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The Role of Translation Technologies and Human Resources in International Business Communication

A Survey of Russian, Finnish and British SMEs

Uliana Ristikartano

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Jyväskylän ammattikorkeakoulu
JAMK University of Applied Sciences

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Description

International communication as one area of business largely depends on the use of both human resources and new advanced translation technologies. Translation technologies are an essential part of the command of languages in international business communication enabling an increasing volume of high quality actions that companies can implement over a particular time interval. In the meantime, the application of advanced communication technologies does not, necessarily, mean ultimate business success as even most extraordinary inventions have their disadvantages and cannot fully replace human resources. Advanced technologies in this research refer to the translation technology related software.

The objective of the thesis was firstly to define the role of technological and human resources in the command of languages in international business communication in a sample of British, Finnish and Russian SME companies. The second objective was to develop guidelines for the application of both technological and human resources in the said sector of communication in order to make their business more advanced on the global market. Quantitative research applied to get statistics for stated research questions. A survey study approach formed the research strategy. The survey created via an online questionnaire form measured similarities and differences regarding the use of technologies and human resources in international business communication in the sample mentioned above. The cohort of 30 companies was divided into three groups according to their geographical location. The survey deepened the understanding of the role of language related technological advances and human resources including language competencies in communication and made it possible to create a concept of Language Management Strategy. To clarify the idea of applying LMS to a company on the field, individual LMS guidelines are developed for KSK Ltd.

The results of the study indicate that all companies, to varying extent, meet challenges when operating on the global market, particularly regarding the lack of knowledge of technological advances in translation, and missing language competencies. As there were no significant differences between the SMEs studied, the development of a Language Management Strategy seems to be a potential tool for any SME wanting to increase their efficiency of international business communication through the full-scale use of both language-related technological and human resources.

Keywords (subjects)

internationalization, intercultural communication, international business, language management, SME, translation, language management strategy, translation software, cultural component

Miscellanous

Appendices attached (11 pages)

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1 INTRODUCTION

In the twenty-first century, as the globalization of business continues, it forces companies to operate with constantly growing variety of languages. It has been estimated that if two countries have a common language trade between them will be 42% greater than between two countries that do not (The Economist 2012a, 37). As Maclean (2006, 1377) states that

> *"..companies deal with language issues every day, they cope, the world continues to turn. How they do so, however remains largely absent from the literature."*

Currently to increase the efficiency of global operations and demolish language barriers English is being applied in every aspect of business activities. However, the Sorensen's (Surveyors 2005) survey of 70 corporations operating in Denmark shows that the companies use English as a 'transit language' between various parallel local languages. And once documents in English arrived at subsidiaries, they were translated into respective above languages. Many researches implemented within European Union trying to evaluate the efficiency of the unification have come to the conclusion that the majority of EU citizens using English as a lingua franca mostly operate on their internal languages and based on European commission statistics (2014) only 50% of the EU population is able to communicate using English for daily operations.

In that way while English is widely used in international business encounters it has not rendered the world of international business monolingual. On the contrary, language diversity remains an issue (Piekkari, Velch 2014, 5). The Economist has accentuated that language remains a major barrier to the achievement of the true embodiment of the European Union saying that 'language has replaced work visas as the main barrier to mobility'. (The Economist 2013b, 49)

1.1 Thesis problem and objectives

Translation technologies are an essential part of language area of international business communication, which allows increasing volume and quality of actions that companies can implement on the global market over particular time interval. Since Industrial revolution about 250 years ago, business has been continuously improving the efficiency of production by development of mechanical inventions as a method of human resource replacement. Instead of human physical instability not to mention emotional factor influencing on efficiency of production, mechanical production volumes do not contain any of human disadvantages and depend simply on wills and whims of production owner.

Yet breakthrough in translation technologies not necessary means an ultimate business success as even most extraordinary inventions have its disadvantages and cannot fully replace human resources. Human's ability to think, to consider tremendous amount of barely related information, analyze external and internal factors and exchange information, consider cultural component and analyze emotions, in other words its intellectual partial cannot be fully replaced by any mechanical invention. International communication as one area of business in significant extent depends on use of both human resources with their language competencies as well as new advanced translation technologies. With regard to this scholars and scientists relentlessly try to construct external mechanisms of support that can provide language assistance aimed to upsurge global interactions and hence the amount of business operations on the global market.

The objective of the thesis is to define the role of technological and human resources in language related area of international business communication in the sample of British, Finnish and Russian companies; and to develop guidelines for application of both technological and human resources in language related area of communication in order to make business more advanced on the global market.

Additionally the research recognizes necessity to apply developed guidelines to individual company on the field, with the purpose of making an example how the research results may influence on communication efficiency of a

particular company. Practical guidelines based on the research made will be presented under recommendation part.

1.2 Research questions

It is obvious that success of a company operating internationally in the great extent depends on communication efficiency. Over past decades there have been countless publications about intercultural communication. Issue of intercultural communication within international companies is thoroughly explored in publications of Burek Christine, Cooper Cary, Gertsen Martin Gardel and many others. European commission researches continuously upgrade communication technologies aimed to remove technical, institutional and language barriers within and beyond the bounds of European Union. Meantime there is hardly few works exploring the impact of language related area of communication technologies on international business in different countries and the role of human resources with their language competencies in efficiency of international business operations.

Research questions:

1. What is the current share of technological and human resources in international business communication?

- H0: Human resources prevail over technological resources in what comes to language component of international business communication in British, Finnish and Russian companies

- H1: Technological advances prevail over human resources in what comes to language component of international business communication in British, Finnish and Russian companies.

2. How to improve the efficiency of international communication of companies operating abroad?

1.3 Sample of research

The sample consisted of 10 Finnish, 10 British and 10 Russian SMEs which export and import products hence use foreign language for daily business

operations. The reason to choose both local and foreign companies is to maximize objectivity of results and provide thorough comparison in which degree technological and human partials involved in the process of international business communications in different countries.

Eligible companies which matched the selection criteria were identified by country of origin, area of business operation and personnel numbers. All of the participants are local companies operating abroad with personnel number below 250. A small sample was chosen because of the expected difficulty of obtaining information which could be out of access along with geographical remoteness, for most of participants located far from the place of implementation, hence access to participants was limited. Questionnaire was preferred to interview on the basis of geographical remoteness as well.

Contact information about companies suitable for survey was collected by means of JAMK, JYKES, Southampton Solent University, East Consulting Oy, Severstal and Moskow University of Humanities. Besides that, some companies were found in Linkedin network.

The intended result of the research is to evaluate the application of technological advances and human resources with their language competencies for international communication within global business operations year to date in different countries and to provide companies with recommendations for improvement of the efficiency of international communications through practical application of both technological and human resources.

2 METHODOLOGY

2.1 Research approach and methods

Sanders (2008, 120) proposes that **functionalist paradigm** applies to the work aimed on exploration of a rational explanation of why a particular organizational problem is occurring and developing set of recommendations set within current structure of the organization's current management. In accordance with Sanders (ibid. 120), the paradigm of this research is functionalist. The research is aimed on problem identification and will provide practical solutions to practical problems.

Deductive approach has number of attractive features in frame of which the theory and hypotheses get developed and research strategy is designed to test the hypothesis. Thus deductive approach seems to be efficient for achieving set goals of the research. Sanders (2008, 139) states, that the research is exploratory if it puts an emphasis on seeking a new insights for a particular phenomenon and clarifying understanding of the problem. The key advantage of it its flexibility which helps to establish new lines of inquiry (ibid).

Quantitative research applied to get structured information and statistics for stated research questions. According to Sanders (2008, 417), quantitative research typically involves surveys and questionnaires aimed to provide meaningful data.

With **survey** as a technique, participants who are competent and can contribute new ideas are carefully selected as respondents to ensure a representation of different types of experience (Kothary 2004, 37).

Sanders (2008, 144) describes survey method, as:

> *"..a technique where data collected using a survey strategy can be used to suggest possible reasons for particular relationships between variables and to produce models for these relationships."*

Survey research does not belong to any particular field and can be applied by almost any discipline. According to Angus and Katona (2006, 16), "*It is this*

capacity for wide application and broad coverage which gives the survey technique its great usefulness..." In order to investigate the patterns that determine allotment of technological innovation in international communication in the country, it is necessary to collect information from individuals (APSA 2004). To obtain this information it is essential to draw a sample of companies from the country and interview selected.

Sampling is a common type of data, useful for examining the patterns of technological development, such as differences in the allotment of technological and human resources in international business communication in different countries. When sampling is applied it is possible to induce findings that represent the whole population at a lower expenditure than collecting the data for the whole population (Sanders 2008, 144).

2.2 Components of the study

There are several components that are needed to conduct a successful survey. The first thing is to form the theoretical base through collection and processing related information in order to develop the clear statement of the objectives of the survey. To build a strong *theoretical framework* multiply sources of information are required. Such data sources as books, articles, academic journals, interviews, documents give many-sides, diversified statement of the exploring problem.

Based on gathered information are *formulated general and specific research questions*, which have to be embodied into the *concept of the survey* (elaboration of the research content). The conceptual framework provides the conceptual map behind the questionnaire (Sanders 2008, 147). As Punch (2003, 54) states,

> *"for those questions being formulated specifically for the survey it is vital to keep in mind that there are many ways to phrase or ask questions hence they have to be based on strong theoretical base and be unambiguous, relevant, appropriate and unbiased."*

Questionnaire is typical data collection technique, where is necessary to define a limitation to the number of questions that any questionnaire can

contain (ibid.145). To be successful questionnaire should be brief, straightforward and proceed in logical progression going from simple to more complicated questions (Kothary 2004, 64). Questions may be dichotomous (yes or no), multiply-choice (list of alternative answers) or open-ended (ibid. 65). Collection of the data is followed by its *analysis and development of recommendations* to companies how to improve international communication skills. The results of the study will be presented in charts and tables and complemented with recommendations for improvement of global business communication in SMEs.

Information acquisition plan:

Key concepts and search statements for the topic are follows: international communication & business, communication technologies & business; intercultural communication; international communication; language technology tools and services; automated translation; machine translation; human resource and international communication; language competencies; language policies & international business; language development workshops; professional development workshops & international communication; company language strategy; company strategy.

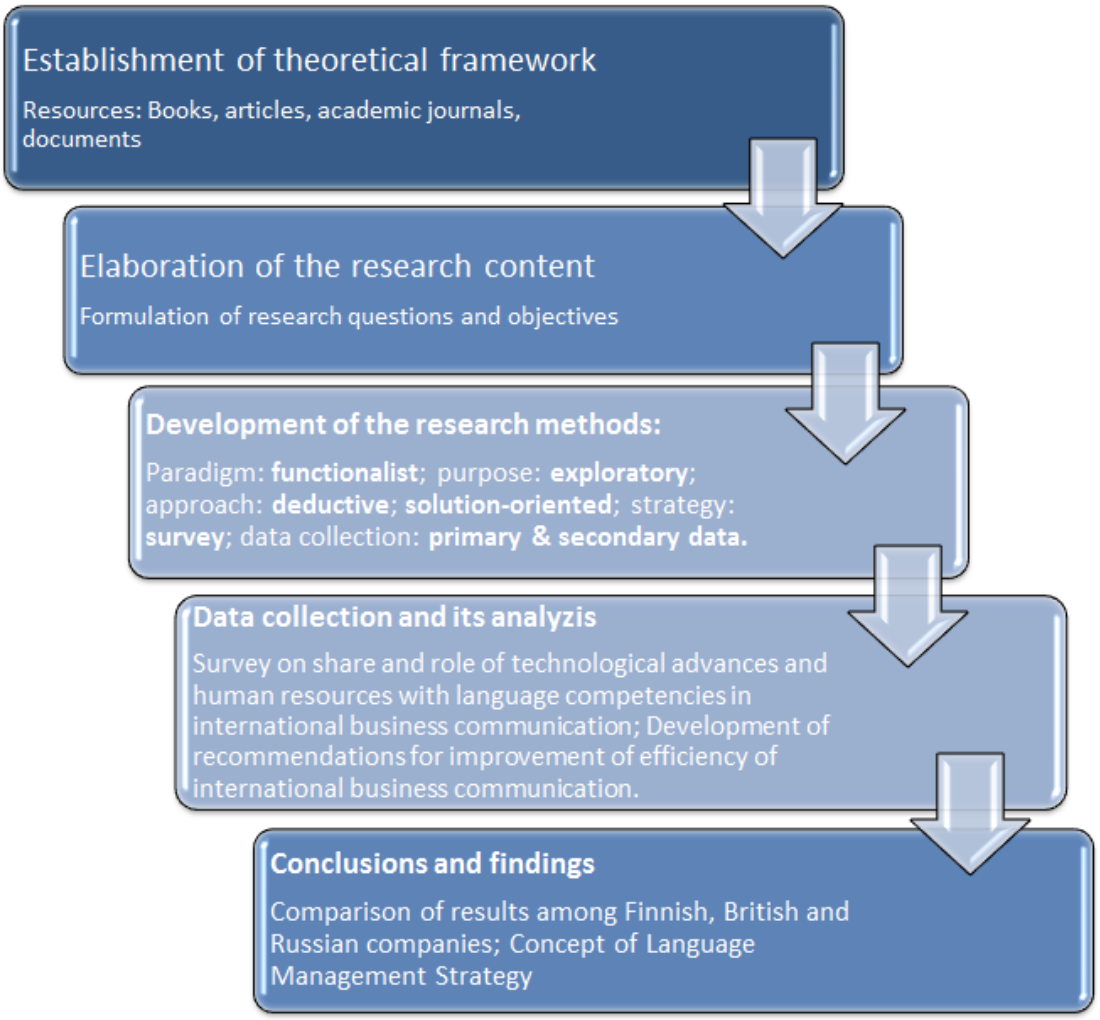

Figure 1. Components of the study

2.3 Data collection

Once the research problem has been stated and general and specific questions have been formulated, it is necessary to elaborate data collection techniques. As Kothari (2004, 95) suggests putting emphasis on two types of data: ***primary and secondary data***. The *Primary data* is the information that is original as it is collected from the original resource and hasn't yet been published. The *secondary data* is the source of knowledge that has already been gathered, analyzed and applied by someone else (ibid., 95).

Data for this study will be retrospectively collected in combination of techniques and will include documentary analysis and questionnaires. The ***quantitative approach*** will be employed since it allows analyzing many companies which is necessary to define pattern and differences in

technologies and human resources among local and foreigner companies within the same environment. The study uses *cross-sectional time horizon* in order to gain insights into current technological advances and their correlation with human resources within global business communication environment.

2.4 Statistical data analysis

According to Creech (2003, 1) the ***independent t-test*** or t-test is the most commonly used statistical data analysis procedure for hypothesis testing. The two sample t-test explore whether two independent populations have different values on some measure. The statistics student-test allows determining a p-value that displays likelihood if results are gotten by coincidence, if the null hypothesis were true and there is no difference in population (Gatignon 2003, 10). Conversely, if there is less than 5% chance of getting the observed difference by chance, the null hypothesis must be rejected and presented the statistical difference between two groups.

There is no minimum sample size for the t test to be valid, as even the very first demonstration of the t-test (in "Student"'s 1908 paper) was in an application to sample sizes of size four (Chernik 2014). Validity requires that the assumptions for the test statistic hold approximately.
As Chernik (Statistical analysis 2014) states,

> *"..those assumptions are in the one sample case that the data are iid normal (or approximately normal) with mean 0 under the null hypothesis and a variance that is unknown but estimated from the sample. In the two sample case it is that both samples are independent of each other and each sample consists of iid normal variables with the two samples having the same mean and a common unknown variance under the null hypothesis. A pooled estimate of variance is used for the statistic. In the one sample case the distribution under the null hypothesis is a central t with n-1 degrees of freedom. In the two sample cases with sample sizes n and m not necessarily equal the null distribution of the test statistics is t with n+m-2 degrees of freedom. The increased variability due to low sample size if accounted for in the distribution which has heavier tails when the degrees of freedom are low which corresponds to a low sample size."*

So critical values can be found for the test statistic to have a given significance level for any sample size (well at least of size 2 or larger).

T-test is going to be applied to determine if three sets of data (British, Finnish and Russian companies) are significantly different from each other in one variable. Variable applied for three sets is share of human resources in international business operations.

2.5 Terms, abbreviations and definitions

Table 1. Research terms and abbreviations

№	**Abbreviation**	**Definition**
1.	**FAMT**	Fully automated machine translation. Kastberg (2012), identified FAMT as a software that conducts translation between natural languages 'independent of human interference or help'.
2.	**HAMT**	Human assisted machine translation is a software designed for the machine to translate everything in the way that embedded in the translation algorithm.
3.	**MAHT**	Machine assisted human translation systems can vary from automatic look-up programs to practically fully automatic systems which require the translator to approve each sentence
4.	**MT**	Machine translation
5.	**NLP**	Natural language processing is a field of computer science, artificial intelligence, and computational linguistics concerned with the interactions between computers and human (natural) languages
6.	**MT software**	**Description**
7.	**Audio translation software**	Software that provides translation while people speak to one another on different languages.
8.	**Dictionary**	is a database that is accessible via the Internet through a web browser or is purchased for offline use.
9.	**ECM software**	Enterprise content management systems organize and distribute unstructured materials based on language and content requirements: emails, documents, health or accounting records, images, surveys and product information.
10.	**Information extraction software**	mostly the components of Text mining tools, for they implement extraction of all relevant information and facts which later connected with other NLP components within text mining software.
11.	**Intelligent email management**	Enterprise solutions that fully automate the process of capturing, analyzing, documenting, translating and interpreting, routing and prescribing responses.

12.	**Text mining, analysis software**	Concerns encountering structure and patterns in unstructured material – mostly text data: from the web, books, comment fields and many others (Chakraborty et al. 2013, 1).
13.	**Translation memory**	Advanced form of MAHT software that functions by storing what previously has been translated within the program using a method of capturing, storing and reusing translations.
14.	**Visual translation software**	It is recently developed software that recognizes signs, words when pointed at them.
15.	**Web content translation software**	HAMT based software which translates entire web pages, blogs or documents and supports. It also includes leading dictionary, spelling and definition additional packages.

.

3 THEORETICAL FRAMEWORK

International communication is a key component of business which can be both written and oral but always includes use of languages: meetings, conferences and exhibitions, creation of documents, applications and reports. Language component of communication and constant language competence improvement is essential for efficient communication and profitability of business.

International communication is the area of expertise is acquired and subsequently developed by means of professional linguistic of technical education with language competence as a partial of the program; practical language activities and in-service trainings in the frame of work or at spare time.

Allotment of resources whether technological or human for communication competence improvement is in significant extent dependent on general resources, understanding of necessity for particular competence development along with cultural background in other words historically developed perquisites and convictions, which influence on the way culture perceives a particular matter. In order to do so, it is necessary to understand components that influence on efficiency of international business communication.

3.1 Technologies in international business communication

The rise of technologies that meet some of the demand of communication amongst languages however easies everyday communication and makes it less time and resource consuming. Technological advances play key role in sales negotiations or distribute meetings which remain the main activities of international communication in globally operating enterprises. According to Hans Uszkoreit (2015, 2) language technology comprises computational methods, computer programs and electronic devices that are specialized for analyzing, producing or modifying texts and speech. These systems are based on some knowledge of human language, which differs from machine language, hence it makes it necessary for scientists to design mechanisms encoding and decoding languages one into another to implement the process

of interaction. Even though available language technologies have not yet achieved human ability they are necessary for using human-machine-human interaction. But the main obstacle that remains a tempered solution in the field of technologies is the lack of communication between humans with different mother tongues.

As Piekkari (2014, 11-12) confirms one of the institutional aims of computation linguistics has always been fully automatic translation but it proved to have great number of pitfalls but

> "..f*rom multitude attempts scientists have realized that they are still far away from achieving ambiguous goal of translating casual, random materials."*

Regardless of this, they have been able to develop software systems and simplify the work of human translators, hence clearly improve their efficiency. Sophisticated yet not perfect automatic translations can also be of significant help to information seekers who analyze through vast amount of material in foreign languages.

The swift growth of the Internet and the emergence of the information society contain many challenges to language technology. As Hanz Uszkoreit (2015,4) comments even though the new media combine text, graphics, movies and sounds, the whole world of multimedia information can only be structured, indexed and navigated through language.

Moreover, continuously increasing multilingualism of the Internet possesses an additional obstacle for language technology. Nowadays the Internet is partly multilingual and consists of amount of online dictionaries and online translation tools. Yet not all languages presented equally in the Web and not every document available in all possible language as well as only few cross-lingual accesses supported.

The global web can only be facilitated with the help of multilingual tools for indexing and navigating. Systems developed for cross lingual information and knowledge management demolish barriers for business and international enterprises (ibid. 2015).

In the purpose of the European Commission to support multilingualism, language diversity and improve international interaction the Joint Research Centre has developed Language technology tools for more than twenty languages, which is text mining and computer linguistics. These tools are used for analyzing up to 200 000 online new articles per day starting in 2004, hence creating valuable meta-data (The JRC 2015). The follow meta-data along with various linguistic resources have been released for public purposes. The most remarkable feature of all these resources is their multilingualism and the fact that texts are parallel (in other words, corpus consists of texts and their manually prepared translations).

The recourses designed with the support of the European Commission are used to train statistical machines, translations, generate dictionaries, and evaluate multilingual document summaries and information extraction software. Thus the successful simulation of human language competence is not to be expected in the near future, business is offered various tools such as grammar checkers for word processing programs, intelligent e-mail sorting and response generation, document categorization and summarization software, systems for extracting selected information from large volumes of text and many others.

Statistical machine translation systems

Machine translation, commonly known as MT, can be defined as the process of translation from one natural language (source language) to another target language by computerized systems and, with or without human assistance (Chéragui 2012, 4).

The first attempts to introduce automation into translation were made in 1940’s. Since then scientist have been continuously developing numerous mechanical translation algorithms to provide end-users with the most proficient translations (ibid., 10). Developing of greater computing capacities has made access and usage of machine translation more comprehensible. It resulted in building of statistical machine translation.

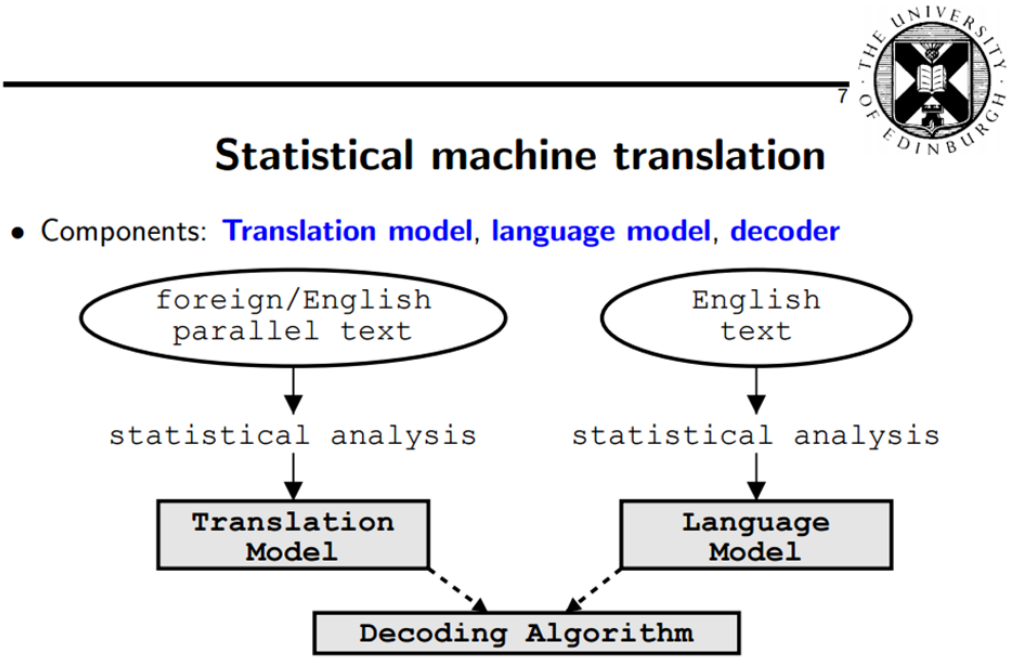

Figure 2. Principle of machine translation (Koehn 2007)

Koehn in his academic paper (2010, 7) describes the basic principle of machine translation, as investigation how to translate from a large corpus of pairs of equivalent source and target sentences. The typical machine learning framework is that there is an input (the source sentence), an output (the target sentence), and a model trying to create the correct output to each given input (ibid. 2010, 10).

