTM, XLSX, XLS, PPT, PPTX, POTX, PPS, PPSX, ODP, TTX, RESX, ZIP, CSV, IDML, SDLXLIFF, XLF, XLIFF, PDF, BMP, DCX, PCX, PNG, JP2, JPC, JPG, JPEG, JFIF, TIF, TIFF, GIF, DJ
Performance	Medium (the translation is accurate but there are some mistakes)
Complexity	Low
Quality	Medium
Clarity	High
Accuracy	Medium
Error Analysis	Morphological error
Translation available:	+150 languages, Abkhaz, Afar, Afrikaans, Akan, Albanian, Amharic, Arabic, Armenian, Assamese, Avar, Azerbaijani, Balochi, Bambara, Bashkir, Basque, Beembe, Belarusian, Bengali, Bihari, Bosnian, Bulgarian, Burmese, Catalan, Cebuano, Central Alaskan, Chechen, Chichewa, Chinese, Chuvash, Cornish, Croatian, Czech, Danish, Dinka, Dutch, English, Esperanto, Estonian, Filipino, Finnish, French, Fula, Galician, Ganda, Georgian, German, Greek, Greenlandic, Guarani, Gujarati, Haitian, Hakha, Hausa, Hazaragi, Hebrew, Hindi, Hmong, Hungarian, Icelandic, Igbo, Indonesian, Ingush, Irish, Italian, Japanese, Javanese, Kabuverdianu, Kabyle, Kannada, Kazakh, Khmer, Kinyarwanda, Kirundi, Komi, Korean, Krio, Kurdish, Kyrgyz, Latin, Latvian, Limburgish, Lingala, Lithuanian, Luxembourgish, Macedonian, Malagasy, Malay, Malayalam, Maltese, Maori, Marathi, Mari, Marshallese, Mongolian, Nepali, Nigerian, Pidgin, Northern,

Ndebele, Norwegian, Occitan, Odia, Oromo, Ossetia, Papiamento, Pashto, Persian, Polish, Portuguese, Punjabi, omanian , Russian, Sakha, Samoan, Sango, Sanskrit, Santali, Sardinian, Serbian, Sesotho, S'gaw Karen, Shona, Sindhi, Sinhalese, Slovak, Slovenian, Somali, Southern Ndebele, Spanish, Sundanese, Swahili, Swati, Swedish, Tagalog, Tajik, Tamil, Tatar, Telugu, Thai, Tibetan, Tigrinya, Tongan, Tsonga, Tswana, Turkish, Turkmen, Udmurt, Ukrainian, Urdu, Uyghur, Uzbek, Venda, Vietnamese, Vlax, Romani, Welsh, Wolof, Xhosa, Yiddish, Yoruba, Zulu.

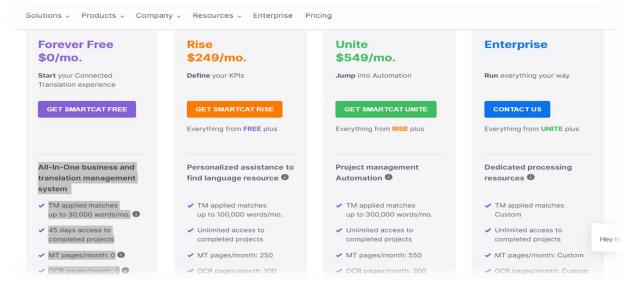
The ABBYY Language Solutions created smartCAT in 2012–2015, which functions as a CAT tool and more. SmartCAT is a linguistic service that allows its users to translate, edit, monitor, and manage big projects easily. It also gathers translators, editors, and those who need excellent translators for specific projects in one place.

So far this tool gathers more than 350,000 freelancers and it is capable of translating a project into more than 150 languages. It can be accessed either using a browser or downloading the App from the App store. Both the website and the App load within 8-10 seconds without freezing or crashing.

