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D6.2: Second update on dissemination and exploitation plan

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	Ludwig-Maximilians-Universitaet Muenchen (LMU-MUNICH), Germany	
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1 Introduction

As the project moves into its second half, this deliverable aims to list all activities that were performed to raise awareness of the project and also look at the ways that will be used for marketing the technologies developed within the project. All partners have participated in these activities. This deliverable will give detailed information on all activities we have realized and we plan to undertake. This deliverable features two main parts; the first one refers to the dissemination activities we have already realized and we will maintain and second one provides an update of the exploitation plan.

2 Dissemination

All activities completed had a simple aim – to raise the awareness of the project methods used when trying to achieve better results in MT or were project results themselves. As outlined in the Description of Action and later in the First Dissemination and Exploitation update we used all suitable channels and approaches to address both the academic/research and commercial audience. The diverse nature of the project partners determined the selection of different dissemination channels. Academic partners (UEDIN, CUNI, LMU) mostly attracted the attention of academic audiences because of their papers and attendance of conferences and workshops while the other partners (NHS24, Cochrane and Lingea) disseminate the results especially among their content partners, customers, teams and funders via their usual marketing channels, such as their websites, newsletters, meetings, social media, etc. As each of the partners operates and cooperates in different countries, we can ensure targeting is not only on the national but also on European and global levels.

- CUNI attended relevant conferences, seminars and workshops, published research results relevant to the project and provided contacts for relevant academic dissemination channels.
- UEDIN attended relevant conferences, seminars and workshops, published research results relevant to the project and provided contacts for relevant academic dissemination channels.
- LMU attended relevant conferences, seminars and workshops, published research results relevant to the project and provided contacts for relevant academic dissemination channels
- NHS24 promoted the project on its websites, NHSinform and NHS24 and has included presentations on HimL during its partner and stakeholder meetings.
- COCHRANE is using its social media channels (Twitter and Facebook), newsletters (Cochrane Community, Cochrane Connect, regional newsletters), and its websites. The project also benefits from a strong emphasis on communities – presented papers on both Cochrane annual conferences and relevant regional meetings. Activities aim to maximize access in non-English speaking countries.
- LINGEA coordinated the entire dissemination part, designed new project website, produced and promoted newsletters and also ensured that all information is available and updated on the project´s website. They provided relevant dissemination and marketing channels (e.g. relevant partners meetings and customers, websites, etc.) to ensure the strongest impact possible.

2.1 Completed activities

2.1.1 Logo

Early on in the project, a project logo was created, to assist with brand recognition and to be displayed prominently on the website and in all project related materials that are used for presentation purposes, e.g. leaflets, presentations, etc.

2.1.2 Website

At the beginning of the project, a simple website was created containing all relevant information about the project, such as News, Partners, People, Related Projects, Publications, Newsletters, Deliverables and Contact information. During the project we redesigned the website with one main aim – to make it easier to understand for people who want to get involved or get more detailed information about the project.

Besides finding information about the project via the website, people can use two other ways to get involved - subscribe to the HimL newsletter or become a member of the HimL user group. We also added Google Analytics so we can track which channels are the most effective in bringing people to the website and which content is the most visited.

2.1.3 Newsletters

We prepared 5 newsletters covering the news and progress in the project, informing about our presentations and goals achieved in the field of machine translation. All newsletters are downloadable on the website and being promoted via LinkedIn groups which are related to the topic of MT.

2.1.4 Social media – LinkedIn

To promote our results, we use mainly LinkedIn groups to promote our results, such as *Machine Translation*, *Automated Language Translation (MT/Machine Translation)* and *Post Editing Machine Translation*. Thanks to professional LinkedIn groups, we can reach our audience immediately. This channel helps us to get HimL results across to people interested in MT and to potential customers and researchers.

2.1.5 Flyers

Several versions of flyers were created and some also translated into the HimL languages. They vary graphically and the content is also adjusted depending on the target audience. In addition they all contain information about its financing by the EU grant, the partners involved as well as contact information.