One of the first successful attempts to statistical machine translation (SMT) supported by IBM group used source-channel approach in the late 1980's, which contained two models: a word-based translation model and language model. As Goutte, Cyrill (2009, 3) report in their studies,

> *"the translation model ensures that the system produces target hypotheses that correlate to the source sentence, while the language model secures the output is as grammatically correct and fluent as possible. This may be taken as a general move in computational linguistics."*

Word-based translation models have had some success; however, a remarkable breakthrough was acquired by switching to long-linear models and phrase-based translation.

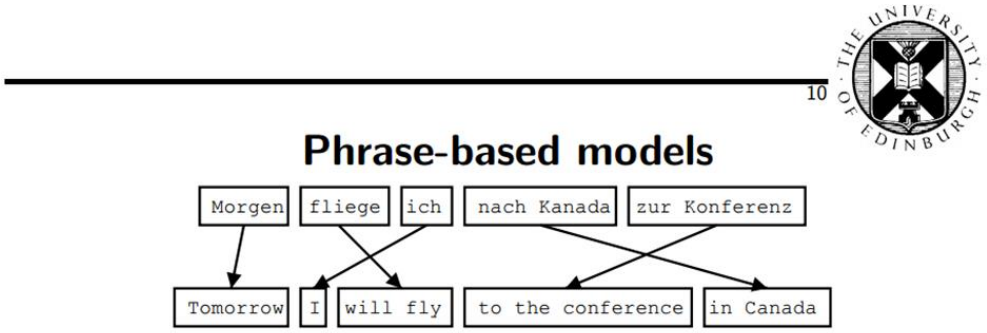

Figure 3. The general principle of phrase-based translation model

As shown in the proceedings of the annual conference of the Association for Computational Linguistics (ACL 2013), statistical approaches became entirely dominant in the field over about a decade.

Even though scientist have been working on technologies since 1940's the main breakthrough in statistical machine translation was achieved in 1990's. The pace of technological advances' engineering has grown significantly since the Web has become a great help in automatic translations.

In *1993* the project C-STAR (Consortium for Speech Translation Advanced Research 1993) presented the machine translation in the field of tourism by video conference and were demonstrated in transatlantic conference with three languages (Japanese, English and German) involved.

In *1998* Softissimo presented the translator REVERSO, which has been developing since 1970's by a group of Russian researchers.

In *2000* Japanese laboratory ATR developed ALPH system translator (ATR Multilingual Automatic translation system for Information Exchange) which general principle is based on examples and operates on Japanese-English and Chinese-English combinations (Takezawa et al. 1997, 1-4).

In *2005* Google presented the first web site for automatic translation (http://translate.google.fr/).

Several studies (Chéragui 2012, Lavie L., Vogel S et al. 2004) have revealed that in 2008 23% of internet users have used machine translation and 40 % considering doing so; in 2009 30% of professionals have used machine

translation and 18% practice a proofreading; and in 2010 (Ibid.2012) 28% of Internet users used the machine translation and 50% intend to do.

Hutchins in his Brief Introduction to machine translation (2000, 10) identified three types of machine translation or machine-aided translation:

- *MAHT - Machine assisted (-aided) human translation*. The process is implemented by a human translator, where she uses computer as an instrument to improve or speed up the translation process. Several studies in the field opposed to the field of MT (Barrachina, Sergio et al. 2009) call it computer assisted translation (CAT).

- *HAMT – Human assisted machine translation*. The process involves a human translator, where the source language (SL) text is modified either before, during or after it is translated by the system.

- *FAMT – Fully automated machine translation*. The process doesn't involve a human translator. The source language is fed into the computer as a file, and the system generates a translation automatically.

Hutchins (ibid. 2010, 12) labeled this type as batch mode and identified two types of fully automatic translation: low quality machine translation and high-quality machine translation (FAHQMT).

Machine assisted human translation systems can vary from automatic look-up programs to practically fully automatic systems which require the translator to approve each sentence:

The mostly applied type of MAHT-tools developed for the general PC-user not for a translator and imbedded in most office solutions, as internet recourses or CD. Based on memory embedded in these products it provides basic spell, grammar check functions. They are spell check, grammar check, document editors, filters and databases in other words – words processing programms. Another type of MAHT-tools developed especially for the use during the translation process is a translation memory.

3.1.1 Types of translation software

Translation memory

Translation memory is an advanced form of MAHT software that functions by storing what previously has been translated within the program using a method of capturing, storing and reusing translations. Every new translation memory is clean and has to be fulfilled interactively or by importing sentence pairs. Within the process of interactive translation, it automatically updates the database and provides users with options the next time they encounter the same or similar material.

Translation memory can be built by importing previously translated data, which speeds up the process and give advantages of existing translations when launching a new project. Translation memory included a linguistic database and its associated neutral network. If this translation memory resides as a group of files allocated on internal system (whether it is local or network), it is regarded as file-based translation memory and is used on a separated device/group of devices. If a translation memory is allocated on a database server, it is considered as a server-based translation memory and is used as a client, dependent on other components of the translation memory solution (SDL Trados 2007). To be able to translate in such a program requires quite a lot of preceding work for the human translator (Kastberg 2012, 43-45). Various translation memory software designed over past decades differs in efficiency and capacity: IATE, SDL, Across, TRADOS Studio 2015, Déjà vu, Transit, OmegaT and many others. Different types of translation memories software are described below:

1. *IATE – Inter-active terminology for Europe*, containing both file-based and server-based memories. Server-based translation memory is available for public users, which was launched in 2007. A public user interface offers twenty languages and saving preferences option. Meantime file-based translation memory is used by all EU institutions aimed onto standardization throughout EU institutions. Inter-institutional terminology database of the European Union contains approximately 1.4 million multilingual entries (EC 2007).

2. *SDL Trados Studio 2015* - Software provides both file- and server-based translation memories, supports interactive translation through the interface with popular editing environments such as Microsoft Word and TagEditor. As it states in SDL Trados Studio overview (2015), it provides all the tools needed to edit and review high quality translations, manage projects and terminology in one powerful solution. It offers a range of additional features that support other aspects of the translation process, including quality assurance, project management and translation memory administration, which are accessible available whether the translation memory database is stored locally for individual access, or made available for multi-user access in an intranet or Internet environment (ibid. 2015).

3. *DejaVu* – Software provides file-based translation and includes a memory database manager, an alignment module, terminology database and a terminology watch guard allocated in the system bar, available to all Windows applications. The program with its integrated environment offers features of a word processor, search, replace and spell checking along with filters to build and handle materials and projects containing various file types (Atril solutions 2015).

Described software provides either file-based, server-based of both file- and server-based translation-services along with additional features and are used by government bodies, business corporations and individual consumers. Depending on the purposes of the client, the final package contains various kinds of features hence is varied in price. The area of use of MAHT software is manuals and instructions, scientific and technical literature.

Human assisted machine translation is a software designed for the machine to translate everything in the way that embedded in the translation algorithm. The user role is to edit, to evaluate, to correct and to modify machine's translation suggestions in accordance with target language/content requirements (Goutte, Cyril 2009, 36-40).

Editor role of the human translator is applied whether before, during or after the machine has accomplished the translation:

If the user implements the edition of the text before it is translated by a machine it is a case of pre-editing. It means that the corrector translates the resource text into ‘controlled language’ which will be structurally similar to the target language that the text needs to be translated into. Another option is to rewrite the source language into a simplified form excluding complicated stylistic variations which will help to minimize cultural misunderstandings yet might result in mechanical stylistically poor material (Kastberg 2013, 42-43).

When the editing takes place during the translation process it becomes an interactive process, which contains continuous interaction of the human and the machine while looking for a most appropriate meaning of a required word. As an example of interactive translation can be request of the machine to choose a mostly appropriate meaning of a word from source language among possible variations in the target language.

Post-editing takes place if the user processes the text after the machine has accomplished translation.

Kastberg (2012, 38-45) reviewed the literature from the period and stated that human assisted machine translation includes high human involvement in the translation process. The editor or proofreader has to compare both source and target texts, eliminate defects and replace them with a correct translation. It increases the output even though requires of the material editor proper knowledge of both source and target languages along with deep engagement with the texts. Human assisted machine translation systems are tools that aid the translation process, rather than implement the whole operation independently.

Fully automated machine translation – or simply machine translation. Kastberg (2012, 33-34), identified FAMT as a software that conducts translation between natural languages ‘independent of human interference or help’. The role of a user is to simply upload the text into the computer and give the order to translate a given text from language A to language B.

Availability of information technologies significantly improved with the personal computers and information technology has become a key part of everyday life. FAMT-programs can be divided into three groups:

- The direct MT-model;
- The transfer Model;
- The interlingua Model.

The direct MT-model was the first model developed. It provides a translation between two predetermined languages, in other words it is not possible to load any text from any language and receive a translation in any desired language (Rao 1998, 66).

The transfer Model conducts an analysis of the source language, an algorithm resulting in target language and meantime a bilingual dictionary replaces the words from the source language with words from the target language (Koehn 2010, 92-100).

The Interlingua model is the most advanced translation model that concentrates on the source text's content. The source language text is analyzed globally and semantically and then coded into a semantic code, which reproduces the contents of the recourse texts. It considers grammatical rules and morphology (ibid 2010, 92-100). There are many FAMT products available for end-users with any requirements:

Automated websites, blogs, documents and supports translation software

Craciunescu et al. in 2010 conducted series of trials based on eligibility of target texts and as the result, listed the most legitimate developments (*Reverso, Systran, Bablefish, SDL free translation, BingTranslate*) :

1. *Reverso (transfer method)* – this HAMT based software developed by Softissimo, provides translating-services, a dictionary, spelling services and the ability to check the work for grammar errors online. Available languages are Spanish, French, English, German, Portuguese, Russian and Italian. Detailed examination of Reverso and Systran (the most popular HAMT software) by Mercredi, Janvier (2006) reports that, Reverso provides the most accurate translating-services.

Besides this, it used to be the translation recourse for French search engine Voila, before it was replaced by Systran.

Source	Target	Reverso	Systran
German	*French*	2	0
English	*French*	15	5
Italian	*French*	8	1
Spanish	*French*	20	6
French	*English*	0	1
Total		**45**	**13**

Figure 4. Comparison of translation quality among Reverso and Systran (J.Mercredi 2006)

2. *Systran (direct transfer method)* – is commercial software, that provides translation from English into 12 foreign languages. SYSTRAN offers a wide range of products for home, small businesses, and enterprise solutions in the form of desktop products, online services, client-server solutions, and professional services.

The products they offer include Systran Premium, Business, Home, Office, Web, and Mobile Translators as desktop products. The majority of search engines and (Google, Yahoo, AltaVista, Voila, AOL, Wanadoo) Internet operators and companies (the United State Department of Defense, European Commission, Mac OS X) use Systran system to translate any page return(Sumerset n.d).

3. *Babelfish (transfer method*) - is a comprehensive online translator which translates entire web pages, blogs or documents and supports. It also includes leading dictionary, spelling and definition additional packages. https://www.babelfish.com/

4. SDL Freetranslation.com (direct transfer method) - is an online translation resource that enables individuals and businesses to translate documents, web sites and typed text. It contains of free computer translation along with professional human translating-services (available over a charge). http://www.freetranslation.com/

Dictionaries

Dictionary - is a database that is accessible via the Internet through a web browser or is purchased for offline use (Oxford dictionary n.d). They can be made available in a number of ways: free, free with a paid subscription for extended or more professional content, or a paid-only service. Some dictionaries are organized as lists of words, similar to a glossary, while others offer search features, reverse lookups, and additional language tools and content such as verb conjugations, grammar references, and discussion forums. Enterprises use dictionaries to extract the main terminology used in business along with many various unusual words and expressions from business and management field in addition to wider field of work and modern life (Macmillan n.d.).

The mostly spread online dictionaries are the following:

One look dictionaries, Cambridge, Dictionary.com, Merriam Webster, World assault, The newbury house online dictionary, Macmillan, NetLingvo, Oxford dictionaries online, Thesaurus.com, Wictionary, Urban dictionary, Wolfram, Leo, Langenscheidt, Abbyy lingvo, Larousse and many others.

1. *One look dictionary* - one of the 10 supremely useful sites rated by Yahoo and one of the 5 best free reference sites in computer world. The program uses meta-search to look through various existing notable dictionary sites and return the most legitimate results. Hence it provides users with various definitions along with more detailed information. The coverage of the dictionary is over 4 million words from over 800 online dictionaries (One look 2015). http://itools.com/tool/onelook-multi-dictionary-search

2. *Dictionary.com* – contains of English definitions and meanings, example sentences, spelling audio pronunciations and word origins. The dictionary, that licensed from 15 trusted sources like Harper Collins and Random House. provides interactive word discovery experience where users can learn words in creative ways (Edshelf n.d.). http://dictionary.reference.com/

3. *Thesaurus.com* – the dictionary developed by dictionary.com, which provides users with thorough and complete classification of synonyms and antonyms for any requested word online. http://www.thesaurus.com/

4. *Urban dictionary* – online dictionary of slang words and phrases and contains about 72 million impressions with about 2000 new daily entries (Wikipedia n.d.). http://www.urbandictionary.com/

Online dictionaries are not convenient for everyone and are dependable on the Internet connection, while dictionaries running on computers make users self-sufficient of the Internet and geographical location.

Based on various researches and reviews the mostly distributed computer dictionaries in business field at this year to date are the following: *Merriam-Webster's Collegiate, Babylon, MasterWriter, Cambridge Advanced Learner's, Random House, Visual Thesaurus, Oxford business English dictionary, Longman business dictionary, Babylon 10, iFinger Collins business dictionary* and others.

Information extraction tools

Information extraction tools are mostly the components of Text mining tools, for they implement extraction of all relevant information and facts which later connected with other NPL components within text mining software (Okurowski, 118-120). However, information extraction tools can be applied separately by enterprises to get facts out of unstructured information. These programs can extract information like names of people, locations, organizations and establish connection between them.

The autonomously operating IE software is the following: *Import, Webhose, Winautomation, Visual Web ripper, 80legs, Addtolt, Datacrops, Easy Web extract, PDF collector, PDF plain text extractor, WIZ rule* and many more

1. *Import* - is a platform which maintains the conversion of semi-structured information in web pages into structured data.

2. *Webhose* - extracts high quality data from thousands of global online sources like news, blogs, reviews, message boards and more.

3. *Winautomation* - an automation tool that allows for web site data extraction into Excel and text files.

4. *DataCrops* - is a platform that facilitates strategic and competitive business decisions through data collection and analytical highlights from Web for business.

5. *Spinn3r* –a tool analysing and structuring frequently updated web content, such as news, blogs and social media for search engines and analytic companies. http://www.capterra.com/data-extraction-software/

Text mining, text analyzing tools

Text mining, text analytics tools concern encountering structure and patterns in unstructured material – mostly text data: from the web, books, comment fields and many others (Chakraborty et al. 2013, 1). As Sheffield University (2010a, 24-25) states,

> *"text mining software includes number of NLP components, such as information extraction tools, opinion mining, information aggregation, semantic technologies, dynamics analysis and others."*

Based on need approaches to the task can be different: some software concentrates on semantics and natural language processing, some concentrate on ontologies and taxonomies, and others apply numerous algorithms to categorize and summarize (Butler analytics n.d.). Text mining works by transporting words and phrases in disorganized data into quantitative value which subsequently linked with organized data in a database and analyzed with various data mining algorithms. With the help of text mining approach an organization can use text analysis to derive insight from content-specific values such as intensity and relevance (Rouse 2013).

According to University of Sheffield (2010a, 25-26),

> *"a key element of software is to link of the extracted information together to develop new facts or new hypotheses, which can be further explored."*

As Feldman and Sanger state (2007, 280), that text mining tools are particularly well suited to automating, augmenting, and transforming business intelligence activities more traditionally accomplished by means of labor-intensive, manual reviews of industry literature for patterns of information. Manual review mentioned above constitutes looking through numerous textual data, related to companies, products, financial transactions etc.

However, text analytic is an emerging technology and requires knowledge of the subject due to use of statistical modelling and machine learning technique. In addition natural language text is mostly inconsistent and contains uncertainties caused by syntax and semantics: sarcasm, slang, language specific to industry and users' age.

However it allows companies to save great deal of time and ensures high accuracy of extracted data (accuracy of thoroughly developed algorithms is greater than 90%) (Feldman, Sanger 2007, 66).

Comparison of the findings with those of other software reviews (Feldman, Sanger, Chakraborty et al.) shows that market provides various software depending on customer needs, hence elimination of the best software does not correlate with subjectivity of the research. However, the most widely distributed software presented in numerous recourses is the following: *Provalis research, Gate, LPU, Orange text, Rapid miner, Apache openNLP, Online software, Vivisimo/Clusty, Wordle, Active point, Aiaioo, Data Science toolkit, Datumbox, Freeling,* CLAWS Tagger, Alpheios, Collin's Parser, Textpresso and others.

1. *Provalis research* – a combination of qualitative analysis through QDA Miner, text mining through WordStat and quantitative content analysis. QDA miner (2013) supports qualitative analysis with coding annotation, analysis of document and image bank. Whereas Wordstat function is extract of themes and trends, clustering and proximity analysis and machine learning tools aimed on documents classification (Provalis Reseacrh 2008, 13-15).

2. *GATE (General Architecture for Text Engineering)* – it is text mining software containing multiply components:

a. *Gate Developer* is a component providing language processing components incorporated with data extraction system;

b. *Gate Teamware* – is an integrated environment for document annotation;

c. *Gate Embedded* is a component connecting all components from within and transferring data within organization (Sheffield University, 2010b, 21-25).

3. *Rapid miner* - provides statistical text analysis operations throughout numerous data recourses such as pdf, HTML and plain text. Filtering techniques along with stop-word filtering, lexical digestion and stemming are supported.

4. *KNIME data mining suite with KNIME text processing component* - contains of six step text processing reading and lexical scan of text, entity recognition, filtering and manipulation, word counting and keyword extraction, bow and vector representation, and eventually visualization (KNIME n.d).

5. *Wordle* – a tool generating “word clouds’ from data that user provide.

Enterprise content management (ECM) tools

Enterprise content management systems organize and distribute unstructured materials based on language and content requirements: emails, documents, health or accounting records, images, surveys and product information. With the help of organizational models they make data easily accessible throughout whole company through advanced search and filtering. As Efraim (2010, 2) explains, it allows users to find necessary patterns for documents assembly, form creation or approval and to attach required metadata to a document required. Through ESM users located in home country and operating abroad can exchange data and collectively create documents hence automate business processes within one system.

Doshi (2013, 3), at his description of ECM products states, that

> *"..ECM can be software applications that companies implement on their corporate networks or users can access their data online, which is known as a cloud computing. In the first scenario, each individual organization facilitates both the ECM application and the network storage devices that contain the data (scanning devices, databases and servers)."*

Such in premise ECM systems are highly personalized for organizational needs. In the second scenario, businesses get access to the same features and customization capabilities and avoid purchase of hardware and software instead paying for monthly operating expenditures and storage facilities that can be expanded automatically to meet company's needs (ibid. 2013, 3).

Enterprise Content Management systems are typically applied in HR departments to maintain invoices, receipts, the forms, records and employee documents. Moreover according to G2 Crowd (2015), ECM purpose is to meet government security and privacy compliance requirements. Besides, they are often integrated with HER or ERP systems (single source of truth systems).

Enterprise content management systems for operating at the global market have to contain language components, to automate business processes on foreign not only local languages. Since majority of companies use English as an operational language, all ECM have English a key language component for internal operations. In addition to English, software developers provide various ranges of language components, required for business transactions worldwide. The most widely distributed ECM software comprising variety of language components (Reviews 2015) is the following: *OnBase, Lexmark's Perceptive Software, WareITis Technologies' Records Studio, Alfresco, Autonomy, WordPress, IBM FileNet, Microsoft SharePoint, WareITis Technologies' Records Studio, ABBYY* and many more.

1. *Transnational content management solutions: OnBase* – This tool provides powerful audit trails, business process management and workflow and allow company to view the past activity of their files. The main focus of the program is imagining, capturing and classifying of the content based on company's needs (OnBase n.d.).

2. *Social Content Management : Alfresco* – this tool maintains and analyses social web content like blogs, articles, social networks etc.

3. *Online Channel Optimization: WordPress* - provides Web content management through elimination of the most appropriate channel to deliver a message, service or product to end-user.

4. *Content Management as infrastructure: IBM file net* – this massive tool includes the main components and functions of all content management systems and provided business solutions based on analyzing everything.

Intelligent email management

Intelligent email sorting and response generation systems. Both national and transnational communication comprises of email communication in significant extent. Intelligent email systems are enterprise solutions that fully automate the process of capturing, analyzing, documenting, translating and interpreting, routing and prescribing responses. It is based on developing natural language technology that applies precise grammars for parsing and generating spoken and written phrases (O'Toole 2000, 30).

In general a method includes receiving an incoming email, determining whether the incoming email requires a response; and after determining that the incoming email requires a response, generating an auto reply email to the incoming email, wherein the incoming email is processed to determine characteristics of the auto reply email (SBC knowledge ventures 2011, 2).

The processes are used for the generation of an auto reply email according to embodiments of the organization: queues, auto-acknowledgements, reply templates, routing, business rules, and reporting can be customized for each business field.

Prior to 2015, market was dominated by a number of small- and medium-sized independent vendors such as *KANA, Siebel email response, Moxie, eGain, Eptica, WeChat* and many more.

1. *KANA* – the description of the system (KANA 2015) includes use of appropriate templates (sorted by language and topic) to

automatically send personal acknowledgements and responses. Based on analysis it forwards messages to the right unit, language and skill-based queues. The tool also suggests thoroughly prepared answers to minimize time consumption of users (ibid. 2015).

2. *Siebel email management* – provides facilitation of multiply mailboxes, analyses content, sends an acknowledgement reply to the sender and whether suggests a response or automatically responses to the message with Smart Answer optional module (Siebel eMail Response Administration Guide 2013). The key feature of this system is providing support for companies that receive email messages from customers worldwide (availability of many languages, spell-checking feature).

3. *Moxie* – the system comprising of multiply email monitoring features like intelligent routing rules, information accuracy, quick responses and many more (Moxie n.d).

Visual translation software

With successive increase of machine translation use intensity, technological vendors continue to engineer new technologies and end-user friendly application and software. Visual translation software is an emerging technology in which many technological giants recently invest.

1. *Quest Visual* – it is a Google's tool based on clever Word Lens app that provides user with instant translations when pointed at signs in the real world. The technology will be integrated with Google translate.

2. *WayGo* is another Visual translation application that recognizes and translates Chinese and Japanese signs, when pointed on them.

3. *Google glass* is a wearable device with Word Lens (or UniSpeech) software installed which provides similar visual translation operations.

4. *Kinect Sign Language Translator* – is a visual translation technology developed by Microsoft which focuses on Xbox camera and

motion-detection devices to translate sign language into text and spoken language.

