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DANUBIAN SMALL & MEDIUM CITIES

01

Methodological guidelines and new theoretical and practical methods of interdisciplinary teaching for assessing small and medium sized cities (SMCs) on Danube

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Methodological guidelines and new theoretical and practical methods of interdisciplinary teaching for assessing small and medium sized cities on Danube

Creative Danube / Innovative Teaching for Inclusive Development in Small and Medium-Sized Danubian Cities

The Danubian_SMCs consortium is composed by 7 European organisations:

UAUIM	Universitatea de Arhitectură și Urbanism „Ion Mincu" din București (Lead partner)
BME	Budapesti Műszaki és Gazdaságtudomanyi Egyetem
UNS	Univerzitet U Novom Sadu
UB	Univerzitet U Beogradu
UWK	Universitat Fur Weiterbildung Krems
STU	Slovenska Technicka Univerzita V Bratislave
TUW	Technische Universitaet Wien

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FOREWORD

Creative Danube: Innovative Teaching for Inclusive Development in Small and Medium-Sized Danubian Cities (DANUBIAN_SMCs) is an Erasmus+ strategic partnership under grant no. 2019-1-RO01-KA203-063878, within a consortium of 7 universities from 5 Danube region:

» ”Ion Mincu” University of Architecture and Urbanism from Bucharest / Universitatea De Arhitectură și Urbanism ”Ion Mincu” din București / UAUIM - as a lead partners and
» Budapest University of Technology and Economics / Budapesti Muszaki Es Gazdasagtudomanyi Egyetem / BME
» Novi Sad University / Univerzitet U Novom Sadu / UNS
» Belgrade University / Univerzitet U Beogradu / UBGD
» University for Continuing Education Krems / Universitat Fur Weiterbildung Krems / UWK
» Slovak University of Technology in Bratislava / Slovenska Technicka Univerzita V Bratislave / STU
» Technical University of Vienna / Technische Universitaet Wien / TU Wien

Project site: https://danubian-smcs.uauim.ro/

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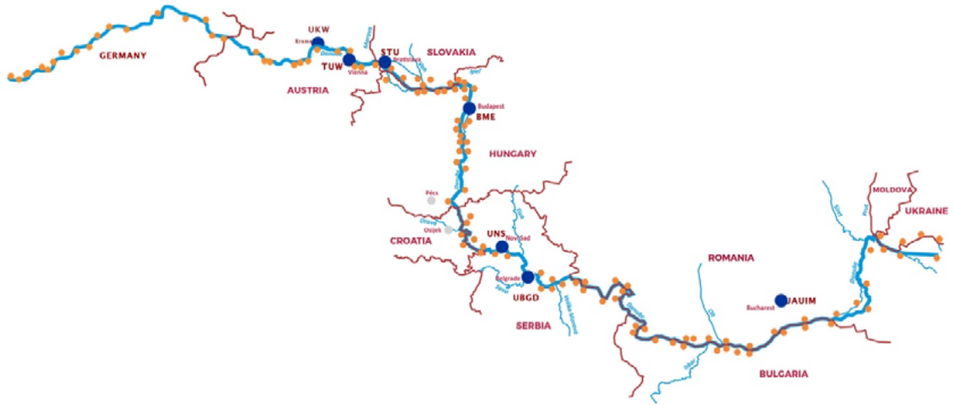

The project aims to address the topic of small and medium-sized cities (SMCs) in lower Danube regions especially because these cities are facing very challenging processes closely linked to shrinkage and declining at all urban life levels, and because the knowledge level in planning and urbanism is still limited, being necessary an interdisciplinary openness through a more complex and complete approach of this issue. The problematic of Danubian small and medium-sized cities (DSMCs) put in light the larger diverging levels of development in different Danube River territories, being a matter of integrative and large-scale regional planning development. Based on knowledge transfer and exchange of experiences between the 7 important universities based both in Central-Western and Lower Danube regions, focusing on education, Danubian_SMCs strengthen the transnational dialogue and the inclusiveness in the Danube region.

The importance of distinctly teaching this topic also derives from the need to deeply understand the social inclusion & exclusion concept, not only at the micro social scale, but also at the macro-territorial scale. Small and medium-sized cities, and among them the shrinking cities (the most frequent case on Danube shores), require special attention focusing on their complex issues, which involve various fields of study: from accessibility, mobility, connectivity in the territory, landscape configuration and access to resources - natural and anthropogenic - to structural morphology and permeability of the urban fabric, to issues related to the internal urban management (policies, programmes etc.) and to visions and long-term spatial planning strategies. It is important for future specialists in the fields of spatial planning - including territorial planning, landscape planning, landscape-urbanism, urban design, architecture - to understand from school that social inclusion is an