2.1.6 Publications

During both of the project years, the project partners have presented several papers at conferences and workshops related to MT all over the world. They are all available to the public on the HimL website under section Publications http://www.himl.eu/publications . Here is a list in chronological order:

Table 1: Publications

Location	Proceedings	Title	Participant
May, 2015, Antalya, Turkey	EAMT 2015	Target-side Generation of Prepositions for SMT	LMU
June 2015, Denver,	9thWorkshop on	Predicting Prepositions for SMT	LMU

Colorado, USA	Syntax, Semantics and Structure in Statistical Translation at NAACL	(extended abstract)	
June 2015, Denver, Colorado, USA	11thWorkshop on Multiword Expressions at NAACL	How to Account for Idiomatic German Support Verb Constructions in Statistical Machine Translation	LMU
June 2015, Denver, Colorado, USA	Extra-Propositional Aspects of Meaning (ExProM) in Computational Linguistics Workshop	Translating negation: A manual error analysis	UEDIN
July 2015, Beijing, China	19th Conference on Computational Natural Language Learning (CoNLL)	Labeled Morphological Segmentation with Semi-Markov Models	LMU
July 2015, Stroudsburg, Pennsylvania, USA	4th Workshop on Hybrid Approaches to Translation (HyTra)	What a Transfer-Based System Brings to the Combination with PBMT	CUNI
September 2015, Lisbon, Portugal	10thWorkshop on Statistical Machine Translation (WMT)	CimS - The CIS and IMS Joint Submission to WMT 2015 addressing morphological and syntactic differences in English to German SMT	LMU
September 2015, Lisbon, Portugal	10thWorkshop on Statistical Machine Translation (WMT)	Results of the WMT15 Metrics Shared Task	CUNI
September 2015, Lisbon, Portugal	10thWorkshop on Statistical Machine Translation (WMT)	Results of the WMT15 Tuning Shared Task	CUNI
September 2015, Lisbon, Portugal	10thWorkshop on Statistical Machine Translation (WMT)	CUNI in WMT15: Chimera Strikes Again	CUNI
September 2015, Lisbon, Portugal	10thWorkshop on Statistical Machine Translation (WMT)	Edinburgh's Syntax-Based Systems at WMT 2015	UEDIN
September 2015, Lisbon, Portugal	10thWorkshop on Statistical Machine Translation (WMT)	The Edinburgh/JHU Phrase-based Machine Translation Systems for WMT 2015	UEDIN
September 2015, Lisbon, Portugal	Conference on Empirical Methods in Natural Language Processing (EMNLP)	Joint Lemmatization and Morphological Tagging with Lemming	LMU
September 2015, Lisbon, Portugal	Conference on Empirical Methods in Natural Language Processing (EMNLP)	Rule Selection with Soft Syntactic Features for String-to-Tree Statistical Machine Translation	LMU
September 2015, Lisbon, Portugal	Conference on Empirical Methods in Natural Language Processing (EMNLP)	A Joint Dependency Model of Morphological and Syntactic Structure for Statistical Machine Translation	UEDIN