5. *MotionSavvy* – is a visual sign translation tool, using LeapMotion gesture controller for computers to translate and develop sign language into written and spoken language.

Audio translators

Microsoft is currently working on Skype translator, which provides translation while people speak to one another on different languages. Nowadays it provides only English-Spanish translation but it is a great breakthrough in technology.

3.2 Human resources in international business communication

Computers and other technological advances are developed to accomplish necessary tasks, to save time and to make duties easier. However no matter how much scientists try, computers and other devices do not operate the same way as human beings.

3.2.1 Types of translation services

Catford defines translation as '*the replacement of textual material in one language by equivalent textual material in another language (1965, 20)."*

Ran in his philosophical Interpretation on E. A. Nida's Definition of Translation (2009, 10) described translation as consisting in reproducing in the receptor language the closest natural equivalent of the course language message, first in terms of meaning and secondly in terms of style.

The main problem of translation practice is that of providing source language translation equivalents. Misunderstandings, mistakes in translation that was being in process or had been done at some point in the past were typical causes for torturing and punishing translators throughout centuries.

> *"Terms when translated do not always preserve the same meaning; and every nation has certain idioms impossible to express intelligently*

> *to others. You may possibly translate them, but they no longer preserve the same force.* Lamblichus of Chalcis, ca. 330 A.D"

A vivid example of it is that of the English translator William Tyndale, described in Alex Gross's article (2004), who was unfortunately for himself doing a translation of a Bible when King Henry VIII of England had defined there could be only one correct translation. Consequences of misfortune were translator's torturing and murder. The reason behind such an example is to demonstrate the difference between the position of translators in ancient times and that of translators working in XXI century.

The importance of translation, in XXI century, has been admitted more that any time before. Translation as an Academic discipline has earned its significant role starting from the 1940's, and particularly during the Second World War. (Munday, Jeremy (2001). "Introducing Translation Studies: Theories and Applications", New York, Routledge.) At those years translators were highly required to translate documents between the US and the Soviet Union. Since then the importance of translation has been continuously increasing due to development of global economy. In the field of Economy incorporations worldwide applied translation so that they could expand their business and reach every place all over the world.

1. **Translation/interpretation-services**

Translation is an irreplaceable instrument for communication between corporations, shareholders and their clients, between organizations and between countries. The most typical way to get a translation done is to use a translation agency's services or employ a freelance translator.

Larson in his 'translation theory' (2008, 29) states that translating is a complicated process, in which translators must to take many details into consideration, based on which a translation quality will be judged. Fluency and beauty of translated material depends on ability to preserve the original meaning of the source text.

> *To get an excellent result translators have to take a lot of things into consideration: cultural or contextual references, the tone of the text,*

specific expressions, slang, familiar language and many more. If the quality of translation is high, the reader may not even notice that the text was originally written in another language and then converted into another (ibid.34).”

Types of translating-services

Translation has been continuously developing throughout centuries and developed into diversified field providing numerous services depending clients’ requirements.

Whispering

Whispering interpreting is a method where the interpreter is located next to the person required the translation and whispers what has been said in the ear of the client (London translations 2015). In the case when client wants to say anything it is interpreter’s duty to speak on client’s behalf. The aim of this method is to provide individual language support (one-to-one basis) to a person within a group without influencing the group as a whole.

Depending on the subject matter, occurrence of special vocabulary and acronyms companies provide most appropriate individual for client’s needs.

Whispering interpreters might be applied for (Interpretation SCIC 2015):

- Overseas factory or office visit;
- Language support for foreign executives attending company board meetings;
- Delegate attending group training course overseas.

Consecutive interpreters

Consecutive interpreting is a method called ‘listed before talk, which includes one person who speaks and then makes a pause while the consecutive interpreter repeats everything that has been said in the other language to one or many people (London translations 2015). The interpretation does not happen simultaneously as the client know that his speech is being interpreted and gives time to do so. Briefing before the assignment is necessary as there

might be unfamiliar terms and politics needed to be translated, as well as background information about the company and its products will result in higher quality of interpreting.

Consecutive interpreters might be used for (Interpretation SCIC 2015):

- Conference speech;
- Presentation to international sales team;
- After dinner speech.

Simultaneous interpreting

Simultaneous interpreting is a method when one person speaks on her own language while others listen to him through headphones on their own language (Language scientific n.d). Specialists interpret in a real time and speaker does not make a pause when speaking. Simultaneous interpreting is the most complex work requiring many years of experience and subject field knowledge. To implement this method special equipment is required (London translations 2015):

- sound-proof booth within view of the speaker. Amount of booths depends on the number of language pairs used at venue;
- high quality audio feed from the speaker to headphones. Amount of headphones is determined by the number of delegates attending the event;
- Each interpreter and speakers must be provided with microphones to pass the interpreted information to the group via headphones. Amount of microphones is determined by the layout of the venue (theatre style, classroom or ‘U’ shaped style). Besides that, each event has to be equipped with the assistance of professional audio-visual experts in order to prevent dissatisfaction of audience, clients and language specialists.

Simultaneous interpreters can be applied for (Language scientific n.d):

- Global sales presentations

- International annual general meetings
- Global product launches

Online chat method is also called Instant messaging when people who want to communicate log on the system and communicate via typing on their keyboard (Interpretation SCIC 2015). Chat interpreter will be providing translation a few moments after the client finished. Everyone involved in the chat can see the messages written instantly and the communication happens naturally and in almost real time. It is becoming popular instrument for business as it allows people to communicate effectively all over the world and to keep minutes of the meeting extracted from chat.

Online chat interpreting can be used for (ibid 2015):

- Preliminary negotiations with clients and suppliers;
- Technical support;

Telephone interpreting:

Phone interpreting is a method similar to consecutive interpreting with one difference that it happens over the phone (Language services associate n.d). The method includes calling to a special number where the client chooses languages to be translated and then the interpreter will join the conversation.

- Telephone

Phone interpreting is simply Consecutive Interpreting over the phone instead of face to face. Telephone interpreting can be pre-arranged or on-demand, consecutive or simultaneous depending on clients' requirements.

It can be used for (Interpretation SCIC):

- International business phone calls;
- International conference calls;
- Legal, medical language assistance overseas;
- Multilingual company announcement.

Video interpreting

Video interpreting is a method which allows client to speak in her own language while audience watches and listens the material in their own language live and in-real time Video interpreting is developed with use of international conference broadcast (Gillies 2009, 10). The camera staff transmit venue over the web to simultaneous interpreters who convert the material into target language. After that video and audio streams are safely transmitted to audience via the internet. Video is usually recorded for later playback.

Video interpreting can be applied for (Interpretation SCIC):

- International presentations and conferences;
- International investor negotiations.

3.2.2 Language competencies

Besides application of professional translators and interpreters through outsourcing services to agencies or employment of translator as a member of staff, most of international business operations are implemented by field specialists with language competencies.

Field specialist with language competence is a qualified expert in a particular narrow business area with a complimentary ability to communicate on other than mother tongue language.

Language competencies of such employees vary due to lack of generalized strategy provided in educational institutions and enterprises.

Language competencies are types of human language related activities that company applies for international communication within international business operations.

HR component consists of five the main language competencies integrated in complex or individually depending on company resources and needs.

Subject area (terminology) – when operating internationally the ability to operate with subject terms in foreign language is vital for successful business

activities. Depending on business sectors the terminology may include multiply term bases and is designed based on company's requirements.

General communication skills is a basic knowledge essential for field specialist with lack, basic and intermediate knowledge of operating language

Cross-cultural competence is a multilevel structure, which includes various subcomponents such as conflict management, cultural diversity and many more.

Public speaking/conferencing – is a component applied for companies with necessity to present production and researches at scientific and business conferences.

Negotiations with foreigners – is a comprehensive program, which includes negotiation specifics in the country of operation along conflict management and communication skills.

4 RESULTS

Thanks to lack of physical borders and rather common business rules today rare a company operates on the domestic scene. However, efficiency of business to a considerable extend depends on human language competence and translation/interpretation software in the company. The purpose of the survey is to define the role of human and technological resources in SMEs in Finland, Russia and the Great Britain, to figure out which translation software do companies use and to find out whether in which extent language competences of human resources are used for international communication in various countries.

The analyzing process consists of preparing the data for analysis, exploring the data, the actual analysis of the data, representing and interpreting the data, followed by validating the data (Creswell, & Plano Clark 2011, 204).

Data collected will be applied to develop recommendations for improvement of international business communication in SMEs of Finland, Russia and the Great Britain.

4.1 Analysis of language related communication components in Russian companies

Business in the Russian Federation is very different from business in Europe due to differences in mentalities, and historically developed different ways of dealing with all involved parties such as clients, partners, shareholders and government. Since Russian companies began operating on the global market, they swiftly become familiar with international business rules and yet some slight differences with other countries can be defined. The Russian component of the study is presented by 10 medium sized companies located on the North-West part of the Russian Federation and operating internationally. The main languages used for international communication are English and in less extent French, German, Italian, Chinese etc. Companies, participated in the survey are operating in numerous business fields such as forestry, logging, electrical distribution systems, indoor comfort systems, system integration-

services and many more. All companies are medium-sized companies with employee's amount less than 250.

During the survey all participants (100%) noted that in view of availability of non-expensive or free translation applications with in-premises or online access, technologies have become a very convenient and an effective way to communicate with business parties regardless of their geographical location. All participants (100%) believe that field specialists with language skills are to the same extent vital for successful international business in Russian companies. Whilst outsourcing services to translation/interpretation agencies and employing of translators/interpreters permanently doesn't seem indispensable for most of respondents. Only 40% of respondents mentioned them as a convenient way of dealing with international business operations.

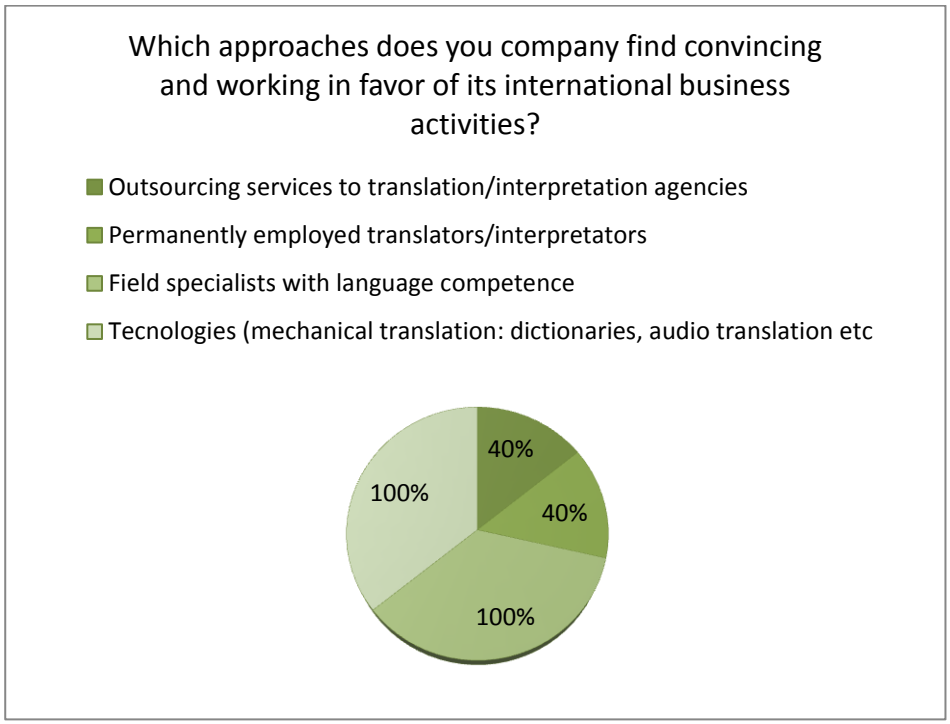

Figure 5. Human language competence approaches in Russian SMEs

Every company defined share of technologies and human resources for translation operations. Based on average calculation of companies evaluation revealed that the share of human resources for translation prevails in Russian companies with 68%, while the share of translation technologies is 32%.

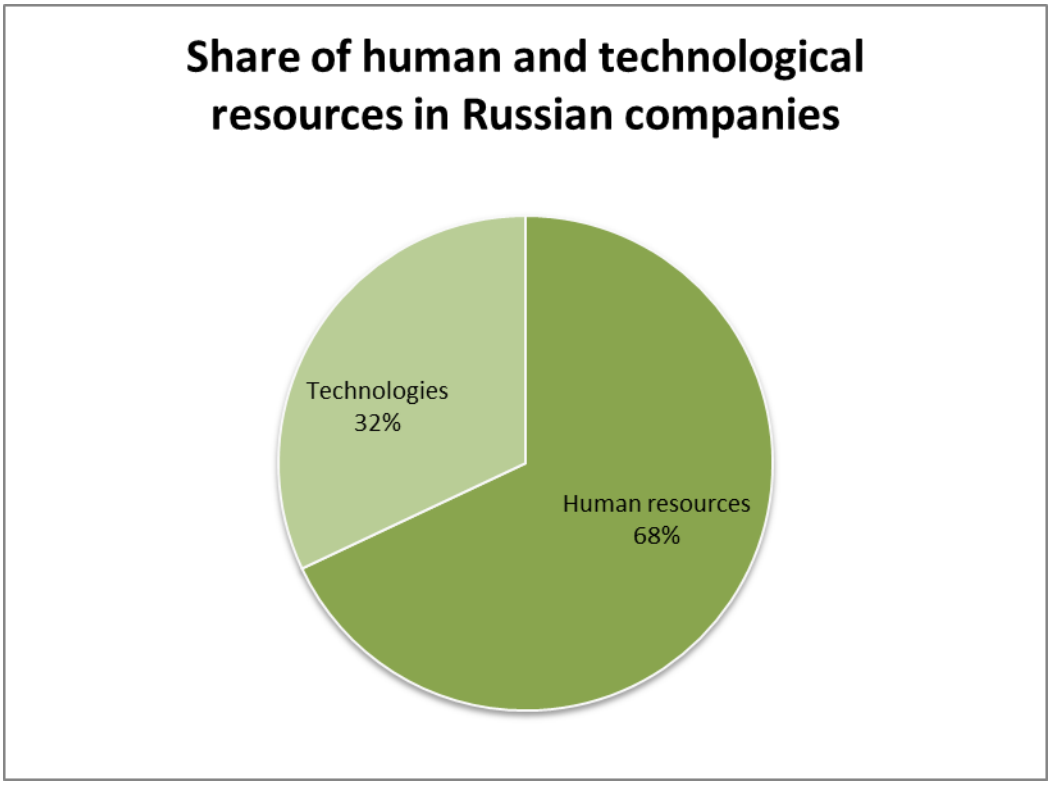

Figure 6. Share of human and technological resources in Russian SMEs

To determine share of technological and human resources and the extent in which they are applied, companies provided us with more detailed information about each category.

4.1.1 Language software component in Russian SMEs

Translation technologies are becoming more and more advanced and provide support in every aspect of business operations. Among latest technological developments is visual and video translation software which Russian companies have not had a chance to evaluate yet due to flaw design and relatively high price on the market.

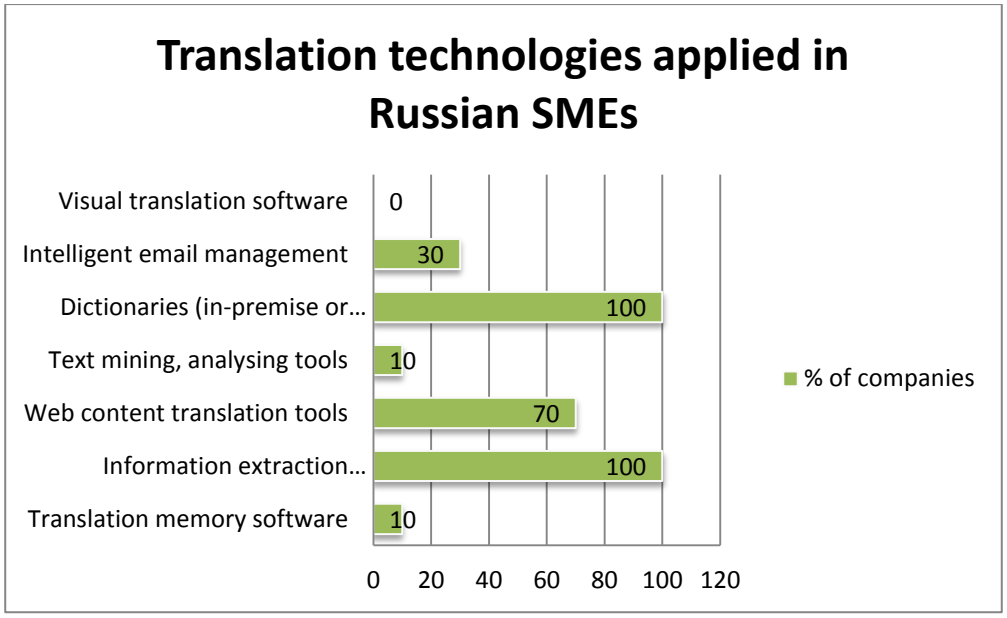

Figure 7. Types of translation technologies applied in Russian SMEs

30% or respondents use intelligent email service, which provide them with brief extraction of the information that emails contain translated on Russian language along with smart response generation function. It saves specialists' time to reply on every message personally and just provides them with a suggested response which can be corrected, denied, approved and then sent to the recipient in no time. Among the most popular email management systems are mentioned KANA, eGain and another respondent mentioned the use of an integrated email system with separately installed language component abbylingvo.

Dictionaries is the oldest and the most widely known translation tool, therefore naturally 100 % of respondents noted use of dictionaries in their business activities. The Internet is widely spread in the Russian Federation nowadays and entrepreneurs have a limitless access to translation applications and online-dictionaries. The mostly used dictionaries in the judgement of respondents are Google translator (90%), Yandex (30%), Bablefish (40%), Abbylingvo (20%), dictionary.com and Oxford dictionaries (10%).

Text mining, text analyzing tools are used by 10% of Russian companies as they barely understand the technology of testing theories and hypotheses based on data collected from web and documents. It is a complex technology, expensive and requiring numerous of knowledge and specialists, able to collect, analyze the data and set requirements for the base data needed.

However technology can work in favor of companies trying to win the place on international market and define their target group before starting the business.

70% of Russian companies are frequent users of web content translation tools, for majority of resources on the global market has to be presented on English or any other European Union languages, which Russian is not. The reason for this is that Russia is not part of European Union and there is no such data base as IEAA (all materials and terms translated in 22 languages by European commission) available. By using IEAA European companies can simplify translation process, get terminology and some texts from there for free which results in that internet sites are available on many languages but in Russian.

Whilst Russian entrepreneurs do not have such tool and have to translate everything available in the Internet on their language by using web translation tools and make translation of their material and products available in the Internet by using these tools. The most popular web content translation tools among Russian entrepreneurs are bablefish.com (40%), Reverso ('because it is installed in most search engines and proves to be very useful') – 10%, SDL free translation – 10% and 40% of respondents mentioned Google translate for Web content automated translation. According to Russian respondents,

> *"although google automated translation doesn't provide high quality translation, yet it allows to get brief of what is presented on site before using any other more advanced tools."*

Information extraction tools are used by 100% respondents. As Russian entrepreneurs comment, they mostly use this in-premise software for getting information out of documents, files and other material available in premises in local network. The most popular information extraction tools are Datacrops and Easy Web extract. However most of entrepreneurs realize that Google and other search engine are the same type of information extraction tools, aimed to extract information from all over the world by analyzing materials available in the WEB. Google search is mentioned in 100% responses as the most useful information extraction tool among Russian companies.

Translation memory software is used by 10% of companies as it is expensive tool, which requires a lot of effort with collecting database of words translated before or a lot of investments to purchase the whole database of terms and acronyms for every particular field of business. Trados is mentioned as one of Translation memory tools applied among Russian companies the most.

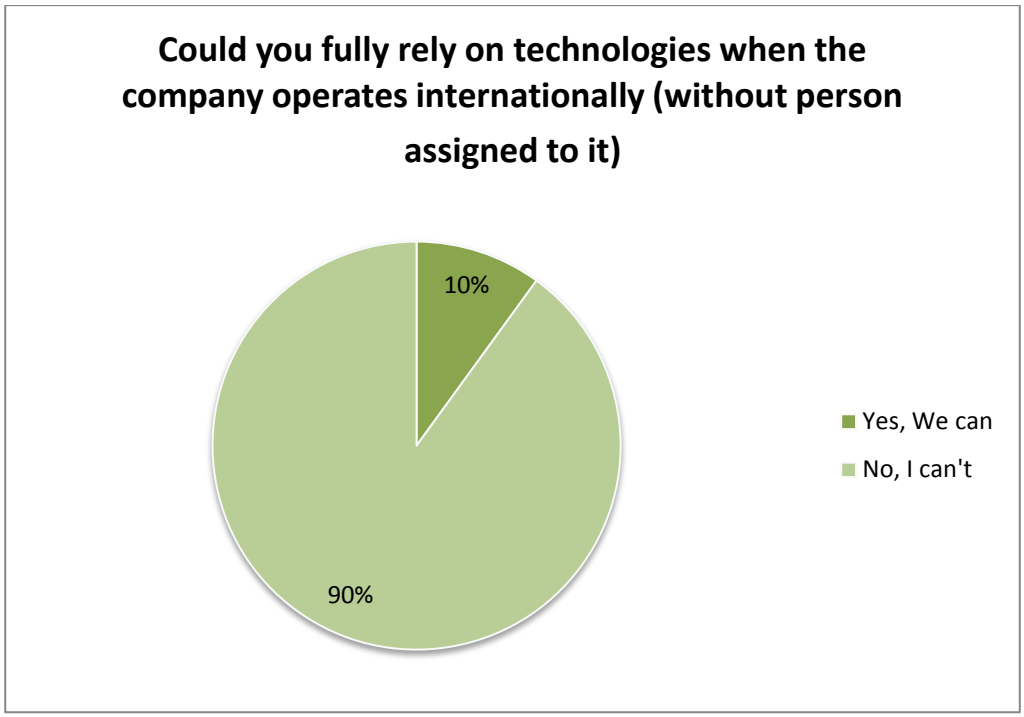

Figure 8. Reliability of technologies

To conclude use of technologies respondents were asked if they could you fully rely on technologies when the company operates internationally (without person assign to it) and 90% of respondents replied that they cannot. Meanwhile 10% of respondents said that they can rely on technologies as due the nature of their business they mostly communicate through email and social networks and they feel no need to use any other instruments for translation but technologies.

Majority of Russian companies don't believe that mechanical translation software is a worthy substitute of human translators due to:

1. Limited ability of software to recognize emotional context, cultural patterns and geographical specifics of resource texts.

As Petrov (KSK, 2015) notes:

“We can rely on technologies if it concerns not ambiguous texts such as documents with structured material. If it concerns negotiations, emails or anything where human's emotions, culture and slang are involved, no technologies can replace human beings.”

Another respondent Sergey Bolyk (Swedwood Karelia), is convinced that software in Russia, or anywhere else is not a worthy substitute to human resources as human language is a complicated blending of culture, geographical location, education and other components, and machine is not able to consider all of this when translating information. Whilst (ibid.2015),

“*human brain can cover plentiful of information, which, in its turn, influences on the quality of translation (both consciously and not consciously).”*

2. Poor quality of the translation.

All participants put a strong emphasis on low quality of mechanical translation, which cannot be relied on without thorough human check afterwards. The only option to improve the quality of the translated text is to make a pre-editing of the text, in other words to change the structure of sentences from the resource text into the target text. However, it requires employment of linguists able to manipulate with syntaxes and language pattern which is not a case in small and medium companies with limited recourses. Post –editing is often a case in small and medium-sized companies, which enables to increase the efficiency and volume of translation operations compared to the volume of human translation without technologies assign to it. All respondents note that mechanical translation is useful for basic translation of documents, invoices, manuals or emails within one company, where is not emotional or cultural component involved. But as Troev (Rekfoft, 2015) states,

“Even there can be some misunderstandings and mistakes; therefore everything translated mechanically has to be checked by a human afterwards.”