objective which starts from very first concepts of development and if is set incorrectly, can lead to social exclusion, impacting the people's daily lives. Considering that "social exclusion is a complex and multi-dimensional process that involves the lack or the denial of resources, rights, goods and services, and the inability to participate in the normal relationships and activities, available to the majority of people in society, whether in economic, social, cultural, or political arenas (Levitas et al. 2007, p. 9), our approach considers it essential to study carefully and interdisciplinary the territories with this risk of exclusion which can affects both the quality of life of individuals and the equity and cohesion of society as a whole. Therefore, the topic of small and medium cities is the continuation and deepening of the research and knowledge undertaken in the 2 INTERREG Danube projects – DANUrB - DANube Urban Brand - a regional network building through tourism and education to strengthen the "Danube" cultural identity and solidarity(Interreg Danube, 2017) and DANUrB+ - DANube Urban Brand + Building Regional and Local Resilience through the Valorization of Danube's Cultural Heritage (Interreg Danube, 2019) which aimed to strengthen the regional network through tourism and education, and to help affirm the brand of the Danube as a framework of cultural identity and solidarity thorough transfer to higher education curricula. Specifically, the DANUrB+ project researched the specific aspects of the shrinking phenomenon in the Danube cities, this being an ongoing process, especially in cities from the former socialist countries as Romania, Bulgaria, Serbia. While DANUrB+ aims to reactivate underused cultural heritage and resources in shrinking settlements of Danube river's peripheral and border regions, and to create new possibilities to make its towns and regions attractive again, the need to think of an educational program suitable for these purposes became evident, since education is always the basis of any long-term process with such important stakes, as increasing the local prosperity and international tourist attractiveness.

More than that, the education program for the university level of architecture and urban planning is only the first level in the development of a larger educational program that aims to transfer this specific knowledge to the level of various local stakeholders, either from the local public administration, local entrepreneurs, tourism agents, non-governmental associations, or local schools. Through the way the Danubian_SMCS activities are structured, our project lays from the beginning the foundations for such a transfer, which is extremely necessary for a realistic, long-term approach in which the change can only take place gradually, and from the bottom up.

In this regard, the project has a number of associated partners (including national research institutes, local museums, NGOs, local journals, local and territorial administrations) which came with important inputs, and had a real contribution to our holistic teaching methods, providing us with logistic help before and during teaching/ learning and training activities in each partners' country. Associated partners participated and supported our interdisciplinary and transdisciplinary approaches in different fields - as architecture, urban planning, heritage preservation, landscape, horticulture, agriculture and farming, sustainability and environment protection.

Another issue addressed within this project derives from the very structure of the consortium that encompasses entities with different disciplinary profiles (architecture, urbanism, urban design, landscape planning, regional planning, urban economy), but also from the broader interdisciplinary approach of the subject, admitting that interdisciplinarity is "an adjective that describes the interaction between two or many disciplines, which can range from the simple communication of ideas to the mutual integration of organising concepts, methodology, procedures, epistemology, terminology, data and the organisation of research and education in a wide field of study" (OECD, 1972, cited by Lattuca, LR. 2002). Besides this, in this project, interdisciplinarity is materialised in an interactive and dynamic work environment, both academic and open to the public, which assumes the continuous acquisition of knowledge from various fields of urban life, and as part of the

curricula of each school involved. This interactive environment generates not only a vast and interesting bibliography addressing this topic, but also various visions and scenarios through the students' projects, a mixture of future possibilities to be applied in future joint projects and local actions.

Last but not least, the interdisciplinarity within this project is based on the contribution in all stages of associate partners from many of the studied small and medium-sized cities; they were consulted and actively participated in the documentation on the cities, as part of the preparation of the teaching-learning and training activities – National Institute for Research and Development in Tourism/ National Institute of Research - Development in Tourism – INCDT, Comana Park, "Moara de Hârtie" Giurgiu, Archeological Museum of Oltenița, Călărași City Hall, Călărași City Museum, "Poșta Veche" Community Center from Călărași, The 3 Smoked Olives music festival in Călărași, the Association AISSER, STPA – Serbian Town Planner Association, OARB -Romanian Order of Architects, Aspern mobile lab, Sap Municipality, Holice Municipality, Gabčíkovo Municipality, Komárno Municipality, Silistra Municipality, Broz, civic association Csilizközi Őstermelői Piac City administration and "Prostor" (Space) Public Enterprise /Sombor. Through them, professors and the students involved in the project received the necessary and correct information, derived from the actual daily experience of these places, thus contributing to the formation of a realistic knowledge base.