October 2015, Miami, Florida, USA	MT Summit	Mixed-Domain vs. Multi-Domain Statistical Machine Translation	UEDIN
October 2015, Vienna, Austria	23rd Cochrane Colloquium	Health in my language: health domain adapted machine translation as a means to tackle the resource issues for translation	Cochrane
May 2016, Portorož, Slovenia	10th International Conference on Language Resources and Evaluation	If you even don't have a bit of bible: Learning delexicalized POS taggers	CUNI
August 2016, Berlin, Germany	54th Annual Meeting of the Association for Computational Linguistics	Target-side context for discriminative models in statistical machine translation	LMU
August, 2016, Berlin, Germany	First Conference on Machine Translation	CUNI-LMU submissions in WMT2016: Chimera constrained and beaten	CUNI, LMU
August, 2016, Berlin, Germany	54th Annual Meeting of the Association for Computational Linguistics	Neural networks for negation scope detection	UEDIN
August, 2016, Berlin, Germany	First Conference on Machine Translation	A framework for discriminative rule selection in hierarchical moses	LMU
August, 2016, Berlin, Germany	First Conference on Machine Translation	Modeling verbal inflection for English to German smt	LMU
August, 2016, Berlin, Germany	First Conference on Machine Translation	Modeling complement types in phrase-based smt	LMU
August, 2016, Berlin, Germany	First Conference on Machine Translation	Using term position similarity and language modeling for bilingual document alignment	CUNI
August, 2016, Berlin, Germany	First Conference on Machine Translation	Results of the WMT16 metric shared task	CUNI
August, 2016, Berlin, Germany	First Conference on Machine Translation	Results of the WMT16 tuning shared task	CUNI
August, 2016, Berlin, Germany	First Conference on Machine Translation	Cross-lingual pronoun prediction for English, French and German with maximum entropy classification	UEDIN
August, 2016, Berlin, Germany	First Conference on Machine Translation	Linguistic Input Features Improve Neural Machine Translation	UEDIN
August, 2016, Berlin, Germany	First Conference on Machine Translation	Edinburgh Neural Machine Translation System for WMT 16	UEDIN
August, 2016, Berlin, Germany	First Conference on Machine Translation	The Edinburgh/LMU Hierarchical Machine Translation System for WMT 2016	UEDIN
August, 2016, Berlin, Germany	First Conference on Machine Translation	The QT21/HimL Combined Machine Translation System	CUNI, LMU, UEDIN
August, 2016, Berlin,	First Conference on	Edinburgh´s Statistical Machine	UEDIN,

Germany	Machine Translation	Translation System for WMT16	CUNI
October, 2016, Seoul, South Korea	30th Pacific Asia Conference on Language, Information and Computation	Planting trees in the desert: Delexicalized tagging and parsing combined	CUNI
October, 2016, Seoul, South Korea	24th Cochrane Colloquium	Health in my Language: evaluation of health domain adapted machine translation for Cochrane Reviews	Cochrane
November, 2016, Austin, Texas, US	Empirical Methods for Natural Language Processing	Hume: Human UCCA-based evaluation of machine translation	UEDIN, CUNI
December, 2016, Seattle, Washington, USA	Proceedings of IWSLT	A Neural Verb Lexicon Model with Source-side Syntactic Context for String-to-Tree Machine Translation	UEDIN

2.1.7 Other events and publications

All partners have been involved in dissemination of project results. Besides presenting papers on conferences we also presented to potential customers on Fair Trades, conferences, etc.

Table 2: Other events and publications

Event	**Date**	**Target group**	**Dissemination manner**	**Participant**
Seminar on Institute for Language, Cognition and Computation	February 2015, Edinburgh	mostly academic	invited talk	CUNI
Meta Forum	April 2015, Riga	researchers, commercial technology providers, private and corporate language technology users, language professionals and other information society stakeholders	poster	UEDIN
Prague computer science seminar	April 2015, Prague	mostly academic	lecture	CUNI
EAMT "project village"	May 2015, Antalya	machine translation related companies	poster	LMU
Medical Fair	October 2015, Brno	healthcare companies and organizations	oral presentation, leaflets distribution	Lingea
The Prague Bulletin of	October 2015, Prague	mostly academic	bulletin	CUNI

Mathematical Linguistics				
Lecture notes in Computer Science	Prague	mostly academic		CUNI
MetaForum	July 2016, Lisbon	mostly academic	flyer	Lingea
FINMT 2016	September 2016, Helsinki	mostly academic	invited talk	UEDIN
Proposals Day	October 2016, Bratislava	commercial subjects	individual meetings	Lingea, CUNI
Frankfurt Book Fair	October 2016, Frankfurt	Linguistic publishing houses	Individual meetings	Lingea

2.1.8 Results achieved

Thanks to the activities so far conducted, we have managed to make all relevant information available and easy to access. By using the best channels we were able to reach the right communities and potential customers. Our results were presented at conferences all over the world so the reach can be considered very wide and strong and we have raised both academic and public awareness of the project results.

