

SMALL GLOSSARY OF TECHNICAL TERMS FOR ENGLISH-POLISH-SPANISH-LITHUANIAN LANGUAGES

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Abstract

Languages can help people to understand each other but, sometimes, they might be a barrier for learning activities. Therefore, in Europe but also in other continents, multilingual glossaries are needed. In the context of technical knowledge, the specialized language needs to be understood by university students and professionals and this requires specific tools as technical terms glossaries. This is why the "Small Glossary of Technical Terms for English–Polish–Spanish–Lithuanian Languages" was compiled and prepared as an intellectual output of the Erasmus + Project "Glocal-Innovative training of future engineers responding to problems of contemporary cities" (2019-1-PL01-KA203-065654), as a multi-branch dictionary in four languages with interdisciplinary vocabulary, including technical and legal terms, on the subject of the project. This paper will present the methodology and results of the process to achieve this publication, that is already available to be freely used by those that might find it helpful for their professional work, through the website of the project (<https://glocal.pb.edu.pl/>).

The glossary contains terms related to architecture and urban planning, landscape architecture, civil engineering, environmental engineering, urban heritage and art history studies, laws and other legal publications... The authors of the glossary collected those terms they considered more useful, as defined in methodological literature, and presented them in English, Polish, Spanish and Lithuanian. It is intended to be used by all participants of the GLOCAL project from the three universities involved in its development: Białystok University of Technology (BUT), Polytechnic University of Madrid (UPM), Klaipėda State University of Applied Sciences (KVK). But it might also be helpful for professionals engaged in environmental design, landscape architects, landscape designers, civil engineers, mechanical and electric engineers, surveyors, architects etc. We hope the dissemination of our glossary will be a contribution for a better understanding of technical terms in those languages.

Keywords: Research Projects on Learning and Teaching Innovations.

1 INTRODUCTION: STARTING GLOSSARY COMPILATION

Modern cities are very complex to study, as they are related to many disciplines. We may think about problems such as urban climate issues, water, energy or communications providing for buildings or infrastructures needed for vehicular traffic or public transportation, that are clearly linked to technical knowledge such as urban planning or civil engineering; other problems such as management, use or maintenance of these urban services, that can be damaged by vandalism, demonstrations or strikes might be also related to economics, politics or culture. Therefore, engineers need to know a wide variety of terms, to understand these problems and to be able to provide the best solutions to deal with them. Training engineers should then include new knowledge and capacities, as explained in Erasmus+ Project "Glocal-Innovative training of future engineers responding to problems of contemporary cities" (2019-1-PL01-KA203-065654).

One of the intellectual tools designed for this purpose, was a specific glossary. Supervision over the entire process was provided by one of the leading organizations involved in this project: Klaipėda State University of Applied Sciences (KVK), from Lithuania. But a substantive part of this intellectual output was developing the content of the multilingual dictionary, one third to be completed by each of the partner universities. The main purpose of this glossary is to be used for the project and, as it is not "just an online multi-branch dictionary", this added to the complexity of the work to be done, as it is

connected to other materials of the project. There was a clear need for it to be ready in the early stage of project development but, probably, it will also need to be revised or updated.

Preparing a multilingual glossary takes a little time at the beginning of a translation project, but it is time well spent. Starting point of the glossary was setting forward project planning that was discussed in the First coordination meeting of GLOCAL project in Madrid in October 2019 (Fig.1): detailing schedule and tasks to be done, thinking about how to do the layout of the book to be published (problem, thematic, alphabetical) with First ideas for cover design and publication, for determining the conditions of publication, for providing contracts for the performance of the task, including a language correction to be carried out for the technician's tasks.



Figure 1. Glocal First coordination meeting in Madrid in October 2019

The authors of individual parts of this glossary begin to work it in the following months, performing activities such as: review of current subject literature, gathering input materials and establishing vocabulary, developing vocabulary in their scientific and industry discipline, translating, editing the text, adapting to publication conditions and proofreading after review.

The main result of national and international scientific cooperation was developed in the form of a multi-branch glossary in four languages (English, Polish, Spanish, Lithuanian), with interdisciplinary vocabulary including technical terms on the subject of the project and finished in May 2020. Publishing service was done by the publishing house chosen by the leading organization (KVK), with funds for project management of Erasmus + program.