Popova (AEK,2015) is convinced that both technologies and humans have to involved in the process, for they use special software to translate emails, where it is enough just to get the main idea out of the message. But,

> *“when it comes to replaying back we cannot afford to leave it unattended, there always has to be a person proofreading and double-checking every line.”*

Another respondent (Naumova, 2015) states, that in some cases automated translation successfully copes with the task:

> *“For example, there is no need to supervise personal messages or email within the company, but when it comes to describing the next project, there has to be a trained personnel to eliminate even a smallest chance of mistake to be made. Both sides have to be on the same page and know exactly what is needed from them.”*

As the main idea of all participants Vorontsov (HoReca market, 2015) concludes that,

> *“Maybe, there is some software that can fully replace humans, but at least we haven't seen one yet.”*

3. Lack of confidence in machine translation software and lack of experience in use of it.

Due to conservativeness of Russian people, Russian entrepreneurs are over-cautious towards innovations and prefer to apply methods which stale but proved themselves to be effective. Internet has become a must-have tool just recently and is actively applied by young companies. However majority of middle-aged Russian entrepreneurs still experience lack of confidence when using new technologies and prefer to rely on people when operating with foreigners.

4. High price of good software.

Small and medium-sized enterprises are limited in resources and rarely allow for translation software expenses when preparing a business plan. Even if they wished to invest in software, there would be no confidence that the software will be worth of it. With over-cautious towards innovations it results in stunted growth of technologies use in Russian companies.

As KlimatSet specialist, (2015) states:

> *“As the result majority of SME's use human translators, interpreters as the main instrument and purchase not expensive, yet low-quality software to speed-up the process of human translation.”*

Therefore it results in vicious circle where companies are stuck with semi-automated systems, which require full time double checking and see no point in expensive investments due to lack of confidence in the quality of mechanical translation technologies.

5. Instability of Internet connection and risk of machinery breakage.

Some of respondents revealed another vital factor, influencing on lack of confidence in use of machine translation software. Petrov, (KSK, 2015) points out that

> *“we, as a company, couldn't possibly imagine working with mechanical translation only, due to instability of the Internet. We work in Karelia, where can be a connection break, or some incident resulted in lack of electricity etc.”*

It is obvious, that Russian companies, can experience some power cuts or internet connection breaks. In order to prevent such accidents they must be prepared to replace software with human translator or specialist able to carry duties under any circumstances, which again results in lack of confidence in software reliability.

4.1.2 Human resources component in Russian SMEs

Only 10% of respondents can rely on technologies when they operate with foreign languages while the majority of companies put the emphasis on the use of human translators for international operations. There are three main types of human resources that companies apply when translation/interpretating-services are needed: field specialists with language skills, permanently employed translators/interpreters and outsourcing services to translation/interpretation agencies. According to the data received from Russian companies, 100% of them employ field specialist with language skills. As Vorontsov (HoReca Market, 2015) states,

“ ..for a small and medium-sized company in the Russian Federation is more convenient to employ a person with language certificate and transfer all language-related responsibilities to that person. Salaries in our country are quite low and it is not impossible to find somebody, who would carry translation/interpretation duties along with subject matter responsibilities.”

Only 20% of respondents employ translators/interpreters to carry foreign language related duties. It is useful in situations where company has a lot of meeting and negotiations with foreigners, and considers high quality of translation along with anytime access essential. However, such option requires additional investments and only affordable for successfully running companies with a stable client base. Whilst 40% of these SMEs are also in favor of outsourcing translation/interpretating-services to special agencies. This enables small companies with limited resources to achieve high quality of internationally provided services and yet to save on unnecessary employment.

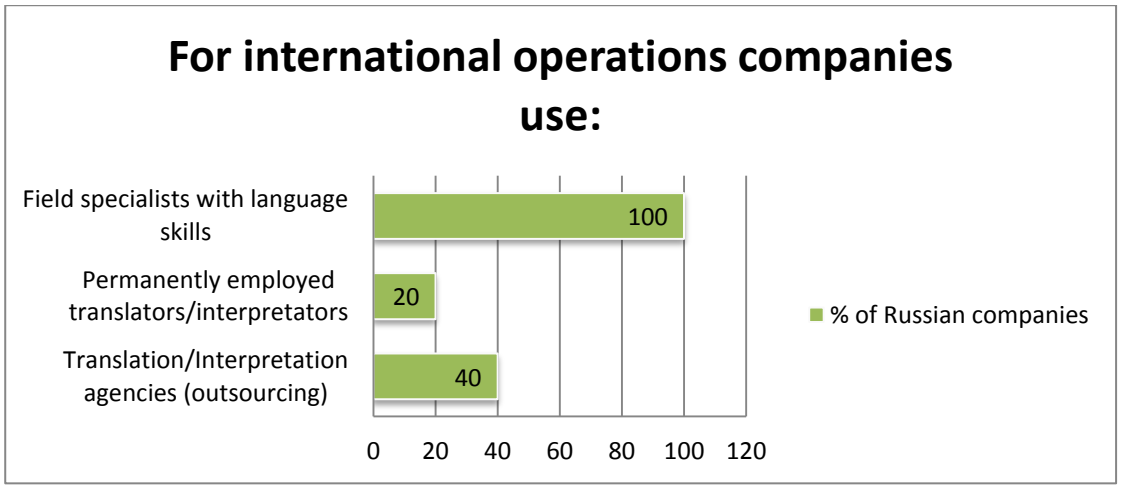

Figure 9. Components of the study

Even though employment of field specialists prevails in all companies, it was necessary to define in which extent companies use each of above listed instruments. It was determined that upon average 70% Russian companies exercise field specialists with language skills and either outsource service to agencies or employ language specialists. 10% of respondents use only field specialists with human skills and feel no need to engage any other resources. It is caused by the nature of business with limited resources. Interestingly 20% concur that employment of field specialists is the most convenient way to

implement international operations (60%-80% of all operations), yet have translators/interpreters as members of staff and sometimes outsource services to agencies. It is illustrative that only 20% of companies that operate abroad have a clear picture of what is called strategic control of international communication competence in the company.

Figure 10. Use of human resources in international business

The next step in development of recommendations for improvement of international communication was to explore which language competencies Russian companies consider important for international business operations and whether they use in-service trainings to improve language competencies of employees, who carry on interaction duties with foreign clients, partners. The results were surprising. First of all, for Russian SMEs, where company is mostly involved in direct B2B sales and with not very significant amount of clients, there are just few occasions where conferencing/public speaking skills are required. As the result only 20% of respondents find public speaking/conferencing skills necessary.

Cross-cultural competence is a relatively new knowledge area for Russian companies where business has been operating within one country with its numerous nationalities over decades. Despite of multinational society business approaches within the Russian Federation borders and in former Soviet Union countries remain mostly similar due share of common culture,

language and values. However since Russian companies began operating on the global market it became necessary to operate in according with international rules and to consider culture differences while doing business. Based on results we can see that companies have started to realize the necessity of cross-cultural competence in order to succeed on the global market yet not everybody sees the importance as yet. 40% of respondents find cross-cultural competence necessary for their business operations on the global market.

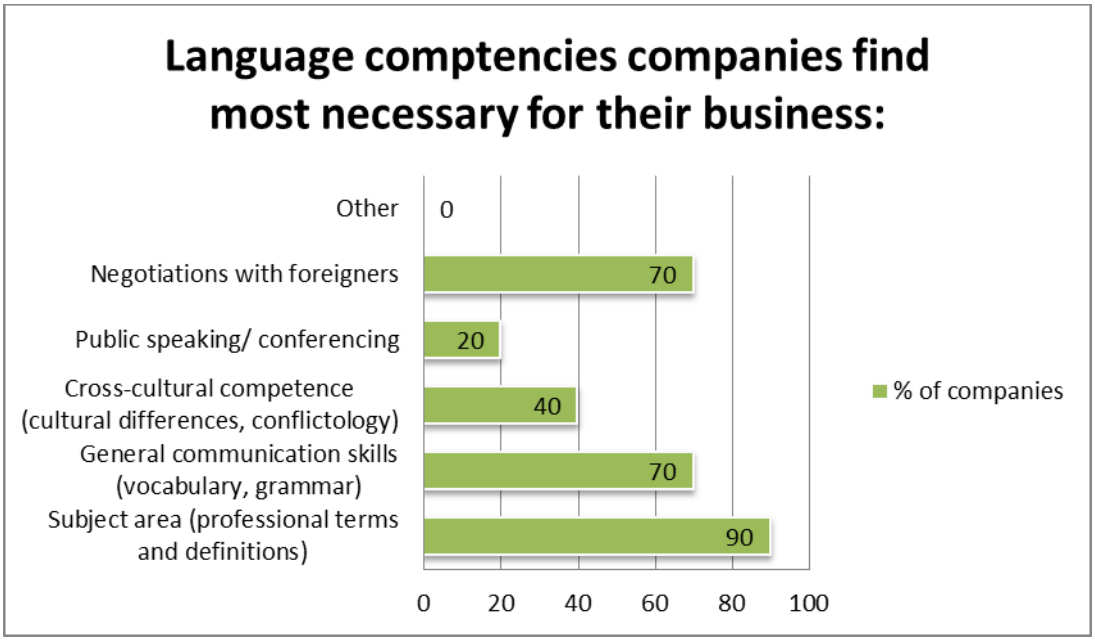

Figure 11. Language competencies necessary for Russian companies

70% of respondents find general communication skills important for their business which is obvious as their business is mostly built on language skills and all employees and employers have to have such language competence in order to be able to interact with people not speaking Russian language.

The same amount of Russian companies finds negotiation with foreigners important for their operations. And the main competence which almost all respondents consider vital for their business is subject area hence ability to operate with professional terms and definitions on foreign languages.

Yet, which is surprising, only 20% of Russian companies do something to enhance language competencies within their companies while others do

nothing in this particular area. According to results, 20% of respondents mentioned having subject area in-service trainings while others confirmed absence of any in-service training in language competence field. To eliminate shortcoming in language competencies related question it was asked if companies have some special methods of language competence improvement for their staff. The majority of responders confirmed lack of any in-service training and mentioned that they are allowed '..to study themselves if they wish (Popova, AEK 2015).'

Figure 12. Share of human and technological resources in Russian SMEs

Naumova (Severstal, 2015) exposed an interesting method of language competence improvement applied in their company:

> *"We attach new workers to experienced specialists and force them to work together in order to hand the knowledge of the subject (terms and definitions, negotiations skills) over*."

Analysis of the data provided by respondents reasserted dominance of human resources in international operation of Russian companies on the global market. Everyone confirmed that they can rely on human resources without software assign to it when operating with foreign partners and clients. All companies note that they aim to employ highly qualified staff with necessary language skills for intercultural communicating-services.

> *"..although level of language differs among people there are some, on whose language and subject matter skills we can rely when implementing tasks. As a matter of fact, we prefer to use both mechanical translation software and humans for our operations. But in the case of necessity we are can mostly rely on professionalism of our employees."*

As Popova (AEK 2015) states that they can rely on humans in every delicate matter where communication with suppliers and new clients is the most crucial part of the business. Companies rely on human translators/interpreters due to high quality of education that is provided in this field in the Russian Federation universities and believe that (Bolyk 2015),

> *"as the company we wouldn't suffer if there were no technologies available."*

However many companies note that the use of software is very useful as a complimentary particle to human resources, for technologies make all processes faster and more effective. As the main problems of translation software participants mention limited ability of software to recognize emotional context, cultural patterns and geographical specifics of resource texts, poor quality of the translation, lack of confidence in machine translation software and lack of experience in use of it, high price of good software and instability of Internet connection and risk of machinery breakage.

4.2 Analysis of language related communication components in Finnish companies

Business is a well-developed and popular occupation thoroughly supported by government in Finland. Governmental organizations assist companies on every stage of business development via informational and financial support both within country and on the global market. Finland – is a country of technological advances, advanced English language skills and complicated Finnish language. Business culture is rather similar to European countries due to long term cultures' interaction and being in one economic area within European Union with its similar business rules. But for all that Finnish language remains the main obstacle for foreigners operating on the Finnish

market and interacting with Finnish SMEs. The Finnish component of the study is presented by 10 medium-sized companies located throughout Finland and operating in the international arena. The key languages of operation are English, Swedish, Russian, Spanish and in less extent French and Chinese etc. Participants operate in various business areas such as marketing, distribution, financial operations, logistics, sauna production, business solutions and et alias. All companies are medium-sized enterprises with less than 250 employees.

Before the questionnaire participants listed areas of LM strategy application in their companies:

- launching export and import operations;

- finding foreign business contacts;

- foreign trade, e.g. in arranging negotiations and visits;

- building an international co-operative network;

- utilizing the possibilities of EU projects;

-market research;

- marketing services (brochures, posters, ads, manuals, websites and package designs).

In the course of preliminary evaluation was detected that in 80% of cases Finnish companies use translation agencies for international business operation. This result indicates the complexity of Finnish language which remains the key barriers for communication with foreign companies. Just few foreigners are able to communicate, hence translate/interpret Finnish language which makes the process of C2C communication more challenging. There are many translation/interpretation agencies in Finland, providing services on all spectrums of languages. Use of agencies is justified by complexity of Finnish language, therefore significant time and resource consumption, which are rather applied by companies in more effective way.

However in 40% of cases field specialists are defined to be a convenient instrument to deal with foreign partners and clients. Herewith it is not the main instrument due to language barrier, which prevents SMEs from more frequent use of field specialists. Ability to communicate in Finnish requires a lot of effort and time from a foreigner and only few succeed in it. Language barrier results in lack of polymathic specialists who would be able to communicate on many languages and be an expert in some subject matter. In 30% of cases Finnish companies resort to the help of either technologies or permanently employed language specialists.

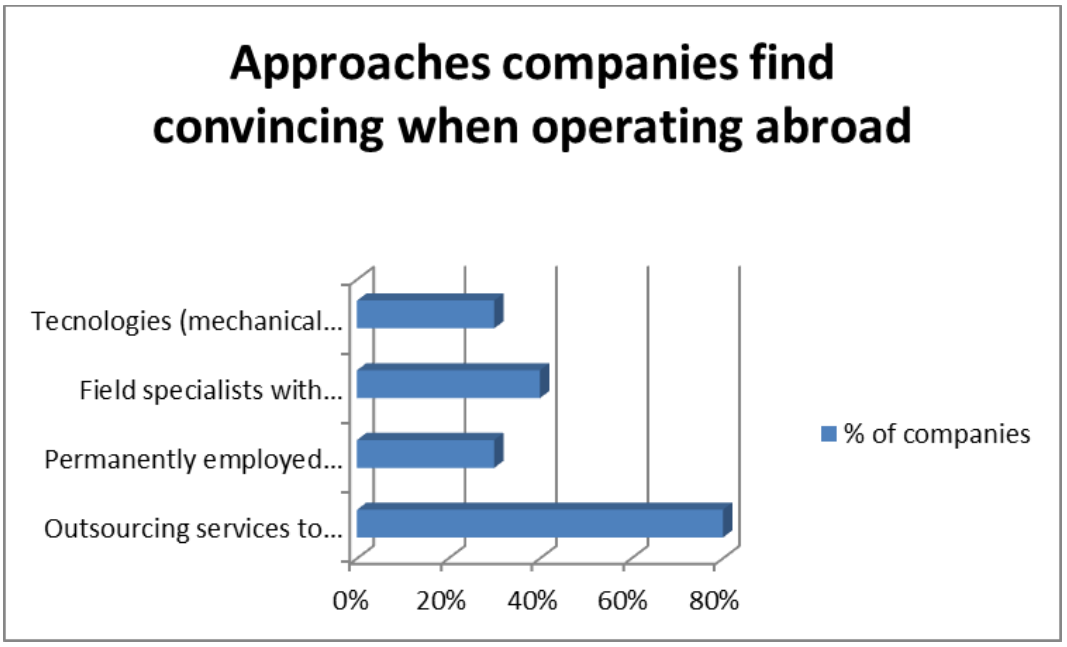

Figure 13. Human language competence approaches in Finnish SMEs

To define the share of technological and human resources in translation/interpretation activities respondents were asked to indicate the average use of each type of LM resources. A common view among interviewers was that the share of human resources in Finnish SMEs is represented in 64% while technologies are used in 36% of international business activities.

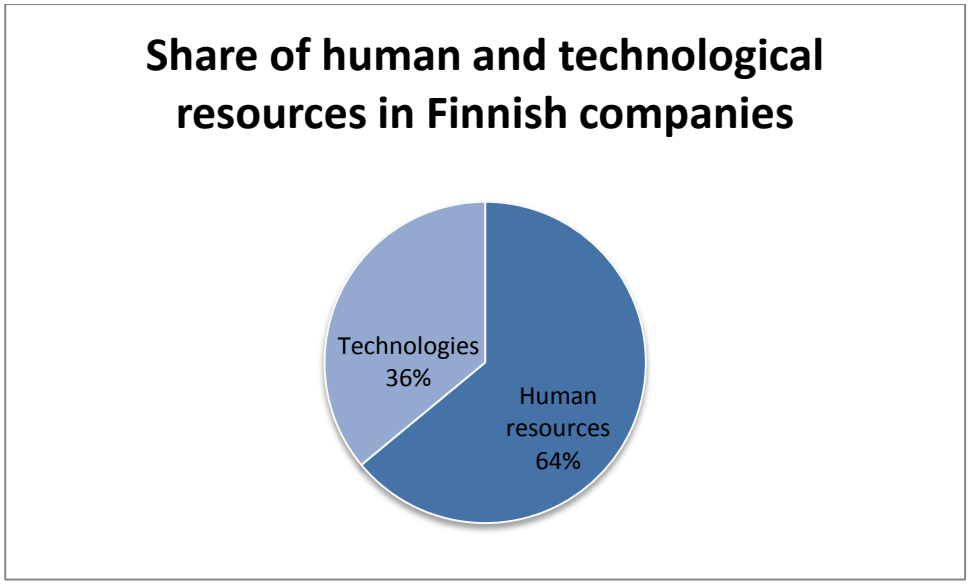

Figure 14. Share of human and technological resources in Finnish SMEs

4.2.1 Language software component in Finnish SMEs

Finland is a country of technologies where government place high emphasis on information technologies development along with education of highly qualified IT specialists. The single most striking observation to emerge from the data was that while having various translation software available for use, Finnish SMEs use only on premise and online dictionaries (90% of companies) and web content translation software(40% of SMEs) for international business activities. This enables to suggest needlessness in more advanced software due to broad use of translation agencies which have all necessary software hence there is no point in purchasing such software by companies. Another reason for it might be lack of software knowledge, which might if applied be a worthy replacement of human translators. The main Web content translation tools were the following: Babblefish, Google translate and Grammarly. As for dictionaries, approximately all respondents listed at least five different options such as: yandex translate, google translate, still books, ilmainensanakirja.fi (free use),sanakirja.org, venäjä-suomi-venäjä –sanakirja.

Another interviewee (EnTech Suomi Oy 2015) alluded to the notion of Abby lingvo dictionary for:

> *"..Lingvo has the best Russian to English translation database with the most possible synonyms shown (including examples). Works very well for technical translation."*

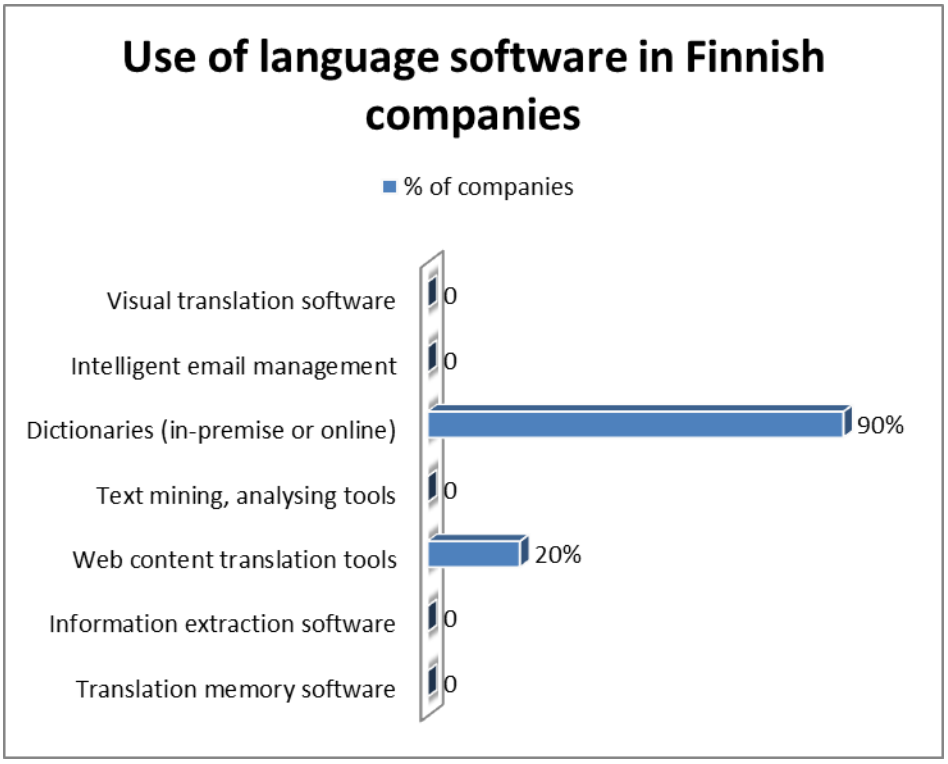

Figure 15. Types of translation technologies applied in Finnish SMEs

The majority of those who responded to the item about human replacement by technologies felt that the replacement of human resources is not possible in Finland due to many reasons:

1. Complexity of Finnish language

All respondents indicated that in order to replace humans by technologies there have to be thorough translation tools which could offer translation of Finnish dialects, consider structure of Finnish words and sophisticated Finnish grammar. As one interviewee Janhonen (Monkey and co 2015) put it:

> *"..the structure of Finnish words and grammar are so complex. The software would have to be very sophisticated."*

A number of those interviewed suggested that due to amount of Finnish speaking population there is no financial benefit in creation of very sophisticated software which would be able to recognize cultural, geographical and educational components of Finnish language. Talking about this issue Metsola (East Consulting 2015) is determined that,

> "*..software will never recognize the Finnish dialects. Such software should not be created because Finland is too small language for that. It is often necessary to localize text in translation process while software cannot think."*

2. Quality of translation

The participants on the whole demonstrated that software is good for documents translation and email response generation. However, all respondents insist on necessity of humans for negotiations and proofreading of mechanically translated materials.

Naumenko in his comments (EnTech Suomi oy 2015) states that he has not encountered technology that is good enough to substitute a human being in his field of work:

> *"I understand that if, for example, only emails are the subject of translation, then possibly technology can be a great substitute, but in communications as such - people are irreplaceable."*

International business in significant extent depends on quality of language services provided to clients and partners. This view was echoed by Brown (Mediataivas 2015) who honestly says that

> *"while I think the translation automation will go forward in leaps and bounds in the following few years, the cost of any miscommunication or misunderstanding is so high in our business (which is all about communication and relaying the correct images and associations to the receiver, and it's very important to get even the slightest undertones of the message right) that it will need human evaluation for a long time."*

3. Inability to consider cultural diversity, context, tones

The majority of Finnish SMEs expressed the belief that software cannot consider cultural component, slang and slightest undertones of the resource texts.