2.2 Activities to be delivered

For the next part of the project, we plan to maintain the current channels as we have found them effective, especially attending events and conferences and using social media for promotion. We will also run a seminar on automatic machine translation for medical informatics audience.

HimL partners will keep on using their own marketing channels (e.g. digital advertising, newsletter, blogs, meetings, network of contributors, etc.).

NHS 24 is planning to disseminate HimL results via its own channels, such as:

NHS 24 Partner Engagements – NHS 24 has an established network of partners who provide content to the Health Information Service (HiS) for publication on NHSinform and other related platforms. NHS 24 HiS team will promote and highlight HimL results to its content partners at appropriate content review meetings. This will be a soft, opportune and less targeted approach.

HimL-Specific Meetings - establish a network of suitable contacts to arrange specific meetings with the partners to discuss how Himl can benefit them and their service users. This will provide a targeted approach with a focus on HimL specifically.

NHS 24 Stakeholder Engagements - NHS 24 HiS attends in excess of 70 public events each year, with an estimated reach of 30,000 people. There is normally a theme at such events, or a focus on a service and this would be an ideal opportunity to promote HimL to the public and promoters, who could utilize the end product to increase inclusion. With a continual challenge as an organization to provide our information in alternative formats, 2017 sees a specific focus for NHS 24 information to become more accessible. This will bring increased engagement with groups/organizations that may benefit from HimL and provides an opportunity for promotion of the end product.

NHS 24 Public engagement activities - NHS 24, as well as providing unscheduled out of hours services, provides many other services such as NHS Inform, Breathing Space, Living Life and Fit for Work. The combined engagement activity and reach of these is considerable, and the opportunity for promotion of HimL should be exploited, as each of these services has specific partners and contacts, that would be too difficult to engage with individually. Activity will be undertaken to map and link with the key engagement leads for these services to progress this activity.

Cochrane will use their online marketing channels (such as Social media, newsletters, websites) for informing the general public and their annual meetings where relevant partners will be informed about all the benefits this project brings to them.

Lingea will maintain all the existing channels and will coordinate all the activities. Also they will start a promotion campaign in their offices in Central and East Europe by creating supporting material and starting negotiation amongst their customers.

3 Exploitation

Technologies developed within the HimL project are able to ensure the translation of health related content on partners´ (Cochrane and NHS24) websites with high accuracy. This translation technology is integrated into partners´ websites CMS and brings them significant translation time and cost savings. The accuracy is assured by relevant training data gained from our partners and by academic research testing the best approaches known in the field of machine translation.

There are several very different and individually developed technologies (in most cases mutually dependent) that can't be separated (but in some cases could be replaced) but all together form the final solution.

3.1 HimL technologies

So which technologies are HimL related (created via HimL project) and which had existed before independently on the project but were used in it? We provide a list of backgrounds and technologies which are crucial to this project to give a better idea of the answer to this question. Technologies which will (or will not) be exploited and under what conditions (or why not at all) are listed in Table 3.

3.1.1 Background

There are some data or technologies which are used in HimL project but were developed independently or as a part of different project and/or are available and usable for our purposes. Data we use for training and testing are also mentioned.

Table 3: Background

Name	OWNER	CONSTRAINTS	LICENSE
Free data	-	Specific for each data piece	Specific for each data piece
Cochrane data	Cochrane	May not, without prior written agreement, be used by any third party, and neither their outputs nor the data	Terms and Conditions of Use apply, see http://onlinelibrary.wile