2 METHODOLOGY

Review of current subject literature about compilation of Dictionaries, Glossaries, Term Banks or Thesauri can be quite wide and so complex that it could even be referred to as a “terminological jungle” by Marek Łukasik (2012) [1]. This author considers terms as “language representations of concepts” and cites definitions of other authors as Hartmann and James (2002, 138) “linguistic units that refer to their respective expert concepts, the latter being larger or smaller quanta of specialist knowledge” [2], or Cabré (1999,164) “also abstract symbols, a definition, a paraphrase or an image can stand for a concept” [3]. Globalization issues and the complexity of terminology in this field because of the specialized knowledge needed and the required interdisciplinarity involved for compiling and using terms in Architecture and Building Construction has already been explained by authors like Trinidad Fernández (2009) [4]. Łukasik also explains that terms are “a linguistic sign of a given national language” that should be “appropriately used in various linguistic contexts” [1].

Glossaries can be useful for helping students identify and acquire the vocabulary of the discipline as experts from Vanier College in Montréal (Canada) explain (2012) [5]. Having students intuitively understand words from their use in readings or in class is often not the best solution since not all students have the skills required to learn vocabulary from limited exposure. The point of a glossary is to improve the quality of the translation, so the selection of words to be put in it needs to be handled with care, as Integro translation experts recommend (2018) [6].

When we did this preliminary research for our Glossary, we had a clear idea that our purpose was fulfilling the need in the research project to connect the different specialists, students, professors and professionals, from several countries and with different languages. We wanted a basic linguistic tool, meeting our needs as users, allowing us to find the correct technical term in the four languages, and not a comprehensive instrument adapted to highest theoretical requirements. This is the reason why we choose the simplest structure available for our glossary, and that we concentrate in choosing the terms to be included in it.

Polish, Spanish and Lithuanian languages come from three different linguistic branches of the Indo-European core of languages: Polish language is from Slavic branch, Lithuanian is from Baltic, Spanish from Ibero-romance. Additionally, English (the main language of the project) is from Germanic / Anglo-Frisian branch. That's why we needed a dictionary.

We cannot speak about a single methodology to gather the terms included in this publication: some basic guidelines were established in the meeting in Madrid, but some freedom was allowed to each of the teams to provide those terms to be included. This might explain the variety of scientific domains related to those terms.

This document, "Fig.2. Glocal subjects for vocabulary compilation", related to the work of KVK, might be an example of the complexity of the task.

Subjects
Modern architecture – small architecture objects in public space
Cultural landscape of the city, demographic, eco physiography, ...conditions
Innovative technologies and building materials for public space / in civil engineering / in architecture
Sustainable development in revitalisation (renovation, revaluation) of public area
Structures and new technologies in revitalisation or new small objects in heritage context
Historical values of cities areas
„Healing“ greenery in public area
Digitalisation of objects for revitalisation of public places
Principles of BIM
Cartographic products for Sustainable development of public space: aerial mapping from platform flying at low altitude
Socio-economic geography of urban transport (forms of public transport, types of roads in contemporary city)
Design of small architecture objects in public space
Greenery elements
Structure elements (BIM, Bentley Microstation)
3D modeling and GIS
Fundamentals of Cartography and Photogrammetry
Location in the city
Transport conditions
Analysis of the current state of Klaipeda city recreational territories
Scanning of small architecture objects in public space
3D modeling of small architecture objects in Klaipeda public space
Structure elements of small architecture objects in Klaipeda public space
Generation of spatial models of small architectural objects located in Klaipeda city public space
Creation the Rout for small architecture objects in Klaipeda

Figure 2. Glocal subjects and teachers for vocabulary compilation

2.1 Selection of terms at Klaipeda State University of Applied Sciences (KVK)

The best glossaries though, are the ones we as teachers provide or develop with our students, vocabularies that are specific to our topic/discipline and that direct the students to the words they will need to acquire, understand, and use in our courses. A bilingual glossary may be particularly useful for our non-Anglophone students. Using a glossary can also be a cost and time saving exercise. Statistics done by “The Big Word”, a professional company of interpreting and translation, indicate that 15% of all re-worked translations are due to terminology issues [7]. Providing a glossary at the outset of the project can reduce internal cost on review, as terminology will be accurate to your specific requirements from the outset. It will also remove any ambiguity over industry-specific phrases or technical jargon, reducing the number of translator queries to enable a quicker project turnaround. We recommended only add specific, technical terms and other types of word that really need to be translated in a specific way, there was no need to add basic or commonly used terms.