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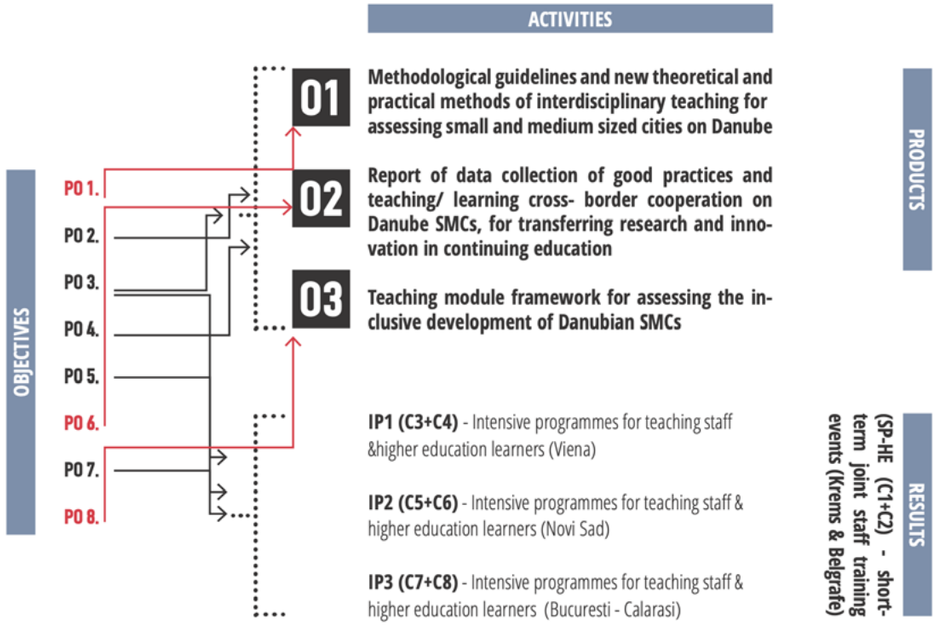
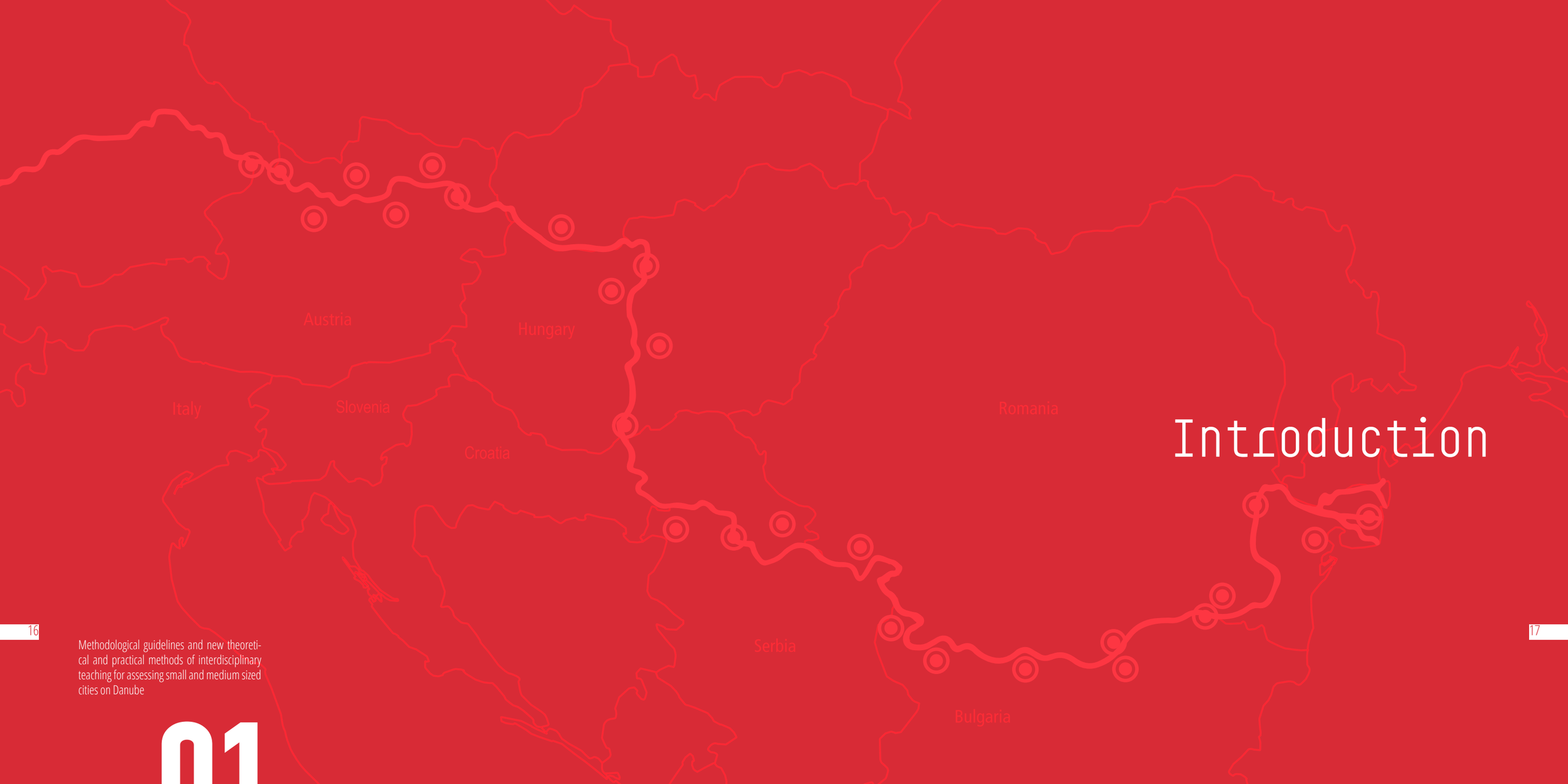


Project objectives, activities and results



Introduction

Methodological guidelines and new theoretical and practical methods of interdisciplinary teaching for assessing small and medium sized cities on Danube

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I. INTRODUCTION

I.1.The role and general goal of the O1 within the project

Within the project process, all partner universities are involved in elaboration of the 3 intellectual outputs which compose the section of continuous results of project activities.