SmartCAT is a cloud-based translation platform, which has been known to be an "all-in-one" platform that offers a "connected Translation". To clarify more this translation tool doesn't focus on CAT tools only, it also focuses on TMS, and new translation technologies. It offers a "connected translation" by building a unique connected localization ecosystem. This system allows translators, agencies, and businesses to stay connected. This unique localization is made out of five main points which are connectivity, translation, scalability, management, and automated payments. First is Connectivity, which is a system that associates the production of content with the translation world. The second is translation, the part where users who seek good translation receive the accurate translation they are seeking. The third is scalability, which revolves around searching for professional and new translators to improve the field. Fourth is management, having the privilege of keeping an eye on the process and progress and requesting changes if necessary. And lastly automated payments, which pay translators all around the world easily without any inconveniences.

Its payment system is unique as well, as it doesn't charge translators for user-based licenses. That gives hundreds of translators the chance to show their skills. However, smartCAT takes around 10% of the transaction, which supports the website and allows it to stay free.

Although this website is free, it offers several different plans with advanced features. All of the plans will be attached below:



As shown above, there are multiple plans, however, the most famous plans among translators are forever free and rise.

The forever free plan allows users to use the basic features found in every translation tool, in addition to a couple of unique features only found in smartCAT. This plan offers access to 11+ MT engines, an integrated website quotation solution, a collaborative environment, vendor management, API integrations, great pay-out, and pay-ins rates, a customer Portal, TMS/BMS Capabilities, access to the marketplace, reporting, and custom onboarding.

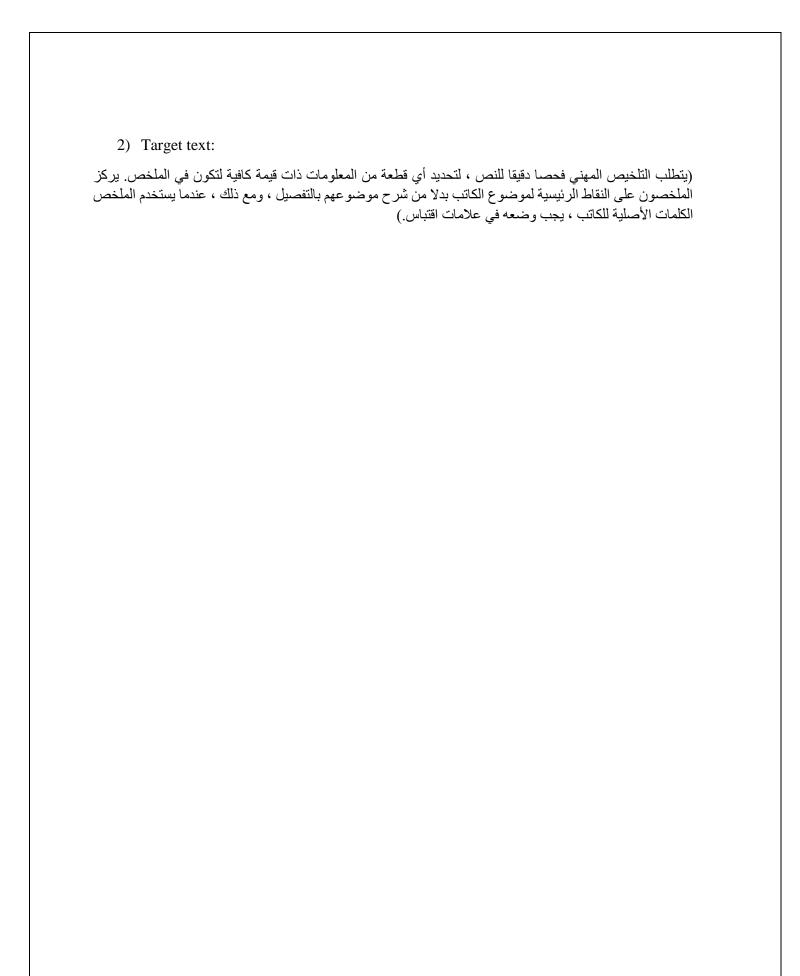
The rise plan offers advanced features such as project management auto-pilot, reporting, enhanced data management and security, global AP/AR budget-saving solution, and VIP treatment, all for 249\$ each month.