As Castillo (Sleipner Finland Oy) comments that

> "..*translation software even though sophisticated, won't give an accurate interpretation of a word or phrase in a particular context related to an particular industry and culture."*

Another interviewee Bern (PulsNutrition 2015), when asked explained vitality of high quality translation in communication with Russian clients:

> *"Russian is perceived to be quite hard language for not native speakers. Even general phrases can be interpreted differently depending on context. Also, people in Russia usually do not rely on partners who misuse the language. So human resources cannot be fully replaced in the nearest future, especially in our industry (consulting agency). Usually deals can be made if you seem to be a trust-worthy person/company and it`s impossible without proper use of language."*

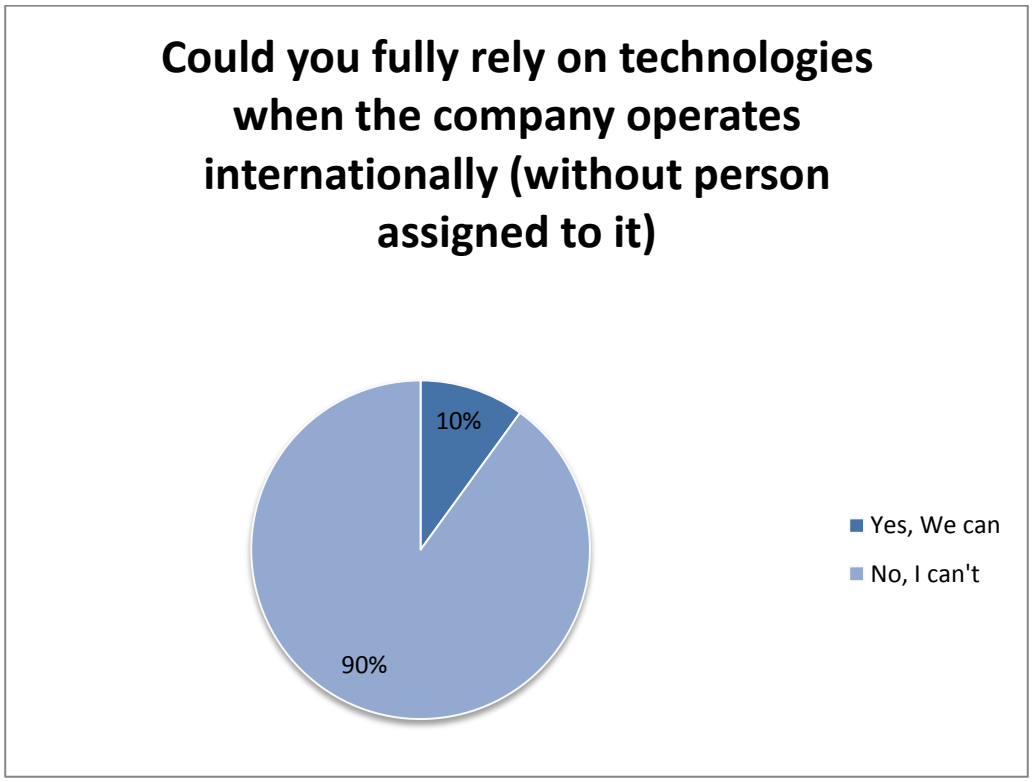

Figure 16. Reliability of technologies in Finnish companies

4.2.2 Human resources component in Finnish SMEs

Finland with about 6 million of population has a high rate of well-educated people because of free and high quality education and ability of Finnish people to do everything they do thoroughly. But for all that Finland still experience lack of specialists able to operate both with languages and subject

matter. From this data we can see the way Finnish companies deal with shortage of polymathic workforce.

In response to the question about which tools company finds convenient when operating internationally 50% of those surveyed indicated outsourcing services to translation/interpretation agencies which allows them to cover shortage of specialists with language competences. Other response to this question included 50% Finnish SMEs using field specialists with language skills and 10% of participants mentioned use of permanently employed translators in their companies.

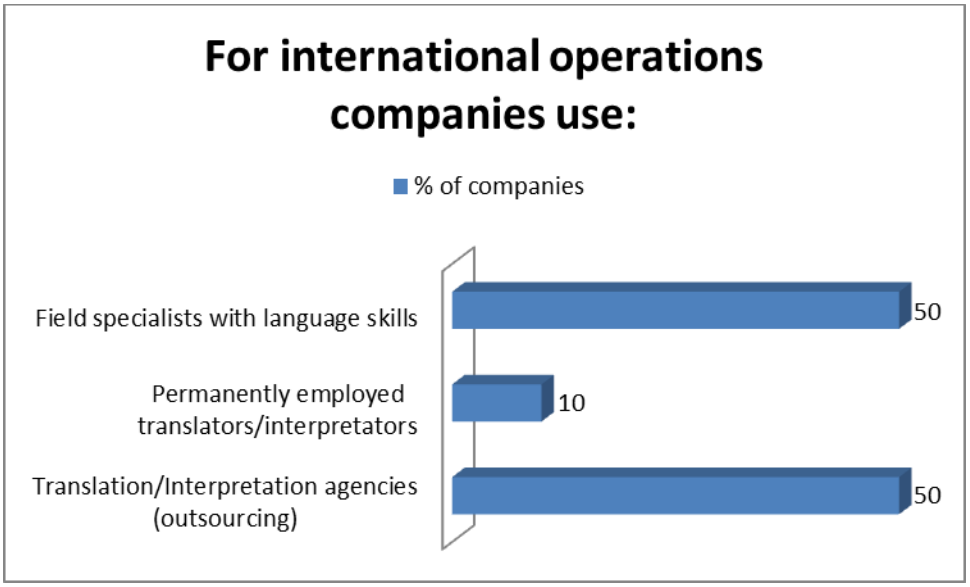

Figure 17. Use of human resources in international business

To define the share each type of human resources in international business operations of Finnish SMEs was calculated an average use of each HR related category. In international business operations 60% of Finnish companies mostly use field specialists and in less extent agencies and translators/interpreters. 30% of Finnish companies use mostly agencies and in less extent specialists. And only 10% of respondents use both field specialists and agencies pari passu.

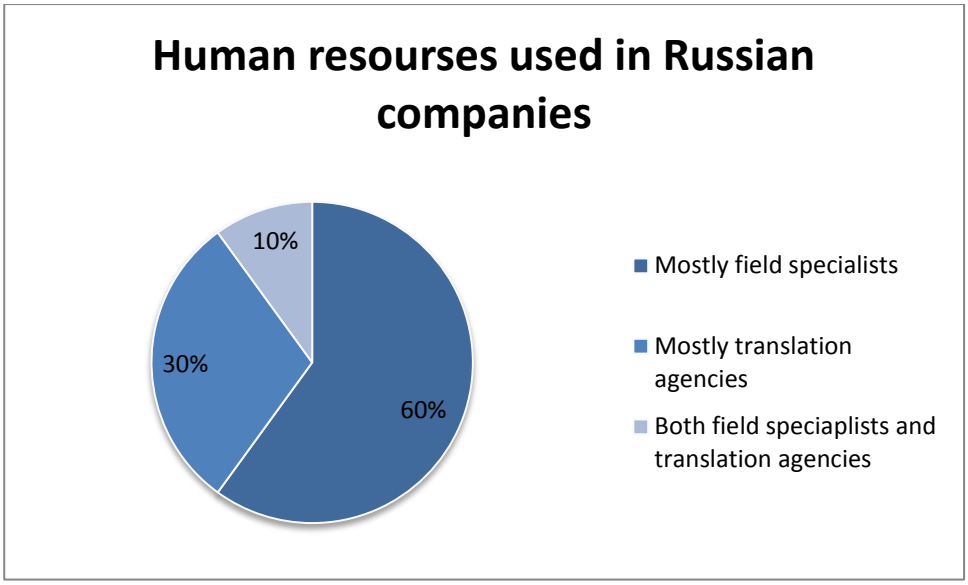

Figure 18. Use of human resources among Finnish companies

All respondents (100%) are confident about use of human resources for international business operations without technological assign to it. Meantime all participants note that it is necessary to have highly qualified personnel in order to be confident about services provided. As Metsola (East consulting 2015) points out it is easy to rely on quality when your own staff and partners carry on translation/interpretation duties. Otherwise,

> *"..if the service is produced by new subcontractor or a trainee, then quality must always be checked. if the translations must be done quickly, and the overall level is sufficient, then the software is necessary."*

Haapala (Jykes 2015) argues that the reliability in the significant extent depends on the translator's professional skills. Besides even though human resources is a convenient way to operate internationally, technological advances make the process faster and more effective. Naumenko (EnTech Suomi oy) well-formerly notes that he prefers to work with 70/30 type of equation, where humans have 70% of work done and we use 30% of technology to make sure everything is done right (e.g. spell check, grammar check etc.) In average, Finnish SMEs can rely on human resources if there is no access to technologies. Yet they prefer to use both technologies and human resources for international operations and put a special emphasis on

employment of right personnel which has competence and experience to provide high quality service.

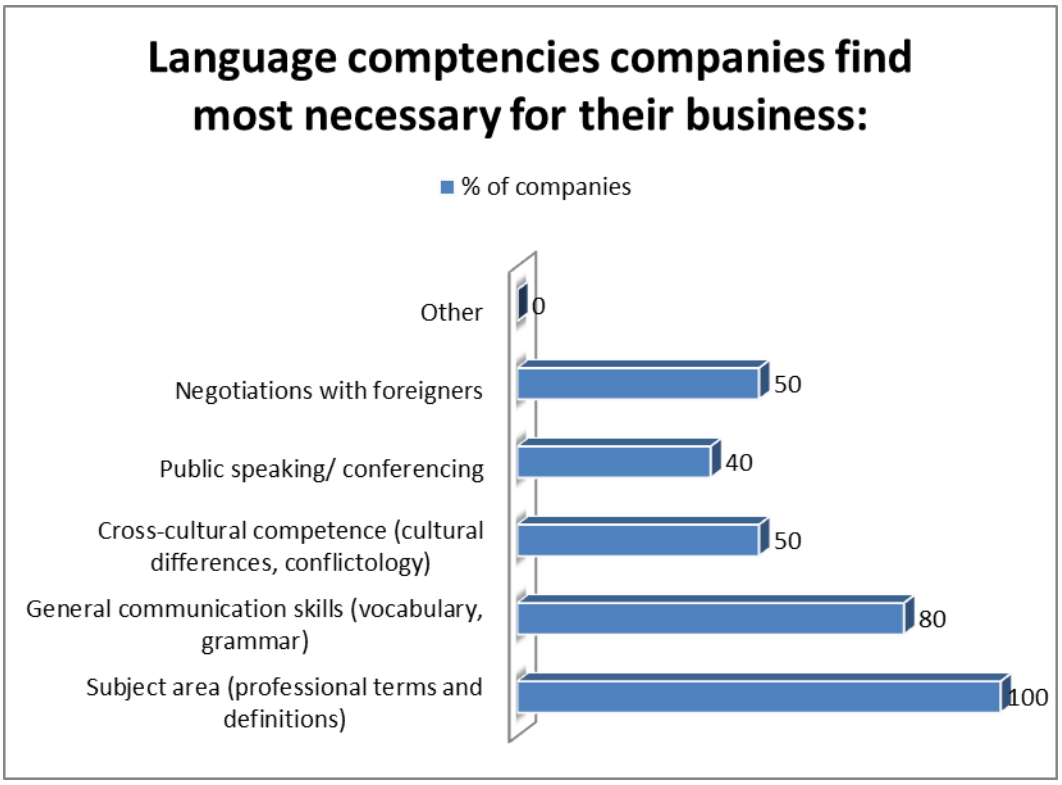

Figure 19. Language competencies companies find most important

Based on language competence related questions, ability to operate with subject terms and acronyms found to be the most important component for Finnish companies operating within global trade. 100% of companies mentioned this area as the vital for successful performance. General language competencies are not less important for international business operations and were marked by 80% of respondents. Another important finding was that Finnish SMEs are aware of importance of cultural competence on the global market and 50% of respondents mark it as an important language component for their business. Negotiations with foreigners are essential for 50% of companies while public speaking skills are useful for 40% of respondents. The possible explanation for this might be that not all companies have many events where public speaking is mandatory for majority of specialists. However for the companies which sell the latest findings and look for distribution channels through conferences it is necessary to be able to present their product among other businessmen and scientists. These findings confirm

the idea about awareness of language competences among Finnish SMEs, thus working on the development of these companies from within.

Figure 20. In-service trainings in Finnish companies

On the question of in-service trainings in Finnish SMEs, this study found that 50% of companies arrange subject terminology trainings for their staff, 20% of companies improve cultural competence of employees. One anticipated finding was that 10% of companies arrange general language competence courses where employees may improve their grammar and vocabulary and another 10% of respondents have public speaking trainings in their companies. As the other method to improve language competencies most of participants describe learning by doing. One of respondents described this method as ‘exposure to the culture and language! ‘

The most obvious finding to emerge from the analysis is that Finnish companies are aware of necessity to possess language competencies in order to successfully operate on the global market. Herewith development of language competencies is not spread among Finnish companies to the right degree as yet. Translation technologies do not meet expectations of Finnish companies and as the main problems of translation software were mentioned: complexity of Finnish language, quality of translation, inability to consider cultural diversity, context, tones.

4.3 Analysis of language related communication components in British companies

British companies were among the first operating within global trade and testing new methods of international communication with foreigner all over the world. 9 British companies operating in various fields took part in the survey. Companies operate in such fields as summer programs in the UK for Chinese,web development, tourism services, in-flight retail, inventory management, business expansion and others.

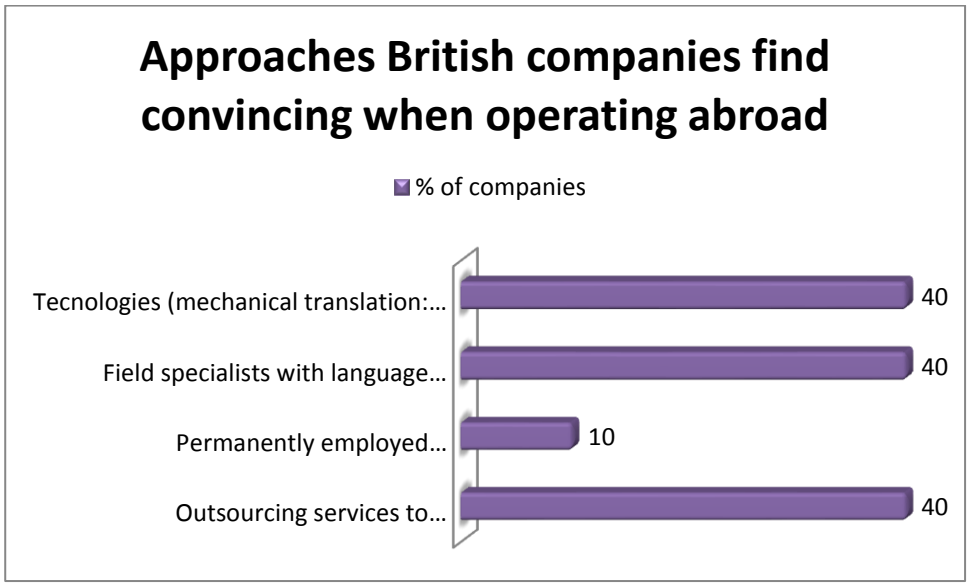

Figure 21. Human language competence approaches in British SMEs

Detailed examination of general resource allocation shows that field specialists with language competencies, technologies and translation agencies found to be effective tools for 40% of questioned. While 10% of companies feel that permanently employed translators are convenient global business tool too. It is apparent from this chart that every British company has its own international communication tools which it finds useful. A clear prevailing method of international communication among British companies could not be identified from this chart.

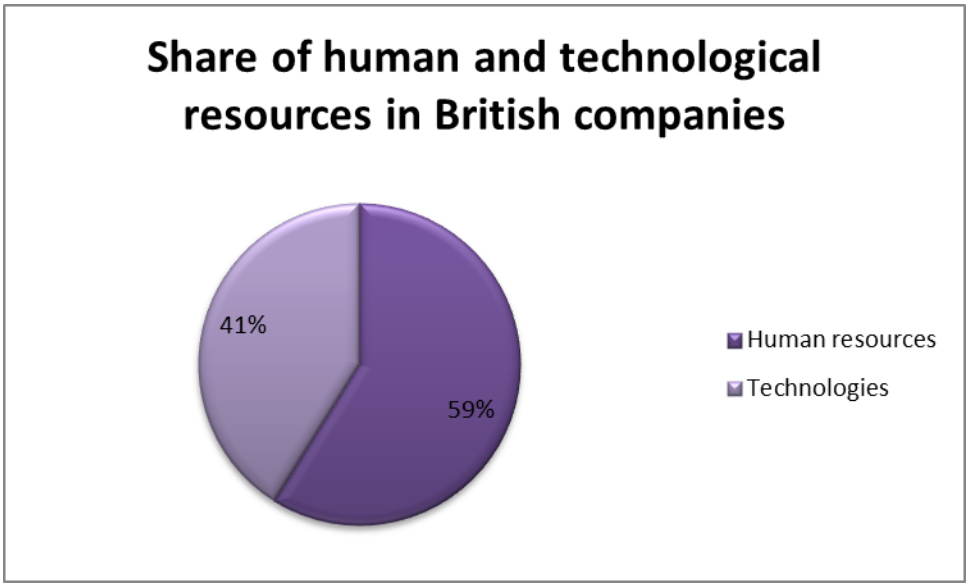

Figure 22. Share of human and technological resources in British companies

However, following further analysis detected domination of human resources in international business communication. Of the study population the share of technologies is 41%, while human resources are used in 59% of all business activities.

4.3.1 Language software component in British SMEs

The first section of questions was concerned with technological advanced applied in British companies. Over half of those who answered this question reported that dictionaries are the most useful and broadly applied tool for international communication. Most widely used dictionaries among British companies are Google, multitran.ru, thesaurus, linguee.com. Secondly popular software was reported web content translation tools, which is used by 40% of companies. Interestingly, all respondents indicated Google translate as the main instrument from this category.

As for this Mittal (Sprouts 2015) comments

> "..*We only use Google Dictionary and translation and even refer content writer for the same."*

Translation memory software is applied by 20% of British companies and the only option that was presented by respondents was TRADOS studio 2014. 10% of respondents noted intelligent email management as a tool they use for international operations. As the main intelligent email software applied among British companies was indicated we use Microsoft CRM, Sugar CRM software, Gmail and thunderbird. Even though none of respondents use text mining and information extraction software, multiply respondents put an emphasis on usefulness yet high price of such software:

> *"We haven't used such software yet, but in future we will be using it to increase efficiency (Magnetic North Travel Ltd. 2015)."*

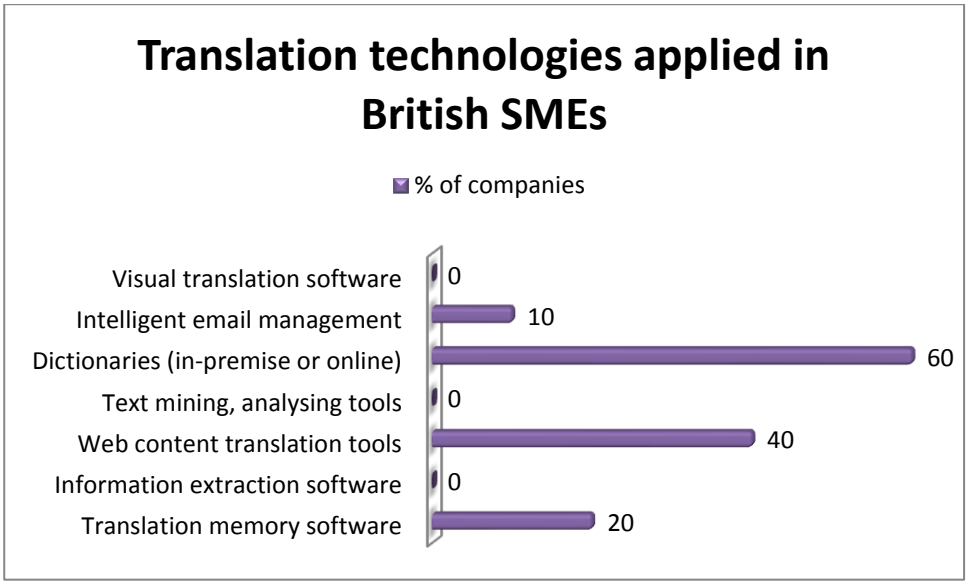

Figure 23. Translation technologies applied in British SMEs

Finally, questions were asked as to the role of technologies in the company international operations.

Majority of participants (90%) indicated lack of trust into technologies without human assign to it.

All companies are convinced that technologies can never replace human resources due to:

1. Inability to recognize emotional context, slang and dialects

All respondents state that human element is necessary to correct the translation by technology. Content writers know the slang, dialect and tone the company need to use to get the message right.

As for that Opportunity Educating-services comments that:

> *“..some of the expression emotions can't be interpret by these software. Customers expect the native touch to their translations. Even google translate cannot provide that. Perhaps in time, the software can learn enough to capture the native-level way of translation.”*

2. Low quality of translation

All respondents state that even the most sophisticated translation software does not come close to outputting translations of a quality comparable to that achieved by humans. It is currently impossible for machines to operate at the level of instinctive language awareness that humans have.

On informant (OGN Group) reported that:

> *“..you would have to 'teach' software in a way similar to a human in order for it to gain this kind of awareness. So, no, machines are not putting us old bores out of business just yet.”*

Another respondent (Retail in Motion 2015) argued that technologies are very unreliable for their business so they have employees from 16 different nationalities.

> *“Employees with the relevant primary language are requested to translate as necessary. - Turkish, German, Mexican for example*(ibid. 2015)”

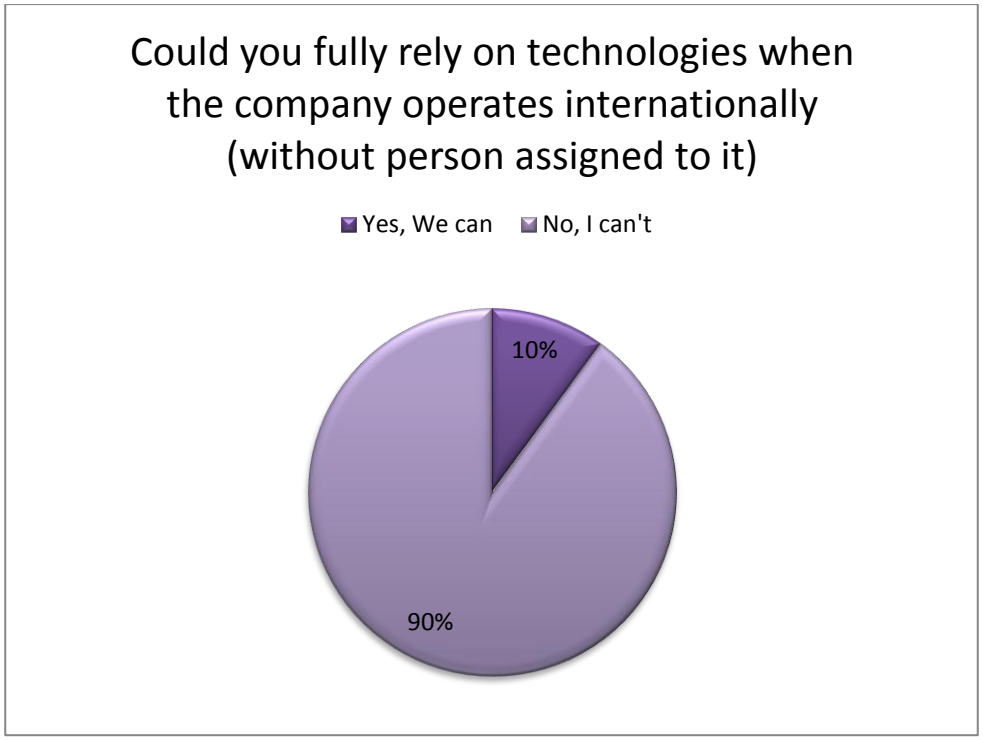

Figure 24. Reliability of technologies in British companies

4.3.2 Human resource component in British SMEs

The next section of the survey was concerned with use of human resources in international business operations of British companies.