O1 – Methodological guidelines and new theoretical and practical methods of interdisciplinary teaching for assessing small and medium sized cities (SMCs) on Danube

O2 – Report of data collection of good practices and teaching/ learning cross- border cooperation on Danube SMCs for transferring research and innovation in continuing education

03 – Teaching module framework for assessing the inclusive development of Danubian small and medium sized cities

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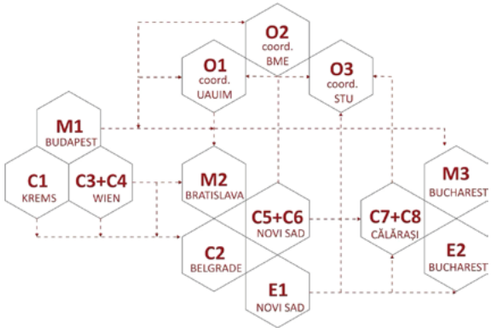
This first intellectual output (O1: Methodological guidelines and new theoretical and practical methods of interdisciplinary teaching for assessing small and medium sized cities (SMCs) on Danube) is mainly dedicated to explaining the development process of the educational activities and the main methodological concept of the project approach among the 7 university partners, in order to present to other interested entities a complete guide of this educational process, useful for further similar intentions.

The main goal of the O1 is to develop and test the new methods of interdisciplinary education in the domain of inclusive development of the built environment in Danubian_SMCs. The O1 is completed by the *O2 - Report of data collection of good practices and teaching/ learning cross border cooperation on Danube SMCs - mapping the knowledge to transfer research and innovation in continuing education,* which has the main role of presenting in a synthetic way the good practices and examples both at the level of the specific SMCs knowledge, and at the level of teaching/ learning/training methods used by the consortium in approaching of this topic. O1 and O2 are summing up in the *O3 - Teaching module framework for assessing the inclusive development of Danubian_SMCs*, which has the role of exemplify in a concrete *teaching module* the content of the INCLUSIVE DEVELOPMENT OF DANUBIAN SMALL AND MEDIUM-SIZED CITIES, as a distinct discipline, possible to be taught in a future educational programme (licence or master level), by using our findings.



Legend: M - transnational project meeting, C – Learning, Teaching and Training Activities; O – Intellectual Output, E- Multiplier event

Configuration of activities and Intellectual Outputs within DANUBIAN_SMCs project

I.2. Specific Objectives

The specific objectives of this product are: a) to evaluate the existing teaching methods and formats addressing interdisciplinarity and innovation; b) to develop a convenient teaching module for sustainable development of SMCs on Danube, c) to transfer innovative methods & tools to the other educational fields related to the SMCs topic.

In this way, the transition is made from the stage of critical evaluation on the existing situ-

ation, appreciating the degree of the subject development within the consortium partners, by addressing the most specifically pursued qualities (interdisciplinarity and innovation), to the stage of conceptualising a convenient teaching modules for inclusive development of Danubian_SMCs (as a basis for O3), and concluding with a stage in which these results are channelled towards a wider dissemination and interdisciplinary transfer.

The methodology used in the project implementation is in line with the principles agreed upon by The Erasmus + program, being primarily a collaborative educational project that emphasises both the transfer of knowledge between university partners, between teachers and students of all partners and further to other universities from the region. The methodology consists of a set of steps for each phase which is part of the activity plan, having as main focus to stimulate all participants to an innovative approach of teaching activities. Thus, the short-term joint staff training events set out and evaluated the Intensive programmes (IPs) for Higher Education Learners, for Teaching Staff and the transnational meetings discuss the evolution, results and sustainability outputs. All activities actually infused the 3 Intellectual Outputs whose coordinators were present at learning / learning events. The multiplier events helped to reach all relevant target groups and ensure sustainability and the transferability: higher education organization, non-academic society acting in the field and associated project partners.

I.3. Methodology

I.3.1. Common definitions

a. Teaching methods and tools understanding

Teaching Method: a systematic way of doing something/ an orderly logical arrangement of steps / a procedural way of doing / a series of related and progressive acts performed by a teacher and students to achieve the object of the lesson.

Teaching Tool: a wide variety of exercises, activities, or devices used for realising lesson/ course objectives must be consistent with "a method" and in harmony with a strategy/ art of performance.

The method is the way the teacher uses a tool for teaching. A teaching method is more than a sum of tools. Depending on the complexity of the task for which it is used, a tool can become a method. The same tool can be used for and within different methods.

Yet, the teaching methods and tools in architecture and urban planning are always a creative field, including creativity as a key element both in teaching and learning processes. In recent years, along with the increasing impact of mapping and design technologies in our profession, it has become more necessary to investigate creativity scientifically (Garvin, 2015, Gomez, 2007) and to see how creativity is involved in our specific methods and tools used.