SmartCAT works with more than 70 formats, files can be uploaded and translated in the form of text documents, scanned texts, images, presentations, spreadsheets, HTML pages, and resource files. It also works with SDL Trados projects without any issues. Translation Text Test:

#### 1) Source text:

( Professional summarizing requires careful examination of the text, to determine which piece of information is valuable enough to be in the summary.

Summarizers focus on the main points of the writer's topic instead of explaining their topic in detail, however, when the summarizer uses the writer's original words it should be put in quotation marks.)



#### 2) Omegat:

CAT tool	Omegat
Platform Type	Software
Cost	Free
Simple	(Low) Complicated
Translation type	Computer-assisted translation
Speed	Medium (within 8-10 seconds)
Integrated Services	It lets you take note, comments, and create glossaries
File types	More than 50 file formats, including Microsoft Word, Excel and PowerPoint, LibreOffice, HTML, TTX and SDLXLIFF (Trados), TXML (Wordfast Pro), IDML (InDesign) and PDF (text and Iceni Infix export)
Performance	Medium
Complexity	High
Quality	Medium
Clarity	Medium
Accuracy	Medium
Error Analysis	Morphological error, syntactic error
Translation Available	27 languages

Omegat is a free translation tool created and developed by Keith Godfrey in 2000. Omegat mainly targets professional translators. This translation tool was created using the Java programming language, which is a language created specifically to reduce the usage of implementation dependencies.

Some individuals may mistake Omegat for a translation machine that translates texts like Google Translate, however, Omegat memorizes how a translator has translated a term or a sentence before and suggests it again. This makes the translation process easier for those who translate many terminologies.

Translators can access and download Omegat using a MacOS, Linux, Microsoft Windows, or Solaris, however, Java is necessary when downloading this tool on any device.

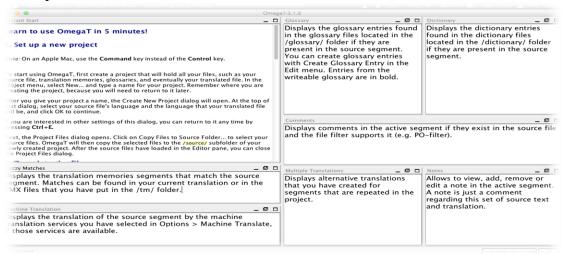
Omegat supports 27 languages. The lack of variety in languages goes back to the fact that Omegat does not support languages that do not have space between words as Thai, Lao, and Khmer. This can be classified as a semantic problem. This translation tool is not built to understand sentences but to replace terms. Programmers, however, confirm that they are working on supporting and adding more languages.

Omegat offers various standard features such as allowing its users to customize segmentation, an accurate fast translation memory, glossaries, importing and exporting translation memories, and spelling check.

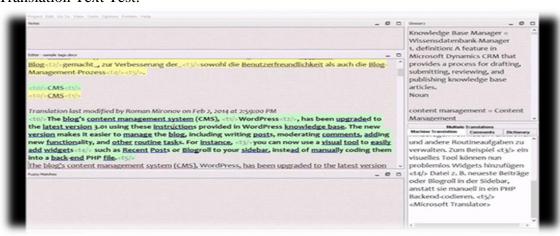
The way Omegat separates the projects is unique as it puts the source text of the project under a specific segment and the target text under another segment. This way the translator can access and edit the source text and target text of each project easily.

This tool allows the users to upload and download their projects in several ways as Microsoft Word, Excel and PowerPoint, HTML and XHTML, XLIFF, TTX, SDLXLIFF (Trados), TXML, IDML (InDesign), and PDF.