Historically glossaries have been created manually from existing source content. This is a slow process but does provide terms in context and examples of use. Terminology plays an important role in the understanding of contexts and specialized texts. Understanding the intricate terminological details of the technical and scientific contexts helps students comprehend what the main message of the document is, and it helps specialists to transmit the content more effectively.

The first reason glossary creation is so important is accuracy. Everyone wants their translations to be 100% accurate. Language is very flexible, and everyone has different sense of language and uses a different way to refer to the same thing.

We are using a lot of different dictionaries, vocabularies, as “Dictionary of Landscape Architecture and Construction” [8] in our study process. But we needed glossary that can serve as a starting point for good communication in the project. Glossary is just a list of key terms. Their definitions will be given in workshops, e-learning material and other project activities and will help ensure that the correct terms are consistently used throughout the text. In the case of a technical translation, it would be unacceptable for a word to be translated differently each time. So, we decided to write terms in Lithuanian language and write terms in English, just correct version for the term in the field of subject that matters in the project (Fig. 3).

Terminas lietuviškai	Term in English	English	lithuanian
Abstraktus	<i>Abstract</i>	3D model	3D modelis
Achromatinis	<i>Achromatic</i>	3D printing in construction and manufacturing	3D spausdinimas statyboje ir gamyboje
Adityvus	<i>Additive</i>	3D stationary scanner	3D stacionarus skeneris
Aerofotonuotrauka	<i>Aerial photograph</i>	3D mapping models	3D žemėlapių modeliai
Akcentas	<i>Accent</i>	5th generation mobile network	5 kartos mobilus ryšio tinklas
Belytis žiedas	<i>Asexual flower</i>	Aerial photograph	Aerofotonuotrauka
		Aerogel Insulated Panels	Aerogelio izoliacinės plokštės
		Aerial mapping	Aerokartografavimas

English	polish	English	spanish
absorb	absorbować, pochłaniać	ELEVATION	Alzado
water absorption	absorpcja wody	RENEWABLE ENERGY	Energía renovable
agglomeration	aglomeracja	Sculpture	Escultura
visual accents	akcenty plastyczne/ wizualne	engineering	Ingeniería
regulations of law	akty prawne	INTERVENTION	Intervención
		LIGHTING FITTING OR LUMINAIRE	Luminaria
		environment	Medio ambiente

ARCHITECTURAL DRAWINGS	rysunek architektoniczny	Dibujo Arquitectónico	ARCHITEKTŪRINIAI BRĖŽINIAI
ARCHITECTURAL RENDERING	rendering	Infografía 3D	ARCHITEKTŪRINIS ATVAIZDAVIMAS
architectural style	styl architektoniczny		architektūrinis stilius
architecture	architektura	Arquitectura	architektūra

Figure 3. Example of term collection and translation drafts

All lecturers had to write about 30 meaningful words from their subjects, which they will use in other processes in the project. Then all terms were put in on sheet and discussed. If there were the same terms, but different translation, so we were discussing which is correct version and can it be correct for both subjects.

Then when we have got terms from other partners, we needed to do the same work – to approve the selected terms and to do correct translation to Lithuanian. We believe that learning new skills is best achieved by doing them, so we promote hands-on exercises and immersing learners in real life situations. Letting learners experience how to make decisions in the face of ambiguity and complexity, and then letting them reflect on that process, is far more effective than mere knowledge transfer. So, the writing of the glossary was the same – we achieved new skills by finding useful terms, correct translation etc.