We assume that the investigation on the creative methods and tools used in the architecture and urbanism university education is very linked to the topic of Danubian small and medium-sized cities because of the need for a deep understanding of the local urbanity character. Thinking "outside of the box" for these cities might be vital, as they usually confront a state of disappointment, lack of hope, lack of horizon and development visions.

Therefore, this topic imposed a specific selection among the vast range of methods and tools used in architecture and urban planning domain, by the following criteria:

» the usefulness of the method /tool used in the process of understanding the specifics of DSMCs as it is considered by the students and teachers in architecture and urban planning part of the consortium;

» the easiness of implementation of the method/tool in the framework of learning by students and teachers in architecture and urban planning;

» the efficiency in obtaining the desired results;

» the attractivity for stakeholders involved in DSMCs together with students and teachers within the learning process;

» the stimulative degree in which the student's imagination is involved by the teaching – learning process.

Centralising criteria table for assessing DSMCs

b. DSMCs common definition

According to different national frameworks, there are slightly different definitions of small and medium size cities**.** As a base for a common understanding, we considered a medium city – a city with the population between 30-100000 inhabitants, a small city – a city with the population between 10-30000 inhabitants, and a very small city or town – a city with the population under 10000 inhabitants.

Beyond that, there are numerous differences specific to each country regarding the definition of small and medium-sized cities.

In the regard to the European cohesion policy, SMSC are important units playing the role of mediators: between the centres and the peripheries, between the urban and the rural, the local and the global. At the local scale following key aspects should be emphasised: the territorial position, densities, and accessibility of SMSCs (Selada et al, 2012). In the EU, a large proportion of the population lives in small and medium□sized urban centres: approximately 40% live in small urban areas (from 10,000 to 50,000 inhabitants) and 20% in medium□sized cities (between 50,000 and 250,000 inhabitants). In the European spatial system, there are nearly 1,000 urban centres with above 50,000 inhabitants and about 5,000 towns that have between 5,000 and 50,000 inhabitants (EEA, 2006).

Despite everyone having a 'feeling' of what constitutes (small and medium-sized) towns in terms of their physical characteristics, spatial identity, daily routines and life style, **the term does not immediately constitute a coherent category or object of study, as it covers a diversity of situations across Europe.** (Servillo et al. 2017). According to the ESPON applied research project realized in 2013-14 - TOWN – Small and medium sized towns in their functional territorial context, SMST are considered places with populations between 5,000 and 50,000 across Europe (DG Regio) with a density of population between 300 and 1500 inhabitants/sqkm) (Servillo et al. 2013). But, combining the results with the analysis of the 31 case studies across Europe, the conclusion of ESPON – TOWN project is that industrial activities are declining in SMST due to international competition, delocalization, concentration toward main urban areas, and this constitutes a major potential threat for many SMSTs (Servillo et al, 2014).

Germany

The state of **Germany** consists of 16 federated states with generally large levels of autonomy, also related to the structure of their administrative subdivisions. Districts (Kreise) play a key role in the definition of the degree of autonomy, municipalities can account for.

In general, there is a distinction between urban and rural districts, also called district free towns (Kreisfreie Städte) or town districts (Stadtkreise in Baden-Württemberg) and Landkreise (rural districts), respectively. Dis-

trict free towns have in general a higher degree of autonomy, as they also take over duties that are attached to districts. Municipalities of rural districts are subordinate to their respective districts.

Additionally, to this division, municipalities of rural districts can receive an additional status and competences, even if they are not district free. The status of major district towns (Große Kreisstädte) is assigned based on regulations of the respective federal state; in Baden-Württemberg, every municipality with more than 20,000 inhabitants receives this status. In Bavaria this number amounts to 30,000, there are however multiple exceptions with smaller towns being major district towns. Furthermore, Bavaria also recognises municipalities with additional competences (leistungsfähige kreisangehörige Gemeinden/ große Delegationsgemeinden), which receive autonomies in selected fields, mostly in construction supervision and water rights.

The status of municipalities is not necessarily linked to the number of inhabitants, but in general correlates with the size of the population. The Federal Institute for Research on Building, Urban Affairs and Spatial Developments follows a size-related (mostly statistical) classification of cities, which are: Large cities (Großstadt) with at least 100,000, Medium-sized cities (Mittelstadt) with 20,000 to 100,000 and Small-sized cities with 5 to 20.2000 inhabitants.

Currently there are 10,790 municipalities in Germany, 1,101 of those are located in Baden-Württemberg and 2,056 in Bavaria.

Austria

In **Austria**, every piece of land belongs to a municipality. Cities are therefore always also municipalities. On the other hand, of course, not every municipality is a city. In general, the term city does not necessarily mean something about the size of a municipality - the term usually has a historical background. The town of Rattenberg in Tyrol has only 401 inhabitants, while the market municipality of Lustenau has 20,834 inhabitants. For this reason, the members of the Association of Cities are of course not exclusively cities, but also larger municipalities. In Austria there are 15 cities with their own statute, 184 municipalities, 765 market municipalities and 1,414 (rural) municipalities (source - Statistics Austria November 26, 2009).