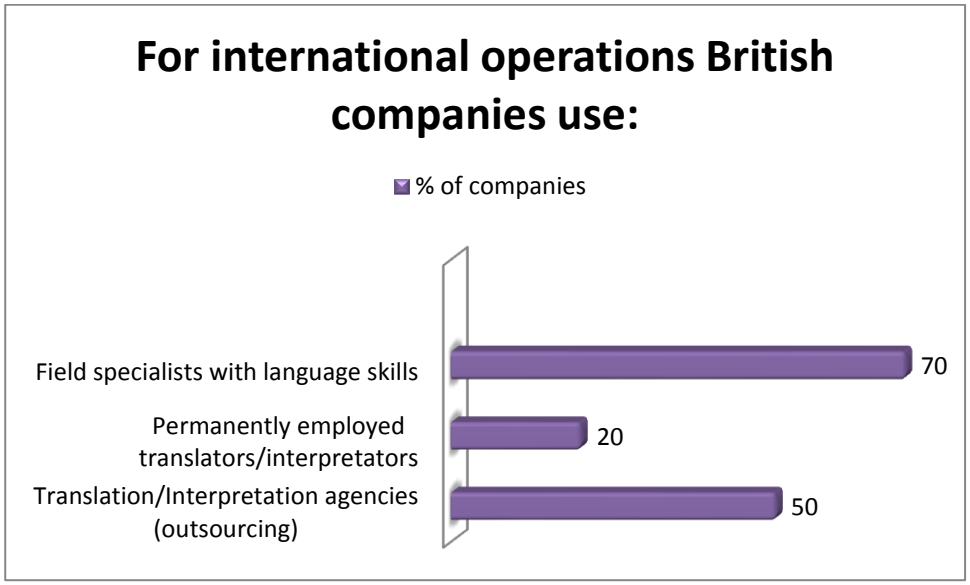

Figure 25. Use of human resources in British SME's

Whilst a minority of British companies (20%) mentioned that permanently employed translators are an effective tool for their business more than 60% agreed that field specialist is the most convenient instrument for international

business operations. 50% of British companies find translation agency as a good way to deal within global market.

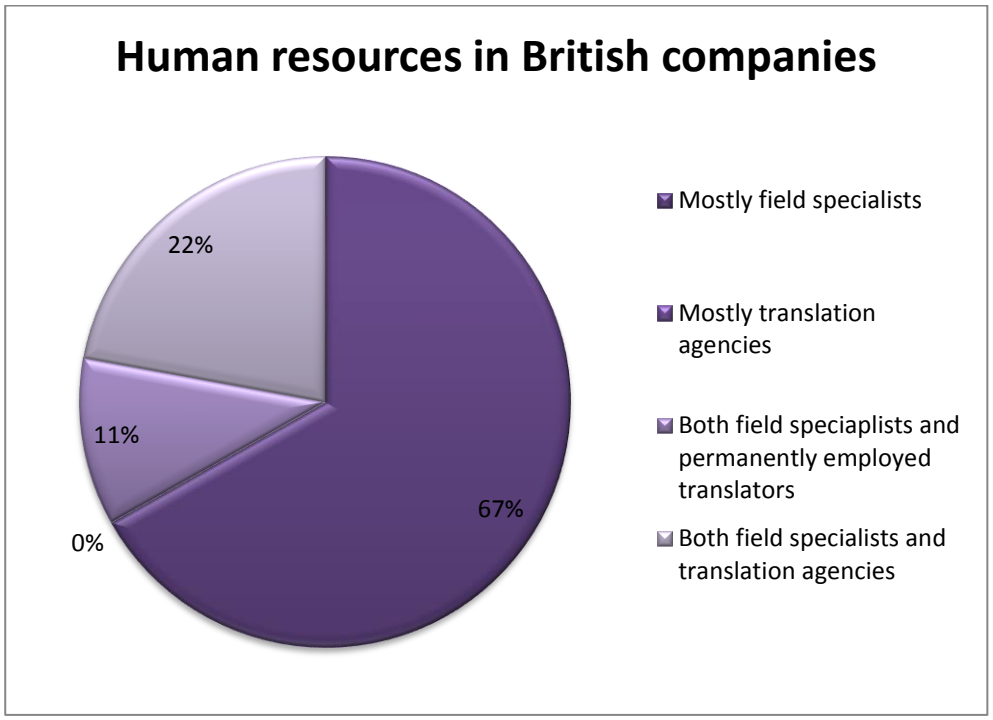

Figure 26. Share of human resources in British companies

It was therefore revealed that in 67% of cases companies resort to field specialists with language skills. In 22% of cases they use both field specialists and translation agencies and I 11% of cases British companies apply for both field specialists and permanently employed translators. Possible explanation for it is that only few companies use permanently employed translators, therefore low percentage of their use on the chart. Mostly translation agencies are not used at all, which indicated high qualification of employed staff able to provide high quality translation within global trade.

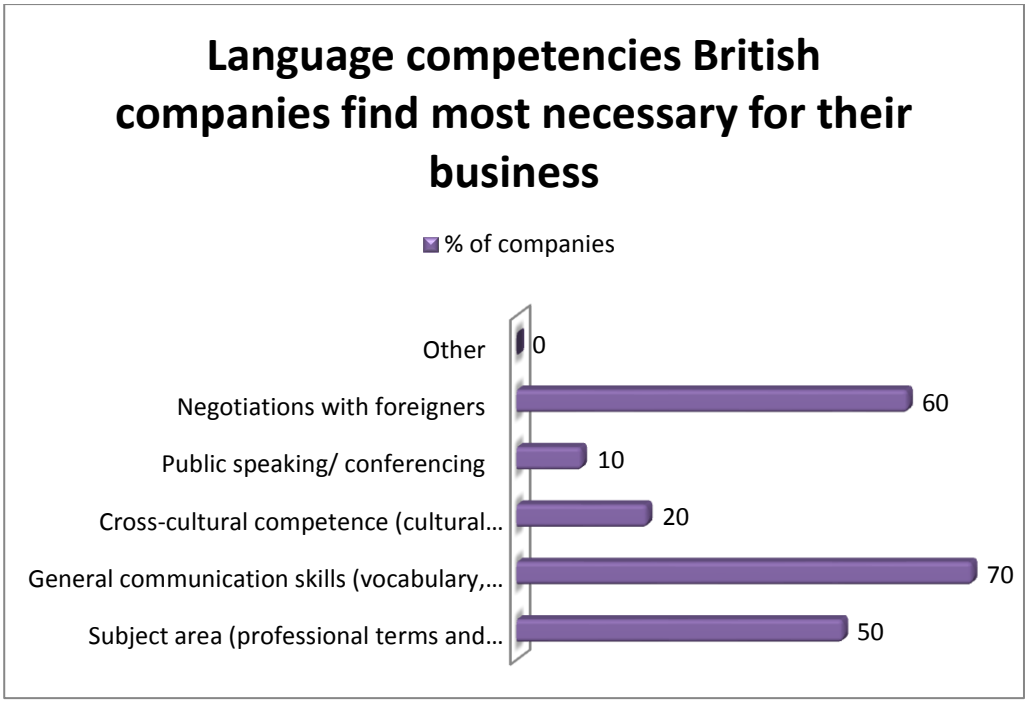

Figure 27. Language competencies British companies

British companies show outstanding result in language competencies. While 10% of companies realize importance of public speaking skills, negotiation with foreigners is marked as important by 60% of participants. General communication and subject area are highly evaluated by British companies (70% and 50%). However only 20% companies marked cultural competence as important.

For example, on interviewee (Godal 2015) said:

> *"We as a nation are used to come and share our culture rather than understand others, but due to rapidly changing business rules cultural awareness is becoming more and more important."*

British companies are constantly working on language competencies improvement and are aware that it is necessary for their success. 60% of companies arrange subject area trainings for its employees. While 30% of companies give public speaking and general communication courses. Cross-cultural competence and negotiation skills are in constant improvement in 20% of companies**.**

Figure 28. In-service trainings in British SMEs

Overall these results indicate that even though British culture is used to dominate on other cultures and languages and English language is a bullet proof to it, entrepreneurs realize necessity to develop language competences in order to have a common language with their clients, partners and shareholders all over the world. Besides above listed language competencies some informants mentioned other methods to improve language competencies of staff. One interviewee reported that they use occasional sales training with foreigners which keep specialists in tonus (Magnetic North Travel Ltd. 2015). Another participant mentioned language lessons for board level staff (BMB group 2015). Overall, the main idea was that it is necessary to help each other as team if someone struggling with something and company has to be a unit where people are constantly developing their skills and competencies.

If we now turn into reliability of human resources in British companies opinions differ. All interviewees agree that human resources are essential for international business operations. However another part of sample group agree that human resources are the most important instrument for international business operation. Majority of British companies note that they have high qualified staff and a quality monitoring system in place to make sure the quality of work is up to standard for the customer. One of respondents strictly said that they never rely on technologies and if they don't have a

natural speaking resource they outsource to a translating company(Retail in Motion 2015).

Talking about this issue Zvyaginceva (OGN group 2015) comments

> *“At present, we do fully rely on human resources when operating internationally. Things are often still done 'the old way' (by meeting with people, discussions, shaking hands etc.) rather than using technology resources**.”***

While another part of the group argues that both technological and human resources are necessary for their companies’ efficiency.

As for it Sprouts studio (2015) comments

> *“Technology and human both works together. Our company cannot rely on any alone.”*

These findings further support the idea of human resource dominance in intercultural business communication while technologies are less applied for the same operations among British companies. At the same time British enterprises are consistent in the idea that technologies and human resources have to applied together in order to achieve efficiency of business activities. Among translation software problems in Britain most obvious are inability to recognize emotional context, slang and dialects, low quality of translation. However, seeing importance of language competencies among humans, companies constantly arrange in-service trainings with all range language competencies for their employees. One of the issues that emerges from these findings is mismanagement of cultural competence. In general, therefore, it seems that due long-term dominance approach of English over other cultures and widely spread English as lingua franca; British people are slow to realize the need of culture competence for business. It somehow occurs as an inhibitive factor in development of cultural competence among British companies. It therefore results in low percent of culture competence trainings among British companies.

4.4 Confirmation of hypothesis

Are human resources irreplaceable for global business operations in SME?

After collection, the samples were exported to excel tables and organized in accordance with geographical variable. Data management and analysis were performed using Excel (2010).

A total of 29 responses about use of human and technological resources in international business operations were collected from 3 countries

Before confirmation of the hypothesis, for the purpose of analysis of the current share of technological and human resources in international business communication among Russian, Finnish and British SMEs were obtained following percentage calculations:

Table 2. Average use of human and technological resources in SMEs,%

		1	2	3	4	5	6	7	8	9	10	Average	Average
HR	Russia	60	60	80	70	90	80	70	60	30	80	68	**63,6**
	Finland	80	80	80	20	20	50	100	80	90	4	64	
	The UK	50	70	50	30	70	90	50	70	50		58,9	
Tech	Russia	40	40	20	30	10	20	30	40	70	20	32	**36,4**
	Finland	20	20	20	80	80	50	0	20	10	60	36	
	The UK	50	30	50	70	30	10	50	30	50		41	

Information acquired was developed through calculation of average share of human and technological resources in each company participated. Respondent evaluated share of each type of listed resources out of 100% of international business communication. For example: Russian company 1 evaluated share of human resources to translation technologies as 60% to 40%, while Finnish company uses human resources in 80% of all international business communication while translation technologies are applied in 20% of all communication.

Averaging indicates **clear superiority** of human resources above technologies among all participants regardless of country.

Unrelated t-tests were made to exclude occurrence of statistically significant differences between the three groups. A t-test is any statistical hypothesis

test in which the test statistic follows a Student's t-distribution if the null hypothesis is supported. It can be used to determine if two sets of data are significantly different from each other, and is most commonly applied when the test statistic would follow a normal distribution if the value of a scaling term in the test statistic were known. When the scaling term is unknown and is replaced by an estimate based on the data, the test statistic (under certain conditions) follows a Student's t distribution.

Table 3. T-test calculation

№	Sample			Abmodality			Deviation square		
	B.1	B.2	B.3	B.1	B.2	B.3	B.1	B.2	B.3
1	6	8	5	-0.8	1.6	-0,89	0.64	2.56	0,79
2	6	8	7	-0.8	1.6	1,11	0.64	2.56	1,23
3	8	8	5	1.2	1.6	-0,89	1.44	2.56	0,79
4	7	2	3	0.2	-4.4	-2,89	0.04	19.36	8,35
5	9	2	7	2.2	-4.4	1,11	4.84	19.36	1,23
6	8	5	9	1.2	-1.4	3,11	1.44	1.96	9,68
7	7	10	5	0.2	3.6	-0,89	0.04	12.96	0,79
8	6	8	7	-0.8	1.6	1,11	0.64	2.56	1,23
9	3	9	5	-3.8	2.6	-0,89	14.44	6.76	0,79
10	8	4		1.2	-2.4		1.44	5.76	
Summa	68	64	53	0	0	0	25,60	76.4	24,89
Average	6,80	6,40	5,89						

Hypothesis to be confirmed or rejected was the following:

H0: Human resources prevail over technological resources in what comes to language component of international business communication in British, Finnish and Russian companies Hence, H0: B.1=B.2=B.3

Otherwise:

H1: Technological advances prevail over human resources in what comes to language component of international business communication in British, Finnish and Russian companies.

Statistical analysis contained 5 stages:

1. The first step in this process was to enumerate participants in compliance with the country of origin.

2. We computed mean score of each of three samples. The mean scores for the three groups were respectively 6,8 for the Russian Federation, 6,4 for Finland and 5,89 for the UK.

3. The next step used to implement analysis was to calculate deviation square for each sample;

4. Prior to undertaking the analysis we ascertained necessity of allocation of Te in the insignificance zone if to confirm the hypothesis about dominance of human resources in international business communication regardless of country.

Te for each two group was retrospectively:

- Russia-Finland: 0,4
- Russia-the UK: 1,1
- Finland-the UK: 0,5

5. Tcr for each group was determined from T Critical value table.

Table 4. T empirical and T critical values of samples

	Russia/Finland	Russia/the UK	Finland/the UK
Tcr			
p≤0.05	2,1	2,11	2,11
p≤0.01	2,88	2,9	2,9
Te	0,4	1,1	0,5

Significance levels were set at the 1% level using the student t-test. Obtained data **Te= 0,4; 0,5 and 1,1 was considered insignificant.** Hence there was no significant difference between the three samples and results as it shown in the table indicate that group variables are statistically similar. Returning to the hypothesis posed at the beginning of this study, it is now possible to confirm that human resources prevail in global business operations in what comes to language component of international business communication in British, Finnish and Russian companies.

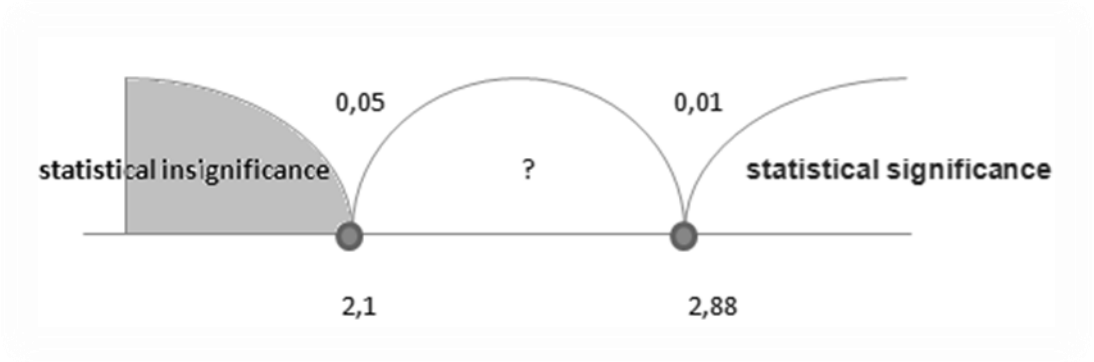

Figure 29. Graphic of statistical significance

5 CONCLUSIONS

The key part of successful international business is ability to communicate with foreign partners, clients and shareholders. International business is markedly different from local in scope and complexity of operations as well as volume and cultural background of stakeholders involved in the process. In view of all that has been mentioned so far, it is obvious that efficient interaction with foreigners, ability to understand their language, way of thinking and mode of life are essential for any company in attempts to distribute its products and services abroad.

Various cohort technological advances developed for international communication nowadays are aimed to simplify and speed up the efficiency of international operations. All of the current literature on translation software pays particular attention to translation memory, information extraction, text analyzing , web content translation, dictionaries, visual translation, intelligent email management and audio translators. All types of translation software differ in area and specifics of use but serve the same purpose which is to implement translation from resource language into the target language.

While a variety of software has been developed, yet no technology can provide translation quality compatible to one provided by a human translator. In view of it, not only technologies but human resources take an active part in the process of international business communication.

The objective of the thesis was to define the role of technological and human resources in language related area of international business communication in the sample of British, Finnish and Russian companies; and to develop guidelines for application of both technological and human resources in language related area of communication in order to make their business more advanced on the global market.

The study population was limited to three countries and contained of 10 Finnish, 10 Russian and 9 British companies. Eligible companies which matched the selection criteria were identified by country of origin, area of business operation and personnel numbers. All of the participants are local

companies operating abroad with personnel number below 250. In order to measure the extent in which human and technological resources are distributed in SME:s in different countries, the participants were asked to complete two section questionnaire with open-ended and close-ended questions. Of 30 participants out of the study population 29 completed and returned the questionnaire. To better understand the mechanisms of international business communication and its effects multiply instruments applied in different countries were analyzed.

Research questions:

1. What is the current share of technological and human resources in international business communication?

   H0: Human resources prevail over technological resources in what comes to language component of international business communication in British, Finnish and Russian companies

   H1: Technological advances prevail over human resources in what comes to language component of international business communication in British, Finnish and Russian companies.

2. How to improve the efficiency of international communication of companies operating abroad?

Retrospectively collected data reveals dominance of human resources with its language competencies in international business communication in Britain, Finland and Russia. Regardless of geographical location share of human and technological resources was mostly analogous with 60% of human resources with their language competencies against 40% of technologies: language related translation software.

Validity of the research is insured by confirmation of hypothesis, which was based on elimination of statistical differences in variables related to use of human resources in three samples. Hypothesis confirmation that ‘Human resources prevail over technological resources in what comes to language component of international business communication in British, Finnish and Russian companies’ was performed using t-test. Tem of each group of

samples is allocated in insignificance zone which statistically demonstrates lack of difference indexes among sample groups, hence none of these differences were statistically significant which allowed confirming hypothesis that H0: Human resources prevail over technological resources in what comes to language component of international business communication in British, Finnish and Russian companies.

There is no minimum sample size for the t test to be valid, as critical values can be found for the test statistic to have a given significance level for any sample size (well at least of size 2 or larger) (Chernik 2014). Therefore, even though the sample was small, the results extracted from analysis are homogenous which allows perceiving it as representative of companies operating on the global market and following more or less similar applied on this market rules and requirements.

Almost every company that commented on questions indicated distrust and inefficiency of a translation software developed prior to date of research. In the same vein majority of participants notes importance of technologies as an essential tool for enhancement of speed and volume of proceeded material. All comments outline a critical role of translation technologies for maintaining competitive position on the global market. Regardless of geographical location all companies actively employ dictionaries and web content secondary popular technology is translation memory software which memorizes all ever translated terms and phrases into a special database available for further use. As the result it allows to minimize time required to translate similar documents. Intelligent email systems provide various functions such as analysis of the context, brief preparation on the maintenance language, and suggestions of a reply based on the context and are quite broadly spread among all internationally operating companies. Due to high price and complexity of maintenance of text analysis and information extraction software it is not very popular among internationally operating SMEs: 20% of Russian companies use it, while Finnish companies do not use it at all.

However British companies note importance of this type of software for international business and intend to apply it in order to increase productivity.

Visual and audio translation software has just started to spread on the market, which results in 0% of companies using this type of software.

Translation software was proved to have numerous disadvantages over human resources with their language competencies among which are:

1. Limited ability of software to recognize emotional context, cultural patterns and geographical specifics of resource texts. The studies presented thus far provide compatible opinion that human language is a complicated blending of culture, geographical location, education and other components, and machine software however sophisticated is not able to consider all of this when translating information hence cannot give an accurate interpretation.

2. Poor quality of the translation.

Almost every participant regardless of country includes a section relating to low quality of mechanical translation, which cannot be relied on without thorough human check afterwards. The only option to improve the quality of the translated text is to make a pre-editing of the text, in other words to change the structure of sentences from the resource text into the target text. However, it requires employment of linguists able to manipulate with syntaxes and language pattern which is not a case in small and medium companies with limited recourses. Post –editing is often a case in small and medium-sized companies, which enables to increase the efficiency and volume of translation operations compared to the volume of human translation without technologies assign to it. All respondents note that mechanical translation is useful for basic translation of documents, invoices, manuals or emails within one company, but yet requires a person to make proofreading and double-checking every line.

3. Complexity of languages. Among all countries participated in the research, at least Russian and Finnish entrepreneurs mention complexity of language as one of the key barriers for effective use of translation software in international business operations. Development of sophisticated software able to localize text origin, to translate dialects, consider structure of words and twisted grammar requires significant investments and years of work to develop linguistic schemes.

4. Lack of confidence in machine translation software and lack of experience in use of it.

Regardless of geographical location, majority of participants expressed lack of confidence in investment in advanced translation software and showed preference to apply methods which stale but proved themselves to be effective. Internet has become a must-have tool just recently and is actively applied by young companies. However majority of middle-aged entrepreneurs still experience lack of confidence when using new technologies and prefer to rely on people when operating with foreigners.

5. High price of good software.

Small and medium-sized enterprises are limited in resources and rarely allow for translation software expenses when preparing a business plan. Even if they wished to invest in software, there would be no confidence that the software will be worth of it. With over-cautious towards innovations it results in stunted growth of technologies use among companies.

Therefore it results in vicious circle where companies are stuck with semi-automated systems, which require full time double checking and see no point in expensive investments due to lack of confidence in the quality of mechanical translation technologies.

6. Instability of Internet connection and risk of machinery breakage.

Some of respondents revealed risk of machinery breakage as a factor, influencing on lack of confidence in use of machine translation software. As examples of that was mentioned lack of electricity, connection break or simply death of equipment. In order to prevent such accidents companies must be prepared to replace software with human translator or specialist able to carry duties under any circumstances, which again results in lack of confidence in software reliability.

The survey data is mostly compatible and there is general agreement about lack of trust in translation technologies among Finnish, Russian and British companies operating within global trade.

According to research, human resources are perceived as irreplaceable for all companies yet preferences in types of human resources applied for international communication vary. Use of field specialists with language skills as a main type of HR applied in international business operations is widely spread among British and Russian companies. Traditionally, education quality in language related fields is high which results in good quality of language services offered by employees to companies. Recently, a proposal to make one more foreign language mandatory for studying is under consideration in Russia. As the result employers tend to rely on language specialists' qualification and frequently use them for business operations.

Whereas Finnish companies demonstrate preference to outsource translating-services to translation agencies, when field specialists with language skills are applied in only 40% of cases occurred. The possible explanation for this is language barrier caused by complexity of Finnish language which can be mastered by very few internationally operating field specialists. Majority of foreigners tend to either concentrate on Finnish language or professional field of expertise, while negotiations on international market in significant extend depend on proper use of language and quality of translation. All of the Finnish participants perceive language barrier as the main obstacle for effective use of field specialists on the global market.