2.2 Selection of terms at Bialystok University of Technology (BUT)

In Bialystok University of Technology (BUT), we have prepared vocabulary sets related to summer school programme and our GLOCAL-BUT team disciplines, i.e. architecture, landscape architecture, urban planning, construction, civil engineering, etc. (Fig. 4)

English	Polish
Direct heating	Ogrzewanie bezpośrednie
Direct Radiation	Promieniowanie bezpośrednie
Energy	energia
energy performance certificate	świadcstwo charakterystyki energetycznej
Environment protection	Ochrona środowiska
Environmentally friendly	Przyjazne środowisku
Fan	wentylator
Flat plate solar collector	Kolektor słoneczny płaski
Frost protection	Ochrona przeciwzamrozeniowa
Geothermal energy	Energia geotermalna
Greenhouse effect	Efekt cieplarniany
Greenhouse gases	Gazy cieplarniane
Ground source heat pump (GSHP)	Pompy ciepłe

Figure 4. Example of some terms selected by BUT of GLOCAL-BUT team disciplines

English	Polish
aquifer	warstwa wodonośna
biodiversity	różnorodność biologiczna
bioretention	bioretencja
costs of maintaining	Koszty utrzymania (pielęgnacji)
curb	krawężnik
dense of planting	gęstość sadzenia
drainage of water	drenaż wody
ecological corridors	korytarze ekologiczne

Figure 5. Example of terms group for “Rainwater retention - Retencja wody deszczowej”

In the selection of vocabulary, we used the experience in conducting classes for Erasmus + students studying at BUT and the Vipskills project (Erasmus + strategy partnership programme). We consulted the vocabulary from outside our disciplines with teachers - experts from the Civil Engineering Faculty of BUT. (Fig. 5)

The experience of future summer schools will allow us to valorise the vocabulary needed to conduct classes at GLOCAL

2.3 Selection of terms at Polytechnic University of Madrid (UPM)

The Glossary has been designed for translation of technical terms in its four languages, but it has also professional and didactic purposes. But when doing a Glossary with terms from several domains, the need for a simple and easily recognizable format and structure, such as alphabetical or language organization, might lead to losing the context in which those terms appear, which might be very important for understanding its meaning and sometimes for translating it: the English term “plane” could be translated to Spanish as “avión” if related to an airport or as “plátano” if analysing the problems created by some trees in the cities. If we wanted a clear and precise communication, we needed to face it.

The process to select terms for glossary was closely related by the Spanish team with the content of Summer School and E-learning materials. We decided to propose only those, linked to classes and previously defined in Spanish and in English, considered as essential to understand the contents of those learning materials. We are aware that definitions might be not equal in different languages for some terms, especially those related to new concepts or technologies, what can make both comprehension and translation much more difficult.

Developing the terms selected for the multilingual glossary as a cognitive tool for professionals to transmit effectively the meaning of technical concepts, needed a definition of those terms and to relate them with its bibliographic references and to mention corpus sources. As pointed out by several authors (Pamela Faber, 2006) [9], linking images and words is essential for the description of specialized concepts, the reason why we decided to include photos when possible (Fig. 4).



UNIT 1: 1. HISTORICAL VALUES OF CITIES
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BASIC TERMS: Unit 1. – HISTORICAL VALUES OF CITIES
VALORES HISTÓRICOS DE LAS CIUDADES

TERM/ Término	DESCRIPTION / Descripción	IMAGE / Imagen
Ancient Monument	<p>"Any scheduled monument and any other monument which in the opinion of the Secretary of State is of public interest by reason of the historic, architectural, traditional, artistic or archaeological interest attaching to it." [1]</p> <p>En la legislación española de patrimonio histórico (1985) corresponde a una categoría o tipo de Bien de Interés Cultural, declarado como tal mediante Real Decreto. [2]</p>	
Architecture	<p>The art and science of creating spaces, constructions to be used by human beings. [3],[4]</p> <p>Arte o técnica de proyectar y construir edificios. [5], [6]</p>	
City	<p>A center of population larger or more important than a town or village, that in Europe usually was granted with a royal charter, or has been or is an episcopal see, incorporating one or more municipalities, whose boundaries and powers of self-government are defined by the state in which it is located.[7]</p>	
Historic City	<p>"Espacio formado por edificios y calles, regidos por un órgano de gobierno local, denominado ayuntamiento, cuya población es densa y numerosa y dedicada por lo común a actividades no agrícolas. Título de algunas poblaciones que gozaban de mayores preeminencias que las villas". [8]</p> <p>Historic urban areas, together with their natural and man-made environments. [9]</p> <p>Áreas urbanas históricas, junto con su entorno natural y el modificado por el hombre. [10]</p>	

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Figure 6. Glocal- Basic Terms: Unit1. – Historical values of cities

We will use these materials as an introduction to the classes of Summer School and E-learning, discussing with the students, similarities, and differences of terms in the four languages of our Glossary, as the first approach to main technical concepts.