A municipality is the smallest self-governing political unit in Austria as regulated in the Federal Constitutional Law. 201 municipalities in Austria are cities, so they have city rights. Today all municipalities, whether large cities, market municipalities or small rural municipalities, are legally equated, the terms “market municipality” and “city municipality” are mere titles without legal content; only cities with their own statute occupy a prominent position. While in the past mostly historical reasons were decisive for whether a city received its own statute, the municipal law of 1962 provides that all municipalities with more than 20,000 inhabitants can receive this rank (Austrian Cities in Numbers, ÖSTERREICHISCHER STÄDTEBUND und Statistik Austria, Vienna, 2013) are defined differently depending on the federal state. In Austria, municipalities with more than 10,000 inhabitants are considered cities.

Slovakia

In the territory of the **Slovak Republic,** is out of the total number of 2890 municipalities, only 140 towns, but more than 54% of the population live in them. Of the total number of cities, 23 are less than 5,000 inhabitants and, conversely, over 10,000 inhabitants can only be included in the 10 largest cities. The city is in the legal system of the Slovak Republic a position granted to the municipality by the National Council of the Slovak Republic after meeting the conditions under § 22 par. 1 of the Act of the Slovak National Council no. 369/1990 Coll. of 6 September 1990 on general establishment, as amended. The city is - as well as the municipality - an independent territorial self-governing and administrative unit of the Slovak Republic. The National Council of the Slovak Republic may, on 1 January at the proposal of the Government, always declare a municipality which:

» is an economic, administrative and cultural center or a center of tourism, or a spa,

» provides services for residents of surrounding municipalities,

» has secured transport connections with the surrounding villages,

» has at least a part of the territory of an urban development,

» has at least 5,000 inhabitants.

Croatia

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The spatial planning system of the **Republic of Croatia** is based on the Constitution of the Republic of Croatia, the Law on Local and Regional Self-Government, the Law on Physical Planning according to which the territory is organised into 20 counties, 127 cities and 428 municipalities while The City of Zagreb has mutual status of city and county. According to the law, the city is a spatial unit of local self-government with a population of more than 10,000 inhabitants. The settlement model introduced by The Spatial Planning Strategy (1997) of the Republic of Croatia included distribution of settlements into 7 categories, listing 17 medium-sized cities, 48 smaller cities and 55 places with urban features. This categorization was applied to the Spatial Planning Program (1999 amended in 2013), which inaugurated a polycentric model of spatial development and proposed measures to slow down the growth of large cities and strengthen the network of medium and small cities. The Program highlights cities with 7,000 to 15,000 inhabitants in hilly - mountainous and border areas, which are proposed to strengthen their central functions and stimulate economic growth in order to upgrade into the category of medium-sized cities (15,000 to 30,000 inhabitants). The document lists medium-sized cities as carriers of urbanisation, and in the following period, financial programs that sought to meet this goal were implemented. By amending the Law on Local and Regional Self-Government in 2005, the category of a large city was introduced into the system of local self-government. According to the legal definition, a large city is a unit of local self-government and has more than 35,000 inhabitants and to which certain


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administrative tasks are decentralised. Since 2007, the Republic of Croatia has been harmonising its territorial division with the European Nomenclature of Territorial Units for Statistics (NUTS) system, so that through two iterations and changes it is today divided into 4 non-administrative NUTS 2 units and 21 administrative NUTS3 - Croatian counties. Local administrative units LAU explained by Eurostat gather 556 Croatian LAUs.

The urban network of the Republic of Croatia is in the process of weakening. Zagreb as the capital and three other macro-regional centers (Split, Rijeka and Osijek) in the period from 2001 to 2011 recorded a decrease in population. The network of small towns (3,000 to 7,000 inhabitants) is satisfactory, but there is a lack of medium-sized cities (7,000 to 35,000 inhabitants). In 2011, the Model of Differentiation of urban, rural and transitional settlements in the Republic of Croatia of the Central Bureau for Statistics was developed according to which, in addition to the criterion of the number of inhabitants, the criterion of functional employment was introduced (share in secondary

and tertiary activities and non-agricultural households). The Spatial Development Strategy of the Republic of Croatia from 2017 set the vision of spatial development until 2030, referring to the Territorial Agenda 2020. This document continues to affirm polycentric and balanced territorial development by outlining the key role of medium and small towns at the regional level.