#### A sample will be attached below:



#### **Translation Text Test:**



## 3) Wordfast Anywhere:

CAT tool	Wordfast Anywhere
Platform Type	Website
	Application
Cost	Free
Simple	High (very simple)
Translation type	
Speed	Fast (within 2-3 seconds)
Integrated Services	Provides glossaries, spellcheck, transcheck, and customize your own editing features.
File types	MS Word MS Excel MS Powerpoint RTF TXT INX (InDesign) MIF (FrameMaker) TTX PDF (including scanned PDFs) Files can be compressed Wordfast Anywhere can store up to 10 files at a time
Performance	High
Complexity	Low (very simple)
Quality	High
Clarity	High
Accuracy	Medium
Error Analysis	Morphological error, syntactic error
Translation Available	Any language supported by the web browser

Wordfast was developed and created by Yves Champollion in 1999. It was created for those unable to purchase expensive CAT tools such as Trados.

Wordfast has launched several versions such as Wordfast Classic (WFC), Wordfast Anywhere (WFA), Wordfast Pro 3 (WFP3), Wordfast Pro 5 (WFP5), and Wordfast Server (WFS). However, the focus will be on the Wordfast Anywhere version.

What differentiates Wordfast anywhere from the other versions created by Wordfast, is that this version is a free browser-based version. This version works and supports any language the user's browser supports.

And because it is browser-based, it can be accessed using any device connected to the internet. It can be accessed using a computer, tablet, or a phone. It operates without the need of installing

any specific software. It can be accessed using Windows, Mac, or Linux. These features make it easy for translators to access their accounts anywhere and anytime they want.

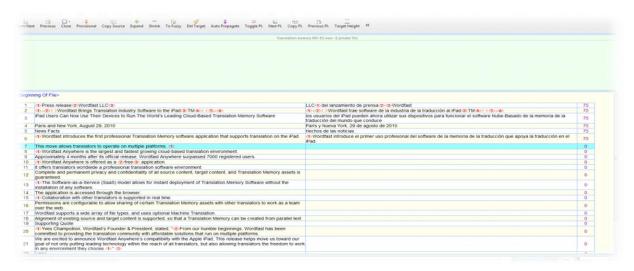
A great feature that Wordfast Anywhere offers is privacy and confidentiality. Other users won't be able to access the user's glossaries, translation, files, or personal information unless the user gives them access.

Wordfast Anywhere's glossaries and TM store around 1,000,000 TUs in each TM. Users can either upload their glossaries or access an unlimited number of glossaries provided by Wordfast. It allows the users to upload their existing TMs in TMX or TXT format. Glossaries alone can hold around 100,000 entries in each glossary.

It allows users to upload or download their files in the form of Microsoft Word, Microsoft Excel, Microsoft PowerPoint, RTF, TXT, INX, MIF, TTX, or PDF.

Although Wordfast has launched a free version, they have set several limitations on the free version. For example, users cannot use WYSIWG editors, and have to control the tags of internal formatting. Users also cannot access any of their information without internet connection. And users can only interact with 10 documents at the same time.

A sample will be attached below:



#### 4) Matecat:

CAT tool	Matecat
Platform Type	Website
Cost	Free
Simple	High (very simple)
Translation type	Computer-assisted translation
Speed	Fast (within 2-3 seconds)
Integrated Services	Provides glossaries, translation matches, quality check, and ability to search within the target and source text.
File types	Microsoft Office (Word, Excel and PowerPoint files), OpenOffice, PDF and images, Indesign, and Framemaker.
Performance	Medium
Complexity	Low (very simple)
Quality	High
Clarity	High
Accuracy	High
Error Analysis	No errors found.

Matecat is a free translation tool developed in 2011 by the European Union's Seventh Framework Program.

Matecat does not translate for users, it only allows users to edit their translation projects and regulate localization. This tool improves its translation by learning from previous mistakes and monitoring the user's actions. It is specialized in specific fields and their terminologies. This feature allows translators to achieve accurate translation in a short time.