Further analysis showed that not all companies realize transparent correlation between language competencies and efficiency of business operating on the global market.

Britain has the most favorable position is this aspect due to its industry-leading in innovation application related to international communication. It became apparent that British companies are fully aware of language competence necessity among their employees and offer wide range of in-service training aimed on competence improvement. However, Russian companies express obvious lack of knowledge about language competence and its role for multinational communication. Among all language competences such as terms and definitions, negotiations with foreigners and conference skills mentioned as important only one in-service training 'terms and definitions' is provided in most of Russian SMEs. Whereas culture competence is not mentioned as

important nor considered to be an essential subject for in-service trainings. In comparison to British and Russian tendency towards language competence awareness, Finland takes up an average position. Analysis shows strong evidence that Finnish companies are fully aware of necessity of language competence improvement, yet do not apply enough force to make development more efficient. Another possible explanation for this might be limited resources among Finnish SME's. However awareness of the issue is already progress.

The most striking result to emerge from the data was availability of culture component which in significant extend influences on the way companies operate within global trade and which has to be taken into consideration when developing language management strategy and evaluating of its efficiency.

Long term dominance of British culture over the world resulted in reluctance of British people to explore other cultures with the purpose of doing business internationally. Majority of respondents describe communication with foreigners as one one-way interaction due common knowledge of English language hence lack of culture competence requirement. Requirement to study other cultures and language is not among hot-button issue for successful international business operations, which therefore results in low interest in culture competence among British SMEs.

Reluctance in exploring other cultures is widely spread in Russia too, but caused by different reasons. Due multinationality of Russian Empire, Soviet Union and currently the Russian Federation many cultures have been always interacting with one another while sharing the same believes, values, language and the way of dealing with things. Through this Russian culture has evolved into mixture of mentalities. Being used to multinational society sharing the same views, Russian people can hardly understand that different cultures may perceive the same issue in the different way than they do. Comprehension of the matter has begun, yet hasn't achieved any significant scale prior to data received in 2015.

Among Finnish companies situation is completely opposite, for due to historical background Finnish companies have wide experience in dealing with other cultures and looking for a diplomatic way of sorting thing out. Finns tend

to play the partner's way and avoid taking sides when operating. The explanation for it lies in historical background when Finland had close interaction with Swedish, then Russian cultures and currently with European Union.

Although there was no special purpose for this, the single most striking observation to emerge from the data comparison was significance of culture component for deep insight into the way different cultures operate on the global market. Clear evidence from survey revealed essentiality of considering culture component when developing language management strategy for every particular company.

Together these results provided important insights into development of **language management strategy concept** aimed to increase of efficiency of international business operations.

International communication is the area of expertise is acquired and subsequently developed by means of professional linguistic technical education with language competence as a partial of the program; practical language activities and in-service trainings in the frame of work or at spare time.

Allotment of resources for in-service language competence trainings is in significant extent dependent on general resources, understanding of necessity for particular competence development along with cultural background in other words historically developed perquisites and convictions, which influence on the way culture perceives a particular matter.

Language management strategy brief

Language management strategy is an essential tool for successful business operations within global trade. Applied by companies with clear LM vision and strategies on the global market it enables confident and consecutive business tasks implementation.

Language management strategy *is a complex of activities aimed on enhancement of international operations efficiency via language qualities/services refinement, commonly used for business interaction with*

foreign clients, partners and includes technologies along with human resources.

Based on many-sided researches was determined and defined two the main components of LM strategy:

1. **Language software component** – is numerous types of translation, interpretation software developed to increase efficiency of human activities or even replace humans in the process of international communication within business.

2. **Human language competence component** – is a numerous types of human language related activities that company applies for international communication within international business operations

Language software component contains of seven main types of software which differs in functional spectrum and fields of application.

Table 5. Translation software types

	Software type	**Functional spectrum**	**Area of application**	**Installation area**
1.	**Translation memory**	Collection, reuse of terms and phrases ever translated before on-premises	Documents	Operating system on-premise
2.	**Information extraction**	Subject related data collection from WEB and documents	Web, documents	On-premise and cloud based solutions
3.	**Text analyzing**	Analysis of business hypotheses based on data extracted from web and docs	Web, documents	On-premise and cloud based solutions
4.	**Web content translation**	Automated translation of Web content	blogs, posts, articles, web pages	On-premise and cloud based solutions
5.	**Dictionaries**	Translation of words and phrases	Web, documents	On-premise and cloud based solutions
6.	**Visual translation**	Visual translation of words and phrases	Web documents	Integrated device
7.	**Intelligent email**	Email sorting and response generation	Emails	On-premise

	management			

Human language competence component consists of five the main language competencies integrated in complex or individually depending on company resources and needs.

Table 6. Language competences

	Language competence	**Content**
1.	Subject area (terminology)	Professional field related term, acronyms and definitions
2.	General communication skills	Casual vocabulary, grammar basics
3.	Cross-cultural competence	Cultural diversity, conflictology
4.	Public speaking/conferencing	Statement preparation and presentation, interaction with audience
5.	Negotiations with foreigners	International negotiations structure

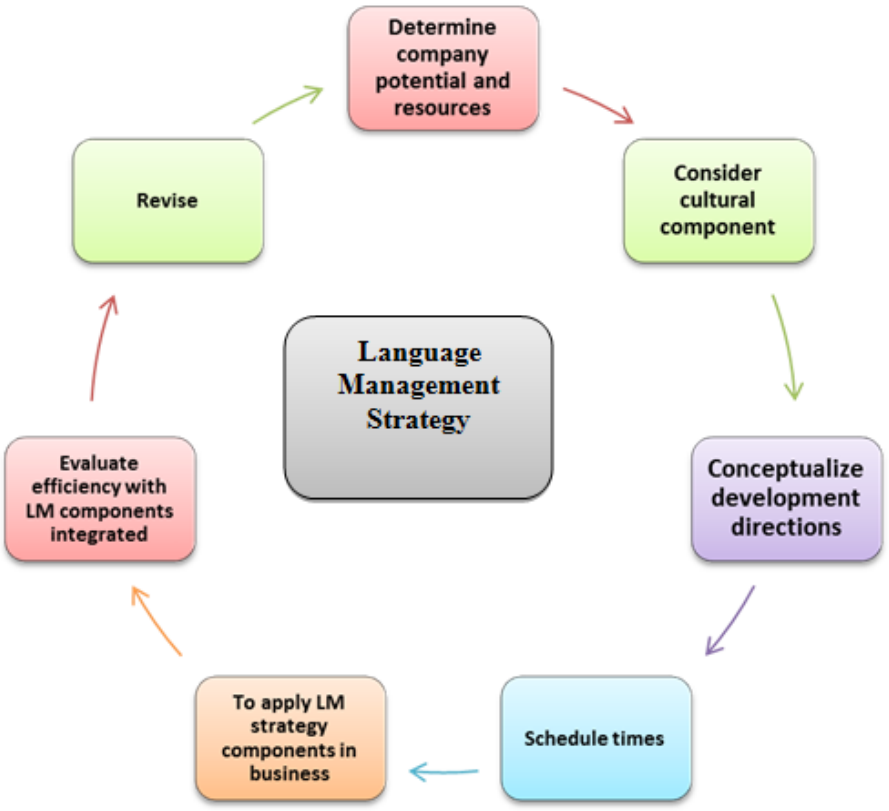

Figure 30. Language management strategy

The chart above shows language management scheme that has to be applied in the company aimed to amplify efficiency of international business activities.

Initial objective of the strategy is to identify weaknesses and strengths of international communication within a company. Together, these results provide important insights into LM development directions.

To determine company potential HRM representative is required to response to the subject related questions through questionnaire or personal interview (Attachment 1). Interview as a method considers broader spectrum of information such as emotional component containing important information about respondent personal attitude to the matter and allows to proceed with further leading questions providing researcher with deeper understanding of company's communication methods. Meantime questionnaire is convenient method for it doesn't require immediate reaction to it and gives respondent time to think the question through.

When questioning company's representative the LM specialist also collects the data about resources that company has at disposal to invest into development of the quality of international business operations. Analysis of the data collected infers consideration of culture component, which influences on the way company operates locally and internationally. This is necessary for objective and measured judgement of company's strengths and weaknesses and subsequent language management strategy application.

With regard to analysis and available resources, LM specialist designs recommendations for development of efficiency of the company on the global market and presents it to HRM representative and the board of directors.

The company defines terms of the new language management strategy according to which LM specialists proceed to business. Review of the results is carried out after expiration of 6 six months since applying LM components and aimed on evaluation of language competences among employees and therefore presenting new in-service trainings and the latest technological developments.

Areas of application:

-Educational Institutions;

-Companies.

1. Educational institutes:

   - Generalized language management strategy for business in Europe;

   - Generalized language management strategy for business with Russia.

2. Companies:

   - Generalized language management strategy for business in Europe;

   - Generalized language management strategy for business with Russia.

Analysis of the data was implemented based on information acquired by questionnaire. Further data analysis allowed defining directions of language competence improvement with aim to increase efficiency of the company on the global market. Developed scheme is used to design recommendations for a Russian company KSK Ltd. operating internationally.

Practical value of the research

The present study should prove to be particularly valuable to defend competitiveness of the company on the global market along with significant increase of income in long term..

5.1 Recommendations

Language management recommendations for KSK Ltd

To identify company's LM development directions, you were asked to provide detailed information on the subject related questions. (Attachment 1)

Based on analysis of the data provided was established that (Attachment 2):

KSK Ltd demonstrates significant shortage of information related to communication technologies applied by business in order to gain upsurge in efficiency of international business communication while operating within global trade.

The most obvious finding to emerge from the analysis is that company uses only basic translation technologies such as dictionaries and web content translation software. And even this foundation software is applied in only in 20% of all international operations that company has. These results indicate that technologies are not applied to the full extent which has negative influence on efficiency of the process and results in low volume of operations. Company experiences lack of knowledge about language software developed to simplify the process of international communication and increase efficiency of international business operations.

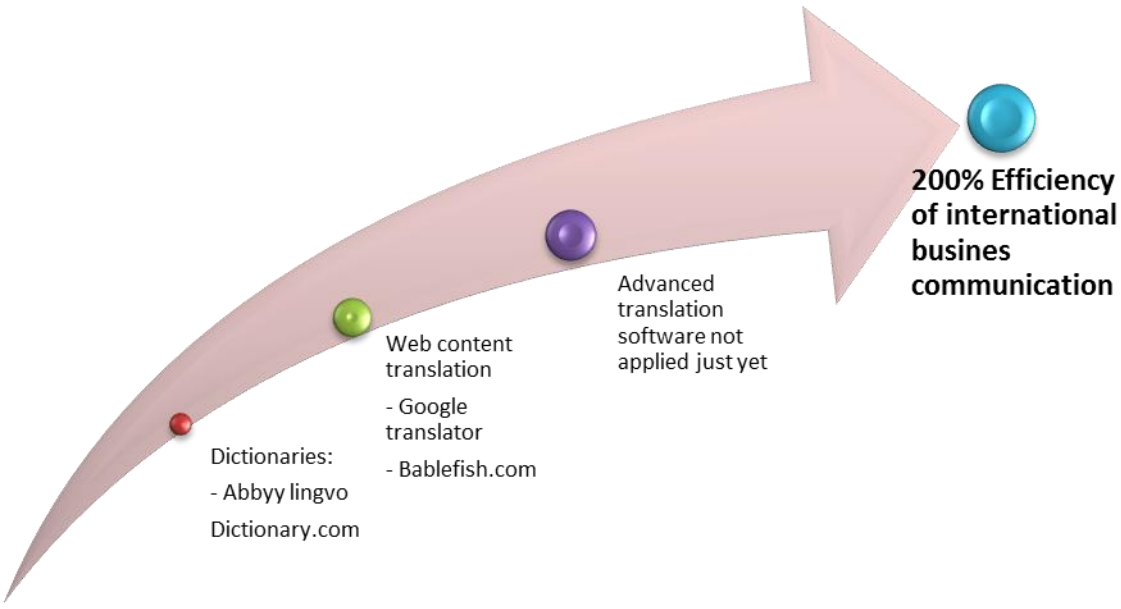

Figure 31. KSK Ltd software component

It is obvious that in order to improve efficiency of international communication and to increase share of technologies KSK Ltd has to be provided with full detailed classification of language management software. Prior to today the company has been applying slightly outdated software, that provides basic support but doesn’t maintain competitive position on the market while

competitors constantly increase volume of operations implemented by means of advanced software. Application of advanced software is aimed on simplifying the process of translation, increasing volume of the processed material, therefore increase of the amount of operations implemented by the company over short time period.

Thorough analysis of Russian market has revealed influence of culture component on methods that Russian companies apply while dealing with global trade issues: Due to conservativeness of Russian people, Russian entrepreneurs are over-cautious towards innovations and prefer to apply methods which stale but proved themselves to be effective.

In order to increase company awareness we developed detailed presentation about all types of language software applied in business and aimed to increase efficiency of human resources within communication and even partly replace it with technologies. In the end of the presentation every participant is provided with a leaflet containing brief information about all types of software along with the latest developments in each category prior to 2015 (Attachment 3).

Hereinafter LM specialists develop software packages suitable for corporate needs. Besides competitive prices software you will be provided with thorough guidance and group trainings based on internal materials.

1. Translation memory translation course (16h): Areas of use, Software review, Practical trainings

2. Information extraction tools (16h): Areas of use, Software review, Practical trainings

3. Text analyzing tools (16h): Areas of use, Software review, Practical trainings

4. Web content translation tools (16h): Areas of use, Software review, Practical trainings

5. Dictionaries (16h): Areas of use, Software review, Practical trainings

6. Visual translation (16h): Areas of use, Software review, Practical trainings

7. Intelligent email management (16h): Areas of use, Software review, Practical trainings.

On the section of human resources involved in international activities is established that in 80% of cases companies tend to use humans instead of technologies, which are applied in 20% out of total cases. Surprisingly although seeing importance of human resources for international operations for carrying on translation and communication duties, KSK Ltd usually outsources services to translation agencies (in 80% of cases) while field specialists are barely involved (only 10% of cases). It is caused by low language competence of the staff which leads to high additional expenditures on outsourcing, high dependence on external companies providing such range of services and noncompetitive position as the result of inability to assure high communication quality without applying for external assistance.

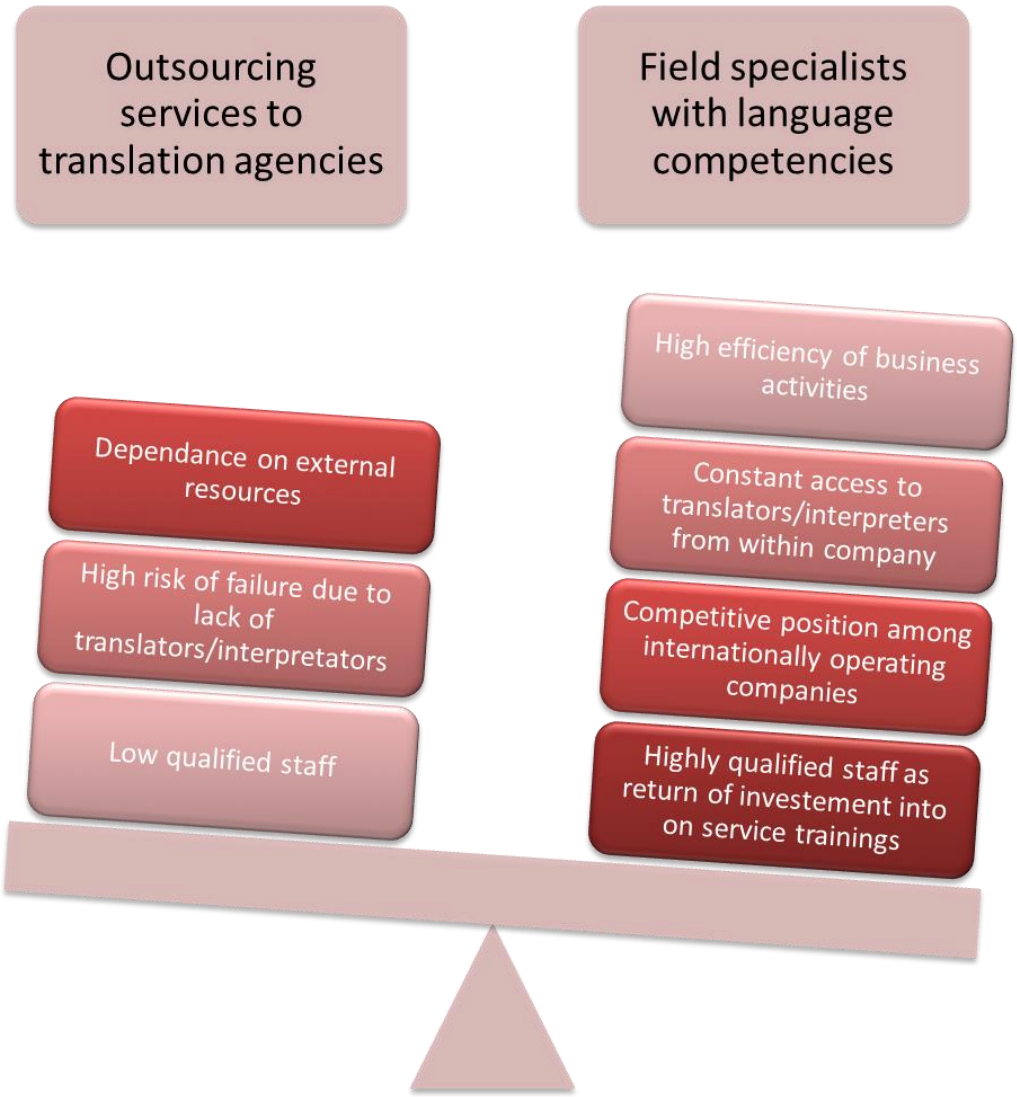

Figure 32. Use of HR by KSK Ltd in international business operations

Terminology and general language skills are perceived to be the most important areas of language competencies for KSK Ltd, yet no in-service trainings to increase the level of competence among employees is provided. To maintain high level of language competence among staff is recommended to decrease share of translation agencies through improving level of language competence among employees by means of arranging in-service trainings and therefore delegating services to field specialists with language competencies

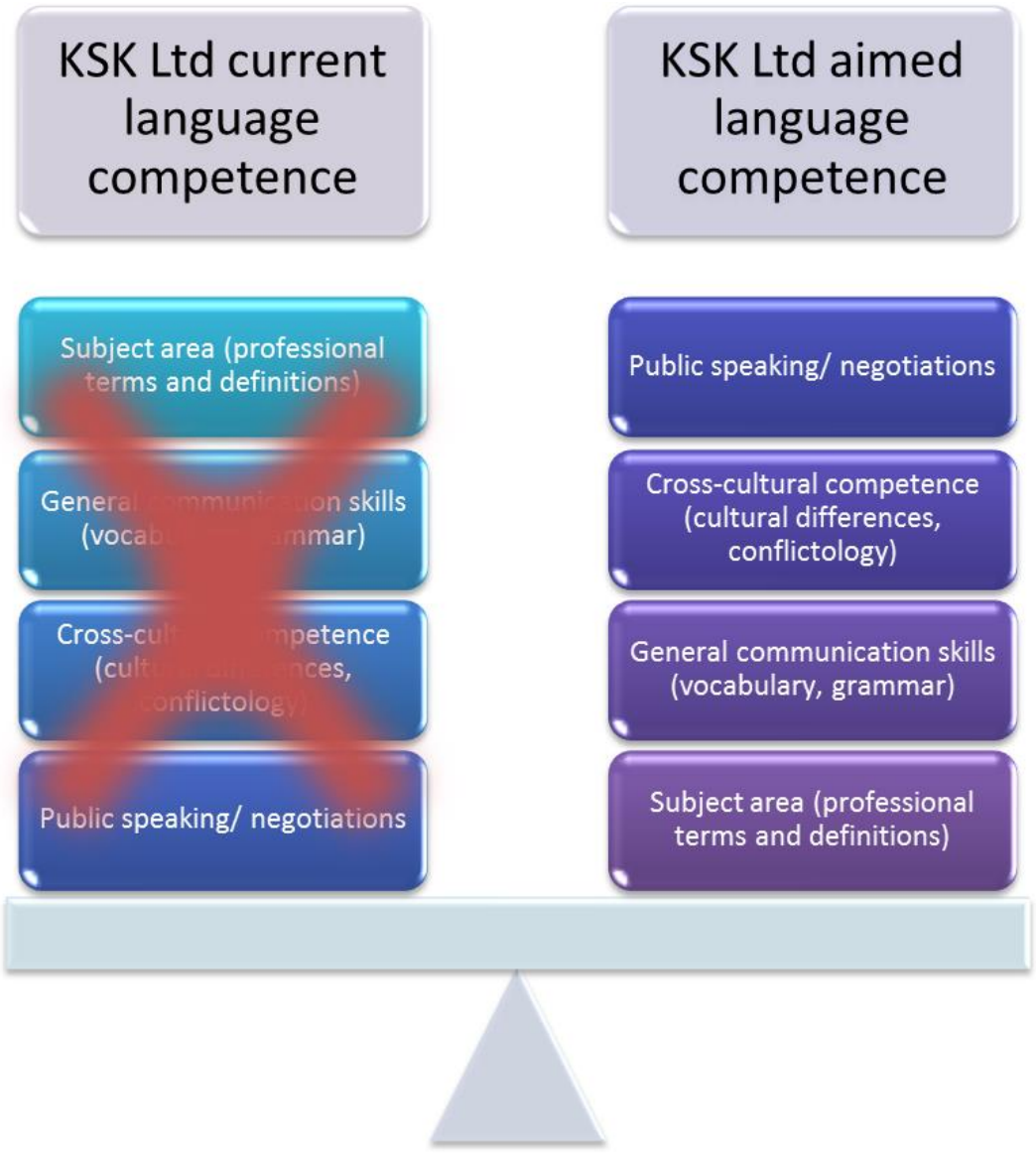

Figure 33. KSK Ltd current language competencies

HR component consists of five the main language competencies integrated in complex or individually depending on company resources and needs.

1. Subject area (terminology) course (80h) – when operating internationally the ability to operate with subject terms in foreign language is vital for successful business activities.

Terminology course includes multiply term bases such as:

- construction and installation works;
- repairs of residential, industrial and office space;
- logging;

- construction materials;
- concretes and mortars of various brands;
- concrete products;
- carpentry;
- lumber
- wall paneling, flooring, an imitation of timber, block house.

Term bases will be developed and updated in accordance with company requirements

2. General communication skills course is a basic component of language management strategy for field specialist with lack, basic and intermediate knowledge of operating language (80h)

3. Cross-cultural competence is a multilevel structure, which includes various subcomponents such as conflict management, cultural diversity and many more.

Cross-cultural competence is a relatively new knowledge area for Russian companies where business has been operating within one country with its numerous nationalities over decades. Despite of multinational society business approaches within the Russian Federation borders and in former Soviet Union countries remain mostly similar due share of common culture, language and values. However since Russian companies began operating on the global market it is necessary to operate in accordance with international rules and to consider culture differences while doing business.

4. Public speaking/conferencing – is a component applied for companies with necessity to present production and researches at scientific and business conferences (80h).

5. Negotiations with foreigners – is a comprehensive program, which includes negotiation specifics in the country of operation along conflict management and communication skills (80h).

Recommendations aim to increase efficiency of international business operations and as the result to boost company's income. More detailed information about language management strategy implementation terms is available through your LM specialist.