		derived therefrom may be used or published beyond the agreed Consortium activities.	y.com/termsAndConditions
NHS24 data	NHS24	May not, without prior written agreement, be used by any third party, and neither their outputs nor the data derived therefrom may be used or published beyond the agreed Consortium activities.	Material may be used freely for personal, research, and/or scientific purposes only. No part of this material may be copied, downloaded, stored in a retrieval system, or redistributed for any other purpose without identifying where this information has come from. You may modify the material and create derivative works provided that you identify the original source and state what you have changed. You may use and distribute the modified material and derivative works for use in the training of language technologies, for example machine translation. You may distribute the trained language technologies, provided that the original text in the material cannot be recovered from these.
Moses	UEDIN		Lesser general public license
Depfix	CUNI		GPL 2
TectoMT	CUNI		GPL 2
SMOR	IMS of the University of Stuttgart		SMOR is freely available for non-commercial purposes such as research, education, and evaluation. Before using SMOR for commercial purposes, you must purchase a license.
Charniak Parser			Apache License, Version 2.0
Wapiti toolkit	CNRS		BSD Licence

3.1.2 Results

The individual results were developed by different partners. For all results, there is other relevant information provided in each chart. When developing any solution using any of HimL technologies, we will have to take into consideration the dependencies and the constraints before using them.

Table 4: Results

Y1 system for encs	
Owner	UEDIN
Description	Translation system for English-Czech, tuned to medical domain. Consists of models and decoder.
Depends on	Moses
Exploitation	Could be used for translating similar data
Own constraints/license	Used data from UMLS. The data itself is not included in the system, but were used to train the models.

Y1 system for enpl	
Owner	UEDIN
Description	Translation system for English-Polish, tuned to medical domain
Depends on	Moses
Exploitation	Could be used for translating similar data
Own constraints/license	-

Y1 system for enro	
Owner	UEDIN
Description	Translation system for English-Romanian, tuned to medical domain
Depends on	Moses
Exploitation	Could be used for translating similar data
Own constraints/license	-

Y1 system for ende	
Owner	UEDIN
Description	Translation system for English-German, tuned to medical domain
Depends on	Moses
Exploitation	Could be used for translating similar data
Own constraints/license	Used data from UMLS. The data itself is not included in the system, but were used to train the models.

Y2 system deployed for Cochrane – server part	
Owner	Lingea
Description	All parts of the running system
Depends on	Y2 system for encs, ende, enpl, enro, MTA Y2
Exploitation	exploitable for projects with similar domain
Own constraints/license	-

Y2 system deployed for Cochrane – client part	
Owner	Cochrane
Description	Archie module
Depends on	-
Exploitation	No plans for exploitation, other than using it internally
Own constraints/license	-

Y2 system deployed for NHS24 – server part	
Owner	Lingea
Description	All parts of the running system
Depends on	Y2 system for encs, ende, enpl, enro, MTA Y2
Exploitation	exploitable for projects with similar domain
Own constraints/license	-

Y2 system deployed for NHS24 – client part	
Owner	NHS24
Description	PHP scripts for testing the interface
Depends on	NHS 24 – server part
Exploitation	No plans for exploitation
Own constraints/license	n/a

MTA Y1	
Owner	Lingea
Description	Machine translation adapter – set of PHP scripts
Depends on	Moses
Exploitation	Yes, in Lingea
Own constraints/license	proprietary, can be deployed only by Lingea unless agreed otherwise

MTA Y2	
Owner	Lingea
Description	Machine translation adapter – set of PHP scripts
Depends on	Nothing
Exploitation	Yes, in Lingea
Own constraints/license	proprietary, can be deployed only by Lingea unless agreed otherwise

Y2 system for encs	
Owner	CUNI
Description	Chimera system consists of TectoMT, Moses, Depfix
Depends on	free data, Cochrane data, NHS 24 data, CUNI data, Moses, Depfix, TectoMT
Exploitation	exploitable for projects with similar domain, may be used as base for other systems
Own constraints/license	-

Y2 system for ende	
Owner	LMU
Description	Two step system – set of scripts, binaries, data and models

Depends on	free data, Cochrane data, NHS 24 data, LMU data, Moses, SMOR, Charniak Parser, Wapiti toolkit
Exploitation	exploitable for projects with similar domain, may be used as base for other systems
Own constraints/license	-

Y2 system for enpl	
Owner	UEDIN
Description	Translation system for English-Polish, tuned to medical domain. Consists of models and decoder.
Depends on	Moses. NHS24, Cochrane and UMLS data used to build the system, but data is not recoverable from the system.
Exploitation	exploitable for projects with similar domain
Own constraints/license	Used data from UMLS. The data itself is not included in the system, but were used to train the models.