This tool offers very standard features to its users such as managing several projects, access to different translation memories, and terminology databases. For a free tool it offers exquisite features such as the ability to upload unlimited files and unlimited storage.

#### Matecat supports more than 200 languages which mention below:

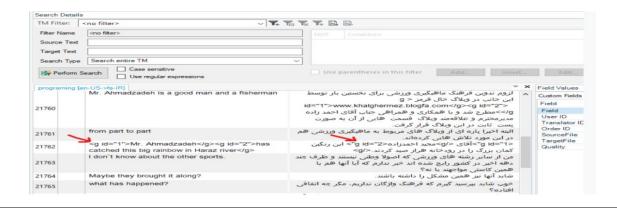
Language ( Code )					Basque (eu-ES)	Flemish (nl-BE)	Khmer (km-KH)	Palauan (pau-PW)	Tajik (tg-TJ)
Afrikaans (af-ZA)	Dutch (nI-NL)	Irish Gaelic (ga-IE)	Marathi (mr-IN)	Sinhala (si-LK)	Bemba (bem-ZM)	French (fr-FR)	Kikuyu (kik-KE)	Pali (pi-IN)	Tamashek (Tuareg) (tmh-DZ)
Albanian (sq-AL)	Dzongkha (dzo-BT)	Italian (it-IT)	Marshallese (mh-MH)	Slovak (sk-SK)	Bengali (bn-IN)	French Canada (fr-CA)	Kinyarwanda (rw-RW)	Punjabi (pa-IN)	Tamil (ta-LK)
Amharic (am-ET)	English (en-GB)	Italian Swiss (it-CH)	Meru (mer-KE)	Slovenian (sI-SI)	Belarusian (be-BY)	French Swiss (fr-CH)	Kirundi (run-RN)	Punjabi (Pakistan) (pnb-PK)	Telugu (te-IN)
Antigua and Barbuda Creole	English US (en-US)	Jamaican Creole English (jam-	Mijikenda (nyf-KE)	Somali (so-SO)	Belgian French (fr-BE)	Galician (gl-ES)	Kisii (guz-KE)	Papiamentu (pap-CW)	Tatar (tt-RU)
English (aig-AG)	English Australia (en-AU)	JM)	Mizo (lus-IN)	Spanish (es-ES)	Bihari (bh-IN)	Gamargu (mfi-NG)	Konkani (kok-IN)	Pashto (ps-PK)	Thai (th-TH)
Arabic (ar-SA)	English Canada (en-CA)	Japanese (ja-JP)	Mongolian (mn-MN)	Spanish United States (es-US)	Bislama (bi-VU)	Garo (grt-IN)	Korean (ko-KR)	Persian (fa-IR)	Tahitian (ty-PF)
Arabic Egyptian (ar-EG)	English India (en-IN)	Javanese (jv-ID)	Montenegrin (sr-ME)	Spanish Argentina (es-AR)	Borana (gax-KE)	Georgian (ka-GE)	Kurdish Kurmanji (ku-KMR)	Polish (pl-PL)	Tibetan (bod-CN)
Aragonese (an-ES)	English Ireland (en-IE)	K'iche' (quc-GT)	Morisyen (mfe-MU)	Spanish Mexico (es-MX)	Bosnian (bs-BA)	German (de-DE)	Kurdish Sorani (ku-CKB)	Portuguese (pt-PT)	Tigrinya (ti-ET)
Armenian (hy-AM)	English New Zealand (en-NZ)	Kabuverdianu (kea-CV)	Ndau (ndc-MZ)	Spanish Latin America (es-	Bosnian (Cyrillic) (bs-Cyrl-BA)	Gilbertese (gil-KI)	Kyrgyz (ky-KG)	Portuguese Brazil (pt-BR)	Tok Pisin (tpi-PG)
Assamese (asm-IN)	English Singapore (en-SG)	Kalenjin (kln-KE)	Ndebele (nr-ZA)	419)	Breton (br-FR)	Glavda (glw-NG)	Lao (lo-LA)	Quechua (qu-PE)	Tongan (ton-TO)
Asturian (ast-ES)	Esperanto (eo-EU)	Kamba (kam-KE)	Nepali (ne-NP)	Spanish Colombia (es-CO)	Bulgarian (bg-BG)	Greek (el-GR)	Latin (la-XN)	Rohingya (rhg-MM)	Tsonga (ts-ZA)
Austrian German (de-AT)	Estonian (et-EE)	Kannada (kn-IN)	Norwegian Bokmål (nb-NO)	Sundanese (su-ID)	Burmese (my-MM)	Grenadian Creole English (gcl-	Latvian (Iv-LV)	Rohingyalish (rhl-MM)	Tswa (tsc-MZ)