1.Law on Local and Regional Self-Government (Official Gazette 33/01, 60/01, 129/05, 109/07, 125/08, 36/09, 36/09, 150/11, 144/12, 19 / 13, 137/15, 123/17, 98/19, 144/20)

2.Law on Physical Planning (Official Gazette 153/13, 65/17, 114/18, 39/19, 98/19)

3.Spatial Planning Strategy of the Republic of Croatia, Ministry of Physical Planning, Construction and Housing, Institute for Physical Planning, Zagreb, 1997, p 240

4.Spatial Planning Program of the Republic of Croatia, Ministry of Physical Planning, Construction and Housing, Institute for Physical Planning, Zagreb, 1999, p 97

5.Spatial Development Strategy of the Republic of Croatia (Official Gazette 106/17) https://narodne-novine.nn.hr/clanci/sluzbeni/2017_10_106_2423.html

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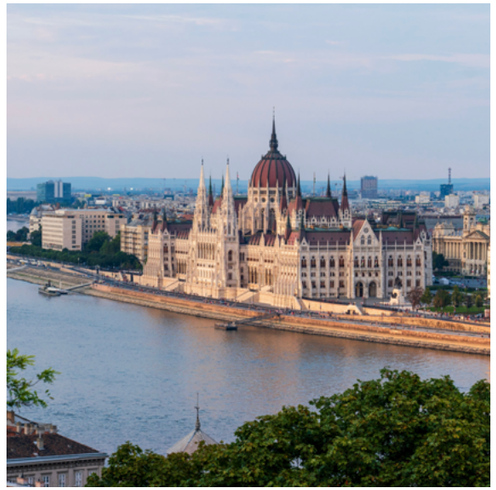
7.Analytical study on sustainable urban development, IPA2007 / HR / 16IPO / 001-050401, Support for strengthening the regional and territorial dimension in the programming documents for EU funds 2014-2020 https://razvoj.gov.hr/UserDocsImages//arhiva/EU % 20funds / Projects // Analiti% C4% 8Dka% 20studija% 20o% 20odr% C5% BEivom% 20urbanom% 20razvoju.docx

Hungary



In **Hungary**, according to Act CLXXXIX of 2011 on Local Governments in Hungary the following settlement categories exist:

Capital city: Budapest, the Hungarian capital city is located on the Danube.

Town of county rank: they fulfil public services which expand beyond their own limits to the whole county or to a large part of it. These are the county seats as well as those towns with 50 thousand inhabitants or more, and declared by the Parliament as such.

5 of 23 towns of county rank are located on the Danube: Győr, Esztergom, Érd, Dunaújváros, Baja Town

According to the Act the town fulfils public services which could be provided on its own territory and its agglomeration economically, efficiently.

31 of 322 of towns are located on the Danube

Large village (129)

The title of large village may be used by those municipal local governments which held the large village title at the time when the Act came into force, furthermore they must have at least 3 000 inhabitants.

Villages - a number of 2680.

To sum up, in Hungary 35 small and medium sized cities with less than 100.000 residents are located on the Danube. (Two other, Győr and the capital city of Budapest are bigger.)

Serbia

In **Serbia**, the Statistical Office of the Republic of Serbia officially recognises 169 urban settlements, plus more than 5,000 rural settlements (villages) (Stevanović, 2004). Both urban and rural settlements are defined by law. There is no etymological distinction between cities and towns, as one term (Serb. Град/*Grad*, literary: *City*) covers both meanings. Historically, there was the official term of market-town (Serb. Варошица/*Varošica*) as an intermedium between cities and villages, but it became obsolete at the beginning of socialist period (middle of 20th century) (Kojić, 1970).

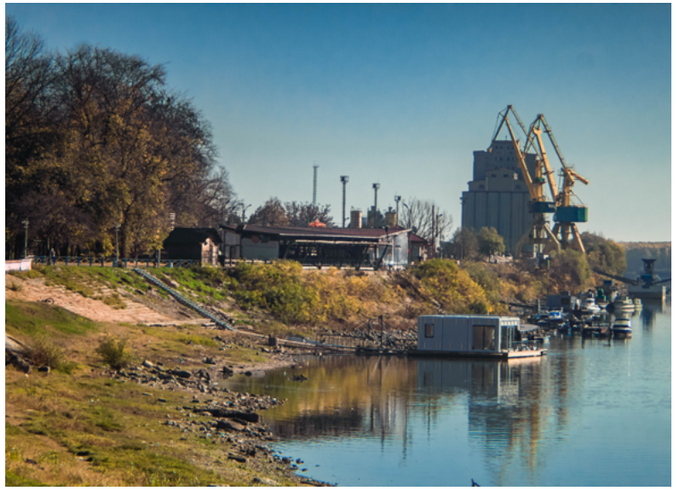
Urban settlements are mainly larger than rural ones, but there are exemptions, as some small urban settlements have less than 500 inhabitants. They have a non-agrarian character (tourist or mining function). Most urban settlements (bigger ones) are municipal seats at the same time (70%), while the other ones are the settlements with clear non-agrarian functional character (industrial, mining, tourist, and suburban settlements). In the other side, there is the clear minority of municipalities without urban settlement as a seat, i.e., containing villages only (Population statistics per settlement 1948-2011, Law on Territorial Organisation of the Republic of Serbia, 2007).

The official definition of a city in Serbia does not suit the purposes of this research, because it is strictly administrative. This definition is close to a municipality (Law on Territorial Organisation of the Republic of Serbia). In essence, official cities are just the municipalities with bigger urban settlements as their seats. At the same time, such “cities” always include nearby villages apart from the main/urban settlement as a seat and they have a low population density, usually below 200 inhabitants/km2. In most cases, there are 20-30 villages under “city” authority, but some cases even contain more than 70-80 villages.