Y2 system for enro	
Owner	UEDIN
Description	Translation system for English-Romanian, tuned to medical domain. Consists of models and decoder.
Depends on	free data, Cochrane data, NHS 24 data, Moses
Exploitation	exploitable for projects with similar domain
Own constraints/license	-

A solution similar to that deployed for NHS24 and Cochrane may be the main exploitable product but there are also other project outputs we may be able to exploit. We can pick individual technologies and use them for creating or evaluating similar types of services or products where any translation is needed.

This will also give us more opportunities for finding more potential customers. By collecting the relevant data we will be able to customize translation to other fields, e.g. economy, law, industry, etc.

3.2 User-Needs Research

In November 2016, NHS 24 commissioned Progressive Research, a market research company based in Edinburgh to undertake a small piece of work to establish the requirements, going forward, for marketing HimL technology to the Polish and Romanian population in Scotland. The research concluded that a future staged approach should be undertaken consisting of:

- Desk research
- Stakeholder research
- Primary qualitative research

This staged approach research would provide clear guidelines on how to promote HimL to all potential users. The market research would also determine ways in which to overcome any barriers to usage and identify how to promote HimL to members of the community.

Building on the findings of the previous research, NHS 24 will initiate new market research to implement this staged approach and then better understand the requirements of the current Scottish Polish/Romanian population and how we can promote HimL to that population. This work will be progressed via a commissioned partner.

Table 5: Tasks to achieve identifying end user needs

Task	Deliverable Date/Timeframe
Identify meetings with partners/agencies where discussion of HimL is appropriate.	02-03/2017
Create resources for partners/agencies.	02-03/2017
Identify other partners where possible meetings can be arranged.	03-04/2017
Identify events in 2017 where HimL can be promoted and where there is an opportunity to be involved.	03-04/2017
Identify which promotional resources will be required for use at these events.	04/2017

3.2.1 Resources

3.2.1.1 Project summary

The project summary will provide information regarding the project's purpose, scope, aims and current progress. By providing a project summary, people/organisations can easily decide how HimL relates to them/their service and how they would like to be involved.

3.2.1.2 Posters and Flyers

As part of HimL engagement for Work Package 5 (Evaluation), NHS 24 and Lingea have created public posters, which describe HimL in 'layman's terms'. These posters have been translated from English to each target language (Polish and Romanian) and have proven successful particularly with the Polish population. Widespread usage of the posters and other related materials (such as leaflets) will allow for promotion and awareness rising of HimL and can be distributed within established HiS networks and at events easily.

3.2.1.3 Social Media

NHS 24 has several social media channels including Facebook and Twitter, which has a wide reach, available to anyone worldwide who can access it. These channels can be utilised at the appropriate time to advertise the end product.

3.2.1.4 Other Methods

A scoping exercise will be undertaken to identify other vehicles for awareness raising of the end product. This could include targeting voluntary community services e.g. youth clubs and statutory community services e.g. Benefits agencies.

3.3 Market opportunities

Regarding our initial research, we have created a list of potential customers/information providers/agencies, etc.:

- Health website content providers
- Health advice and information services
- Patient portals
- Health insurance companies
- Medical article databases
- Translation agencies
- Individual translators
- Commercial parties who could use HimL technology for their commercial use
- Academia interested in HimL results

Translation technology which will be able to provide accurate results in the field of medicine will be helpful for general users. This area is very special and delicate so people cannot only get along with Google translate or any other freely available software and there is no similar product on a market. Considering our market research, we can achieve a strong impact on these institutions/companies in need of translating large and domain specific texts.

New research will be conducted by NHS 24 and other partners, to identify the market opportunity for HimL translation tools. The most effective way appears in connecting this with the other wider research proposed.