Azerbaijani (az-AZ)	Faroese (fo-FO)	Kanuri (kr-KAU)	Norwegian Nynorsk (nn-NO)	Swahili (sw-KE)	Catalan (ca-ES)	GD)	Lingala (In-LIN)	Romanian (ro-RO)	Tswana (tn-BW)
Bahamas Creole English (bah-	Fijian (fj-FJ)	Karen (kar-MM)	Nyanja (ny-NYA)	Swedish (sv-SE)	Catalan Valencian (cav-ES)	Gujarati (gu-IN)	Lithuanian (It-LT)	Romansh (roh-CH)	Turkish (tr-TR)
BS)	Fula (ff-FUL)	Kashmiri (ks-IN)	Occitan (oc-FR)	Swiss German (de-CH)	Cebuano (cb-PH)	Guyanese Creole English (gyn-	Luba-Kasai (lua-CD)	Rundi (run-BI)	Turkmen (tk-TM)
Bajan (bjs-BB)	Filipino (fil-PH)	Kazakh (kk-KZ)	Occitan Aran (oc-ES)	Syriac (Aramaic) (syc-TR)	Chadian Arabic (shu-TD)	GY)	Luganda (lug-UG)	Russian (ru-RU)	Udmurt (udm-RU)
Bashkir (ba-RU)	Finnish (fi-FI)	Khasi (kha-IN)	Odia (ory-IN)	Tagalog (tl-PH)	Chamorro (cha-GU)	Haitian Creole French (ht-HT)	Luo (luo-KE)	Saint Lucian Creole French	Uyghur (uig-CN)
Catalan Valenci	ian (cav-ES)	Gujarati (gu-IN	)	Lithuanian (It-LT)		Romansh (roh-	CH)	Turkish (tr-Tf	₹)
Cebuano (cb-Pl	H)	Guyanese Creo	le English (gyn-	Luba-Kasai (lua-C	ED)	Rundi (run-BI)		Turkmen (tk-	TM)
Chadian Arabic	(shu-TD)	GY)		Luganda (lug-UG	)	Russian (ru-RU	)	Udmurt (udn	n-RU)
Chamorro (cha	-GU)	Haitian Creole	French (ht-HT)	Luo (luo-KE)		Saint Lucian Cr	eole French	Uyghur (uig-	CN)
Cherokee (chr-	US)	Hausa (ha-NE)		Luhya (luy-KE)		(acf-LC)		Ukrainian (ul	k-UA)
Chinese Simplif	fied (zh-CN)	Hawaiian (US-F	11)	Luxembourgish (	lb-LU)	Samoan (smo-	WS)	Urdu (ur-PK)	
Chinese Traditi	onal (zh-TW)	Hebrew (he-IL)		Maa (mas-KE)		Sanskrit (sa-IN)	)	Uzbek (uz-Uz	<b>Z</b> )
Chinese Trad. (	Hong Kong)	Higi (hig-NG)		Macedonian (mk	-MK)	Scots Gaelic (ge	d-GB)	Vietnamese	(vi-VN)
(zh-HK)		Hiligaynon (hil-	PH)	Malagasy (mg-M	LG)	Sena (seh-ZW)		Vincentian C	reole English
Chinese Tradition	onal Macau	Hill Mari (mrj-R	:U)	Malay (ms-MY)		Serbian Latin (s	sr-Latn-RS)	(svc-VC)	
(zh-MO)		Hindi (hi-IN)		Malayalam (ml-II	N)	Serbian Cyrillic	(sr-Cyrl-RS)	Virgin Island:	s Creole English
Chittagonian (c	tg-BD)	Hmong (hmn-C	N)	Maldivian (div-D	<b>V</b> )	Seselwa Creole	French (crs-	(vic-US)	
Classical Greek	(grc-GR)	Hungarian (hu-	HU)	Maltese (mt-MT)	1	SC)		Welsh (cy-GE	3)
Comorian Ngaz	idja (zdj-KM)	Icelandic (is-IS)		Mandara (mfi-CN	<b>4</b> )	Sesotho (nso-Z	A)	Wolof (wo-SI	N)
Croatian (hr-HF	₹)	Igbo (ibo-NG)		Manipuri (mni-IN	1)	Setswana (Sou	th Africa) (tn-	Xhosa (xh-ZA	<b>(</b> )
Czech (cs-CZ)		Ilocano (ilo-PH)	1	Margi (mrt-NG)		ZA)		Yiddish (yi-Yi	<b>)</b>
Danish (da-DK)		Indonesian (id-	ID)	Mari (mhr-RU)		Shona (sna-ZW	')	Yoruba (yo-N	IG)
Dari (fa-AF)		Inuktitut Green	landic (kal-GL)	Maori (mi-NZ)		Sindhi (snd-PK)		Zulu (zu-ZA)	