3 RESULTS

One of the main results of Glocal research is the Small Glossary (Fig. 5), published both as a printed book and online, available through the website of the project (<https://glocal.pb.edu.pl/en/results/>).

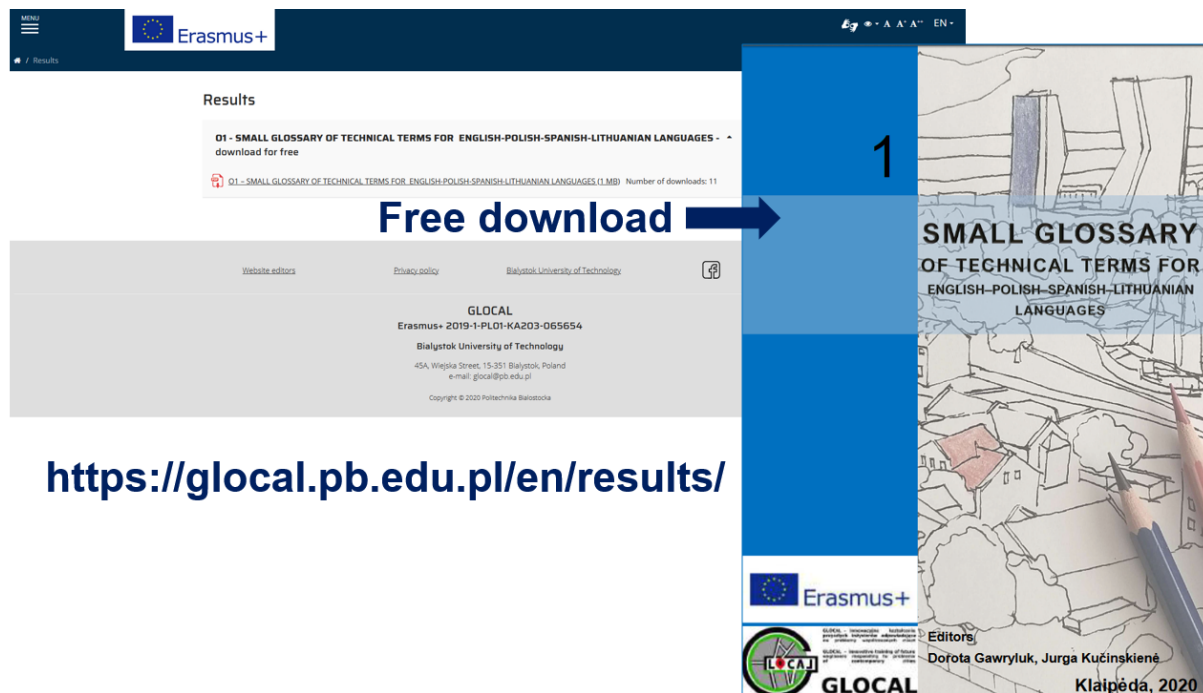


Figure 5. Glossary, published both as a printed book and online.

The previous result, easier to evaluate as it is formal and objective, is not the only result of the research to compile technical terms for this intellectual output of the project: both its “publication format”, the needs and purpose for doing it, as well as the terminological methodologies and concepts used, are wider.

Promoting globally cultural local values is very important for GLOCAL project and Erasmus + program, so you can find the colour drawing of a view of Klaipėda on “Small glossary” cover. This cover’s schema has been designed for more publications, as “Small Glossary” is only the first of a three parts set of Glocal publications.

The discussion to establish the limits of the technical concepts is only starting and we hope it will help us to clarify some of them, especially what we might still call “emerging notions” such as “circular economy” or “sustainability”, as well as the links between those new ideas and concepts that help engineers to shape the material reality.

4 CONCLUSIONS

Spreading knowledge gathered through compilation of this Glossary is related with requirements of this European program but is also needed to be able to improve some of its results, as we will do using it in the Summer courses planned in the project.

Sharing those results with other researchers, can allow us to submit them to a wider evaluation. This is the main reason why they are available at the web site of Glocal project.

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