Table 6: Tasks to identify New Market Opportunities

Task	**Deliverable Date/Timeframe**
Write Project Brief (Is there a market for HimL tools? What are the products and their benefits as we see them now - reduced translation costs, higher quality translation, correct use of medical terminology)	01/03/2017
Write potential research supplier questions and agree proposed evaluation scheme, for outcomes.	01/03/2017
Quick Quote procurement process (as per public sector guidelines)	01/03/2017 – 15/04/2017
Preferred supplier to run research	16/04/2017- 31/07/2017
Supplier Report on research outcomes	15/08/17
Analyse report	31/08/17
Write up for HimL final report	31/10/17
Cost	tbc

3.4 Business plan

Every customer has different needs so we will make personalized offers to better demonstrate the advantages of each solution. After evaluation is completed and we have it at our disposal, we can measure exactly the impact that the project had on our partners. The evaluation will form valuable collateral for all our exploitation activities, by providing supporting evidence for sales presentations..

Our presentations will be supported by:

- a video with a demonstration of the system which we created in the last months of the project
- a cost/benefit analysis from Cochrane and NHS24 which will demonstrate the degree of success of this cooperation
- on-line marketing campaign

A cost/benefit analysis will allow the project partners and stakeholders to see in real terms the benefit that HimL software could bring, compared to the cost of purchasing translation services (as done currently. The timesaving benefit could also be significant, as the ability of the system to translate large amounts of content quickly will mean that e.g. organisations do not have to wait for weeks and can translate health information in a short time. The scope and reach of the tool could be extended to translate other than health related content and become an attractive market offering to large organisations across the EU.

So far we have received several expressions of interest in such a solution from different types of customers – informative websites, commercial parties, governmental organization, etc. We will contact all these entities and organisations with the aim to prepare a customized solution which will best meet their needs.

We plan to start exploiting the results mainly in European countries (which also makes sense considering the HimL languages – Romanian, Polish, German and Czech). Thanks to constant language data development and active research in this field we assume that we will be able to widen the range of supported languages so we will be able to add Slovak or Russian for instance.

Lingea who will be responsible for commercializing the HimL results is a leading Central-European company in the area of language software and dictionary data development and publishing. Besides quality dictionaries, Lingea specializes in preparing and improving morphological data using it both for dictionary data and advanced full text search as well as MT development. Its products/services include a framework for rule-based translation, translation engine using evaluation of these rules, own corpora and continually updated bilingual dictionaries and language database and multilingual search. Lingea will promote and offer HimL technology based solutions within its traditional markets (in the Czech Republic, Slovakia, Poland and Romania).

We want to ensure that the work of HimL becomes sustainable and continues beyond the end of the EU co-financing. As this is a very specific product, it will be very different for every customer depending on the languages, integration or purpose. Despite that, it could be used in many ways

so there is not just one possible use or solution. Besides commercial use described below, Lingea will integrate the project results into its existing technologies and services which are currently under development. In particular it will be used for the development of:

- Automatic website/application translator
- CAT tool which will be accessible online for a certain fee depending on the amount of text with the possibility of post-editing and human evaluation

Another possibility is to incorporate a module using HimL technologies into existing CAT tools (e.g. Trados) which are widely used by translation agencies and individual translators.

Such a service can be further developed and used for more general or even highly technical medical texts in other specializations. It could be deployed for online translations of medical materials such as package inserts, medical equipment manuals, laboratory documents, medical reports and similar texts which constitute a major part of the overall volume of commercially translated medical texts.

HimL technology seems to be an ideal way of translation for medical documentation, clinical trials, reviews, scientific articles etc. Furthermore, there is another prospective area: translations of user manuals of medical or laboratory equipment (i.e. laboratory analysers, etc.) and PIs (package inserts) or SDSs (safety data sheets) of pharmaceuticals and laboratory reagents. The law in all European countries requires all manufacturers to provide this documentation in the official language of a given country. Consequently, all translation agencies, using MT technology specialized in medical texts, will immediately gain the competitive advantage over their rivals. The list of potential users may include both leading European translation agencies (ETC, ITC Global Translations etc.) and dozens of smaller agencies in virtually all European countries.