Since Matecat is a browser-based tool, it can be accessed easily through any browser, such as Chrome, and Safari. It can be accessed through any device connected to the internet such as laptops, phones, and tablets, and it does not require specific software. It can be accessed through Windows, Mac, or Linux software.

This tool supports around 78 formats such as Microsoft Word, Microsoft Excel, Microsoft PowerPoint, OpenOffice, PDF, images, Framemaker, and Indesign files.

The only downside to this tool is that some users have experienced freezing when they go through segments in a large document or when changing from one segment to another. This freezing only occurs for 5 to 10 seconds.

#### Translation Text Test:



#### 5) Virtaal:

CAT tool	Virtaal
Platform Type	Software
Cost	Free
Simple	Medium ( a bit complicated)
Translation type	Computer-assisted translation
Speed	Fast (within 2-3 seconds)
Integrated Services	Offers Quality check, and highlighting and insertion of words that can be replaced.
File types	Gettext, XLIFF, TMX, TBX, WordFast TM, Qt Linquist, Qt Phrase Book, and Gettext.
Performance	Medium
Complexity	Medium ( a bit complicated)
Quality	High
Clarity	High
Accuracy	High
Error Analysis	No errors found
Translation Available	Any language understood by the Translate Toolkit.

Virtaal is a free computer-assisted translation tool written in Python programming language. It was developed in 2007 by Translate.org.za, and was launched and ready to be used in 2008.

This tool was initially created for those who use software localization. However, it does satisfy the needs of many translators as well.

This tool does not translate for users; however, it functions as a translation memory. It stores all of the terminologies, which makes the translation process so much easier and faster.

Virtaal supports any of the languages supported by Translate Toolkit.

It allows users to access various translation memories just by accessing a system of plugins. This feature allows users to gather translation suggestions from many translation tools such as Google Translate, Open-tran.eu, or any shared server dedicated to the translation memory.

Another unique feature that Virtaal offers is the ability to search for specific words and translate them within the source or target text. It also allows the user to customize their editing strategies however they would like.

Co	nclusion:
	shown, each of the previous tools has standard features and additional features. Each tool is signed for different types of translators.
	my opinion, the best translation tools are Matecat and Smartcat. These tools are practical an sy to use, especially if you are new to the translation world.

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