5.2 Suggestions for future research

Implementation of the research allowed extraction of new terms such as language management, language management strategy, human resource component, technological component and as the result developed into the concept of Language Management Strategy aimed to improve efficiency of language related international business communication through application of both communication technologies and human resources with their language competencies for any company operating abroad.

A further study with more expanded samples is therefore suggested. Size of the sample allowed development of core ideas how efficiency of communication can be improved yet it was not possible to investigate the significant relationships of communication technologies and human resources with their language competencies further because the sample size was too small.
Current studies have important implications for further research and developing of language management strategy guidelines and subsequently distribution of findings among small and medium-sized enterprises.

This observation supports the idea that both technological advances and human recourses with their language competencies are essential for efficient international business communication and it is practically the first stage of more deep and thorough research of language management strategy components and tools.
Directions of further research:

1. Sample size expansion with the purpose of rise in credibility and deeper understanding of wider range of tools aimed on efficiency of international business communication in the field of language.
2. Development of language competence courses content in Finnish, Russian and English:

-Subject area (terminology);

- General communication skills;
- Cross-cultural competence;
- Public speaking/Conferencing skills;
- Negotiations with foreigners.

3. Development of translation software packages with teaching and practical trainings included.

Realization of the further research depends on companies' interest in the subject, for project implementation will require time and financial insects.

6 DISCUSSION

In this chapter the targets, achievement of them and process are being analyzed by the author.

The aim of the discussion is to evaluate efficiency of implemented research and the possible ways of improvement for future researches. The discussion begins with preparation stage, where all necessary information was collected, followed by method that was used to attract participants to get involved in the process of strategy development, continued by differences and similarities among Finnish, British and Russian participants and their attitude towards brand new research and concluded by development of new concept of Language Management strategy aimed to improve efficiency of international business operations on the global market.

Based on secondary material analyzed it became possible to design questionnaire containing inquires about all language related area of international communication components and aimed to define whether and in which extent human resources prevail over technologies in international business communication.

The subjects were selected on the basis of geographical location and size of enterprise. A small sample was chosen because of the expected difficulty of obtaining information which could be out of access along with geographical remoteness, for most of participants located far from the place of implementation, hence access to participants was limited. Questionnaire was preferred to interview on the basis of geographical remoteness as well.

Contact information about companies suitable for survey was collected by means of JAMK, JYKES, Southampton Solent University, East Consulting Oy, Severstal and Moskow University of Humanities. Besides that, some companies were found in Linkedin network.

At first, invitation to fill a questionnaire form in didn’t gain enough interest due to obvious reasons. One of them was lack of time and interest; another was lack of knowledge about the subject and particular translation software that was applied in company. To make participation more attractive was

developed a leaflet with brief explanation of each type of translation software along with latest software products prior to 2015. Providing companies with a tangible product caused intense reaction and helped to reach necessary numbers.

Leaflet was evaluated by participants as a useful product that provided them with new up-to-date information about ways to increase efficiency and volume of materials translated. Some companies have requested to provide them with more detailed information about results extracted from analysis. One example of such analysis will be presented in ‘Recommendations’ section.

The project used a convenience sample of 29 SME’s from 3 countries: Finland, Britain and Russia. Of the initial amount 10 were Russian, 10 Finnish and 9 British small- and medium sized enterprises.

One unanticipated finding was that after spreading leaflet amount of responses from Russia tripled immediately, while some increase in numbers was determined among Finnish companies. However no increase in interest had been noted among British companies. The possible explanation for that might be availability of all sorts of information related to international communication field within British companies, therefore, another additional material wasn’t something worth of paying attention to.

Contrary to expectations, this study did not find a significant difference between the way Finnish, British and Russian companies deal with international business operations, as they all are forced to operate in accordance with the same rules and requirements that apply on the global market. However, interesting differences were eliminated in the way companies prepare themselves to operate in the international arena. Based on findings were developed guidelines for companies aimed to increase efficiency of international business activities: Language management strategy.

It is necessary here to clarify exactly what is meant by language management, which is complex of activities aimed on enhancement of international operations efficiency via language qualities/services refinement, commonly used for business interaction with foreign clients, partners and includes use of technologies along with human resources.

This system of classification includes two main components – translation technologies and human language competencies and is applied in context of international business activities, yet might be applied in other fields where intercultural communication is involved. Both components were thoroughly explored and structured in accordance with research purposes. To better understand the mechanisms of Language Management, was classified 7 types of translation software and 3 types of human resources involved in all communication related operations among companies. The research wasn't aimed on development of a new concept but only to define if technologies prevail over human resources in international business communication and to create a way to improve language related area of international business communication among SME's. Nevertheless altogether findings formed the whole concept of how efficiency of language related area of business communication might be improved through full-scale use of both translation software and human language competencies.

A summary of the main findings and of the principal issues and suggestions which have arisen in this discussion are provided in the next chapter.

Credibility of the research

Credibility involves establishing that the results of research are credible or believable. It might be hard to ensure that qualitative research is accurate and correct, therefore it is necessary to take 4 aspects based on which credibility can be proved (Shenton 2004, 63-67).

With a small sample size, caution must be applied, as the findings might not fully catch all similarities that cultures share when operating abroad. However, in spite of small size of sample, similarity of results in each country demonstrates high possibility that results apply to majority of SME's operating within global trade. Moreover individuals to whom results were presented noted high credibility of the results provided.

Analyzed data is based on excel, and google forms, which were later extracted into transcriptions. All methods and techniques are thoroughly explained by means of charts, schemes and an example of application of methods which allows transferability of the research.

Dependability is ensured by separately developed language management strategy guidelines which enable external researchers to repeat inquiry along with detailed explanation of how the research is conducted, analyzed and presented.

This method of research might have language limitation, for survey is implemented in English as it perceived to be the main operational language. However English wasn’t mother language for majority of participants which might result in misinterpretation.

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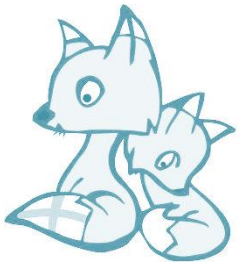
APPENDICES

Appendix 1. Language management strategy brief



Language management strategy brief

Language management strategy is an essential tool for successful business operations within global trade. Applied by companies with clear LM vision and strategies on the global market it enables confident and consecutive business tasks implementation.

Language management strategy *is a complex of activities aimed on enhancement of international operations efficiency via language qualities/services refinement, commonly used for business interaction with foreign clients, partners and includes technologies along with human resources* (Ristikartano 2015).

Based on many-sided researches was determined and defined two the main components of LM strategy:

1. Language software component – is numerous types of translation, interpretation software developed to increase efficiency of human activities or even replace humans in the process of international communication within business.

2. HR component – is a numerous types of human language related activities that company applies for international communication within international business operations

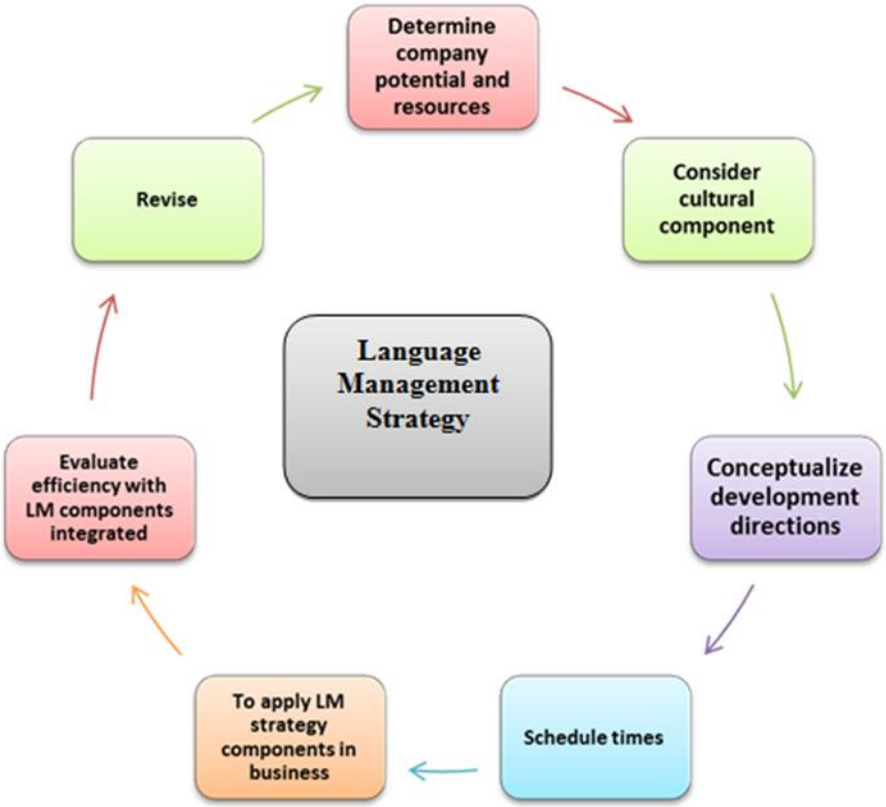
Language software component contains of seven main types of software which differs in functional spectrum and fields of application.

	Software type	Functional spectrum	Area of application	Installation area
1.	Translation memory	Collection, reuse of terms and phrases ever translated before on-premises	Documents	Operating system on-premise
2.	Information extraction	Subject related data collection from WEB and documents	Web, documents	On-premise and cloud based solutions
3.	Text analyzing	Analysis of business hypotheses based on data extracted from web and docs	Web, documents	On-premise and cloud based solutions
4.	Web content translation	Automated translation of Web content	blogs, posts, articles, web pages	On-premise and cloud based solutions
5.	Dictionaries	Translation of words and phrases	Web, documents	On-premise and cloud based solutions
6.	Visual translation	Visual translation of words and phrases	Web documents	Integrated device
7.	Intelligent email management	Email sorting and response generation	Emails	On-premise

HR component **consists of five the main language competencies integrated in complex or individually depending on company resources and needs.**

	Language competence	Content
1.	Subject area (terminology)	Professional field related term, acronyms and definitions
2.	General communication skills	Casual vocabulary, grammar basics
3.	Cross-cultural competence	Cultural diversity, conflictology
4.	Public speaking/conferencing	Statement preparation and presentation, interaction with audience
5.	Negotiations with foreigners	International negotiations structure

Language management strategy implementation scheme



The chart above shows language management scheme that has to be applied in the company aimed to upsurge efficiency of international business activities.

Appendix 2. Content of the questionnaire (students and educators)

Language management strategy

This questionnaire is aimed on elimination of language related disadvantages in international business operations of the company.

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Basic info

BASIC INFO

***1. Name of the company**

***2. Headquarters and central office**

***3. Operating in foreign countries(which):**

***4. Business segments within global trade**

***5. Business segments within global trade** *(Description of international business operations where language management strategies are applied/required)*

***6. Contact details** *(Responsible representative of the company: email; phone; other necessary data)*

Language management strategy

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Language management software

7. Can you determine the share of translation/interpretation software and human translators/interpreters in your language related international business activities? (Out of 100% what is the share of each)

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Translation/interpretation software *(dictionaries, web content translation tools, translation memory etc.)*	○	○	○	○	○	○	○	◉	○	○	○
Human translator/interpreter services *(field specialists with language competences, job placement for language specialists, outsourcing services to agencies)*	○	○	○	◉	○	○	○	○	○	○	○

8. What language technologies does your company use (if any) when operates with foreign companies/documents? (multiply selection allowed)

- ☐ Translation memory software (collection and reuse of all terms and phrases ever translated before): SDL, Across, TRADOS etc.
- ☐ Information extraction software (collection of required data from WEB and documents): Datacrops, Visual Web ripper, 80legs etc.
- ☐ Web content translation tools (automated translation of blogs, posts, articles, web pages): Reverso, Systran, Bablefish etc.
- ☐ Text mining, analyzing tools (analysis of business theories/hypotheses based on data extracted from web and docs): Provalis research, Gate, LPU, Orange text etc.
- ☐ Dictionaries (on-premise or online): One look dictionaries, Cambridge, Dictionary.com, Merriam Webster, World assault etc.
- ☐ Intelligent email management (email sorting and response generation): KANA, Siebel email response etc.
- ☐ Visual translation: google glasses etc.
- ☐ Other

[ ]

Language management strategy

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Human resources

9. What software does your company use?

Translation memory *(storing what previously has been translated within the program using a method of capturing, storing and reusing translations)*

Information extraction software *(applied separately by enterprises to get facts out of unstructured information. These programs can extract information like names of people, locations, organizations and establish connection between them.)*

Web content translation tools *(provides translation services, a dictionary, spelling services and the ability to check the work for grammar errors online.)*

Text mining/ text analysing tools (*concern encountering structure and patterns in unstructured material – mostly text data: from the web, books and comment fields.)*

Dictionaries *(on-premise or online)*

Email management software*(enterprise solutions that fully automate the process of capturing, analyzing, documenting, translating and interpreting, routing and prescribing responses.)*

***10. Due to nature of your international business activities can you fully rely on technologies when the company operates internationally? Why?** Can technologies replace human resources in the nearest future; can it interpret cultural or contextual references, the tone of the text, specific expressions, slang, familiar language. (State your case in details)

Human resources

11. When operating internationally your company uses?

- ☐ Outsourcing services to translation/ interpretation agency
- ☐ Permanently employed translators/interpretators as a staffman
- ☐ Field specialists with language competencies

Language management strategy

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12. Determine the share of each type of these language management instruments in your international business activities? (Out of 100% what is the share of each)

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Outsourcing services to translation/interpretation agency	○	○	○	○	○	○	○	○	○	○	○
Permanently employed translators/interpreters as members of staff	○	○	○	○	○	○	○	○	○	○	○
Field specialists with language competencies	○	○	○	○	○	○	○	○	○	○	○

Human resources

13. Which language competencies are the most important when your company operates internationally:

- ☐ Subject area (professional terms and definitions)
- ☐ General communication skills (vocabulary, grammar)
- ☐ Cross-cultural competence (cultural differences, conflictology)
- ☐ Public speaking/conferencing
- ☐ Negotiations with foreigners
- ☐ Other language related competencies

14. Does the company arrange in-service trainings in the following language competencies:

- ○ Subject area (professional terms and definitions)
- ○ General communication skills (vocabulary, grammar)
- ○ Cross-cultural competence (cultural differences, conflictology)

Language management strategy

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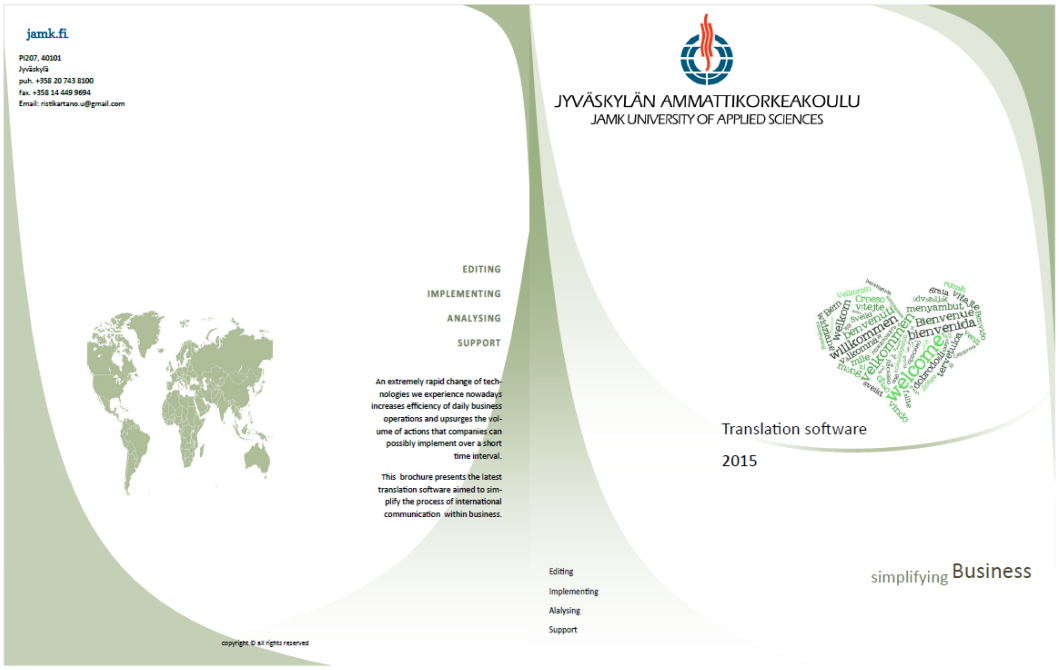
- Public speaking/ conferencing
- Negotiations with foreigners
- No, we don't
- Other method of language competence enhancement

15. Due to nature of your international business activities can you fully rely on human resources without technologies assign to it when the company operates internationally? Why? (State your case in details)

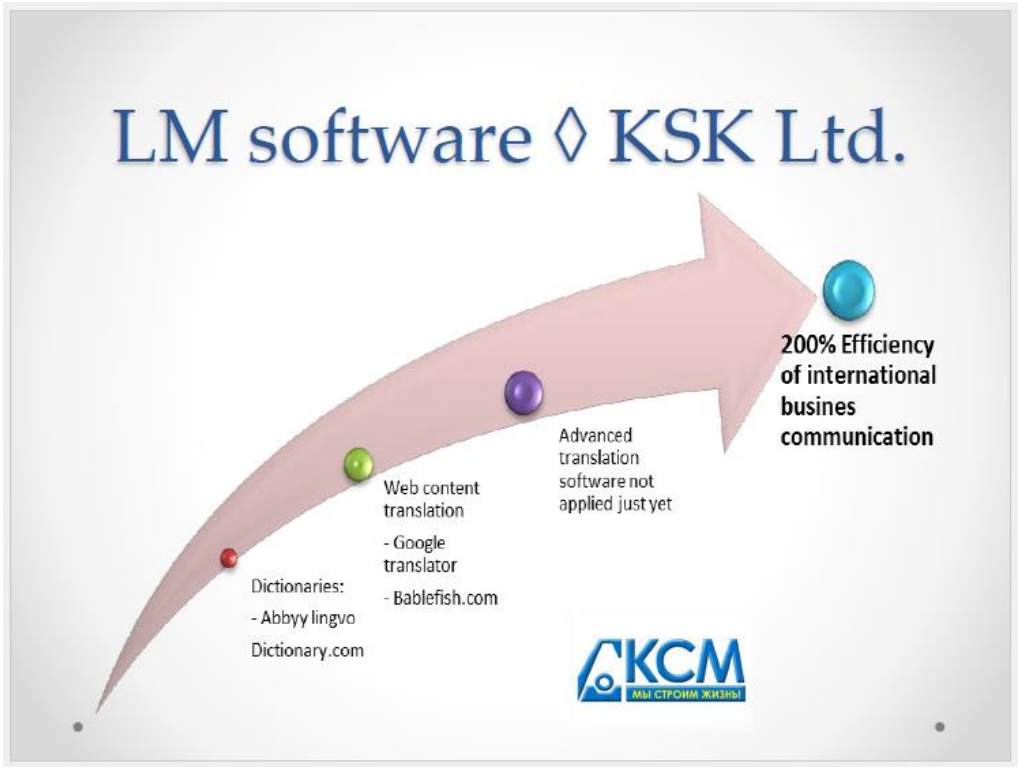
Thank you! We will contact you soon

Appendix 3. Language management technologies 2015

(For companies participants)



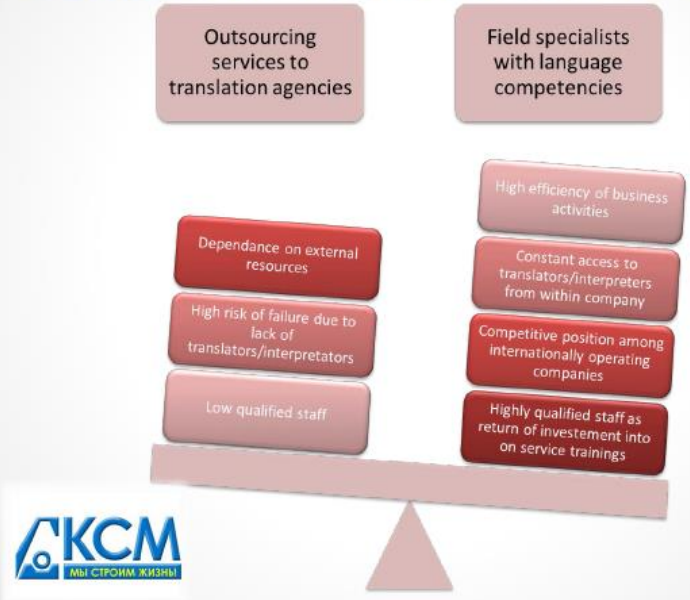
Appendix 4. LMS guidelines for KSK Ltd. (Presentation)



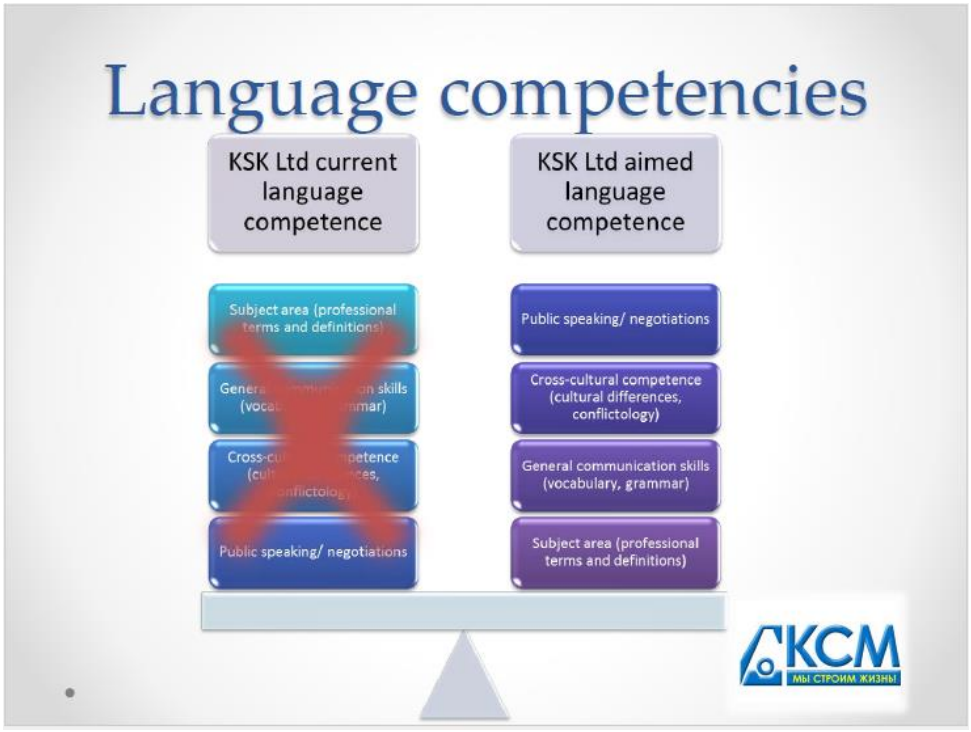
LM software courses:

- 0. Review of translation software
- 1. Translation memory translation course (24h)
- 2. Information extraction tools (24h)
- 3. Text analyzing tools (24h)
- 4. Web content translation tools (24h)
- 5. Dictionaries (24h)
- 6. Visual translation (24h)
- 7. Intelligent email management (24h)

Human resources ◊ LM



KCM
МЫ СТРОИМ ЖИЗНЬ


Language competencies
KSK Ltd current language competence
KSK Ltd aimed language competence
Subject area (professional terms and definitions)
Public speaking/ negotiations
Cross-cultural competence (cultural differences, conflictology)
General communication skills (vocabulary, grammar)
Public speaking/ negotiations
Subject area (professional terms and definitions)
KCM
МЫ СТРОИМ ЖИЗНЬ