Pharmaceutical industry and IVD (in vitro diagnostic) industry: using HimL technology, specialized in medical texts, will result in faster, more convenient and cheaper translations of FAQ, user manuals, package inserts, safety data sheets and many other medical and healthcare-related texts. The volume of various documentations and texts to be translated into particular target languages by pharmaceutics is very high. Furthermore, there is an incessant demand for translations to be as fast and cheap as possible.

Cochrane plans to use the translation system themselves in their CMS and will cooperate while having the system tested. We will use their evaluation for the evaluation of project results.

NHS24 is aware that the population of Scotland becomes more diverse and the need for health information to be delivered in different languages has increased. This in turn increases pressure on organisations to provide information in alternative formats, increases inappropriate usage of services (e.g. attendance at GP surgery with possible interpreter, rather than having access at home to simple health information) and costs millions of pounds each year. They will realize several activities, such as:

- NHS 24 Stakeholder Engagement
- Website routine translations
- Ad-hoc requests for document translation

As mentioned previously, the reach at the events attended by NHS 24 HiS should allow us to reach a proportionate section of the population with a mix of public, private, third sector and health professional staff in attendance at each event.

- Direct contact with public agencies

In order to have the maximum amount of reach across the UK with an end product, a mapping exercise would be undertaken to identify the key personnel (e.g. equality and diversity) in UK wide organisations, who may have a need for but no knowledge of the end product.

  - NHS England Health Boards and Local Authority Partners
  - NHS Wales Health Boards and Local Authority Partners
  - Northern Ireland's 5 regional health and social care trusts
  - Ambulance Trusts
  - Scottish Ambulance Service (SAS)
  - NHS Special Boards and non-territorial health boards in Scotland
  - Health and Social Care Partnerships in Scotland
  - UK Government Agencies e.g. Border Patrol
  - UK Education Organisations (Universities, UCAS, Public Schools, Higher Education Colleges and establishments, etc.)
  - 3rd sector organisations e.g. Charities
  - Private Companies who engage with the relevant population

As the movement of people increases across the UK and more significantly across the EU, the requirement for the NHS across the UK to provide information in more alternative formats has meant that the use of translation services has increased significantly. In 2012, the estimated cost of translation fees in England alone was £23m. Third sector organisations also face pressure to provide information in alternative formats, with increased operational costs as a direct result.

3.5 SWOT analysis

To completely demonstrate the project benefits and all its advantages but also to show that we are also aware of possible threats we made a SWOT analysis:

3.5.1 Strengths

- Costs and time savings of translations
- Adaptable on different types of products (online translation services, offline software, CMS integration, etc.)
- Possibility to add other demanded languages and to extend the service
- No direct competition
- Many potential customers (B2B, B2C)
- Increased efficiency of communication between healthcare institutions/providers and the public

3.5.2 Weaknesses

- Deploying an individual CRM integration could be time consuming
- Adding new language pairs could be problematic because of the possibility that in some languages there are not enough high-quality parallel corpora

- Limited supported formats

3.5.3 Opportunities

- Become one of the most demanded translators
- Adaption to the latest trends in MT

3.5.4 Threats

- Unpredictable rate of development in the field of machine translation
- New competing businesses

As translation technologies continue to be on the rise, we will fully utilize all these strengths and will use these technologies for developing our own products and services and for providing customized solutions. We will have to ensure that we can provide such solutions to time and quality expected. Given that, the project developed technologies could be used by many people. Even though the rate of development in machine translation is unpredictable (especially new discoveries in the field of neural machine translation) we will follow the latest techniques and approaches to keep up with the competition.

3.6 Conclusion

There are numerous opportunities for assessing the scope and reach of the end product to all relevant user groups. The time available should be focussed on the above items to ensure that the maximum benefit can be gained given the time and resources spent. An opportunity exists for future scoping of wider markets.