There is no officially settled division between small, medium-sized and big urban settlements. Such indirect division is given by the operative Spatial Plan of the Republic of Serbia 2010-2020 (Law on the Spatial Plan of the Republic of Serbia, 2010-2020). The big cities are those ones with international and region-

al importance, i.e., with more than 100,000 inhabitants, and the main cities of Serbian NUTS2 regions. There are four of them: Belgrade, Novi Sad, Niš and Kragujevac. Medium cities are mainly district seats and the main cities of Serbian NUTS3 regions. They have 35-100,000 inhabitants. The other cities and towns are less important and smaller by population size (<30,000 inhabitants).

Romania



In **Romania**, small and medium cities are a special category within the national legislation. The analyses on the network of localities in Romania, part of ROMANIA'S TERRITORIAL DEVELOPMENT STRATEGY, notes that the distribution of resources in the territory and the population movement in recent decades have led to a large multifunctional localities (focused in different proportions on tertiary sectors) and of small monofunctional localities, having as an effect the unequal disposition in the territory of resources and the appearance of significant discrepancies in the quality of life and opportunities offered by the two categories of cities/ towns .

In the same documents is also mentioned the existence of a large number of declining cities, reflected in the number of population - 119 cities whose population was in 2012 below 10,000 inhabitants (minimum threshold set by Law no. 351/2001): 6 cities under 3000 inhabitants, 15 cities between 3000 and 5000 inhabitants and 98 cities between 5000 and 10000 inhabitants. (Cucu, 1970 apud MDRAP, 2016).

Law no. 351/2001, on the approval of the National Plan of Territorial Planning (Planului de amenajare a teritoriului naţional) Section IV - The network of localities establishes the following hierarchy of localities:

- rank 0 - the country's capital, a municipality of international importance;
- rank I - municipalities of national importance, with potential influence at European level (11 municipalities);
- rank II - municipalities of inter-county importance or with a balanced role in the network of localities (81 municipalities);
- rank III - cities (172 cities) (a total of 265 municipalities and towns);
- rank IV - village communal residence;
- rank V - component villages of communes and villages belonging to municipalities and cities.

The law stipulates that the thresholds for declaring municipalities and cities refer to the population, the socio-demographic structure and the equipment of the locality (see Map 1).

The geographical classification of urban localities in Romania has - from the point of view of population size - a threshold of 10,000 inhabitants for cities and 40,000 inhabitants for municipalities (Law 351/2001).

According to Romanian Institute of national Statistics (INS) data for 2012, the classification of cities in Romania is as follows:

- 1 very large city (population over 1,000,000 inhabitants),
- 23 large cities (100,000-1,000,000 inhabitants),
- 75 medium-sized cities (20,000-100,000 inhabitants),
- 221 small towns (less than 20,000 inhabitants, of which 119 cities under 10,000 inhabitants).

Out of the total of 21 cities located on the Danube in Romania, 11 cities are in the category of small towns - under 20,000 inhabitants, and 17 cities in the category under 50,000 inhabitants.

These records are likely to justify the interest

given by researchers on the issue of small and medium-sized cities; they actually represent the vast majority of cities in Romania (75.8%).

The small and medium-sized cities on the Danube in Romania, although they differ in population, pattern of evolution, spatial model of growth and economic profile, still have a common denominator: an existence related to the Danube either directly – as cities ports, or traditional trademarks related to river resource, or indirectly, through the industrial profile created during the communist period, dependent on the river transportation system and which definitely marked their identity. Paradoxically, in their vast majority, although having special natural resources, these cities are not tourist centres, they have a limited tourist capital (reduced accommodation capacities, facilities and reduced presence in the regional or international network of tourism). Their decline comes either from de-industrialization and the lack of other economic engines to support their existence, and consequently the loss of population and interest in labour.

Moldova

The administrative-territorial organisation of the **Republic of Moldova** is realised on two levels: villages (communes) and cities (municipalities) constitute the first level, districts (districts) constitute the second level.

The statute of the village (commune), of the city (municipality) is elaborated on the basis of the framework statute, approved by the Parliament, and is approved by the local council.

There are a total of **1,681 localities in Moldova**. 5 of them have the status of **municipalities**: Chisinau, Balti, Tighina, Comrat and Tiraspol. Balti has 2 satellite localities: Elizaveta and Sadovoi. Tighina (Bender in Russian) has one: Proteagailovca. Another **60** localities have the **status of cities** in which **39 villages** are included. **914 localities** have the status of **village-commune** (former village soviets, in the table included in the category of communes) and **660 are villages** subordinated to these communes. (*The situation of the localities is presented on the date of the amendment of Law no. 764 of 24.02.2008*). The independent administrative-territorial unit is formed if it has a population, as a rule, of **at least 1500 inhabitants** and has sufficient financial means for the maintenance of the mayor's office and the institutions of the social sphere.

The municipality is an urban locality with a special role in the economic, social-cultural, scientific, political and administrative life of the country, with important industrial, commercial structures and institutions in the field of education, health care and culture.

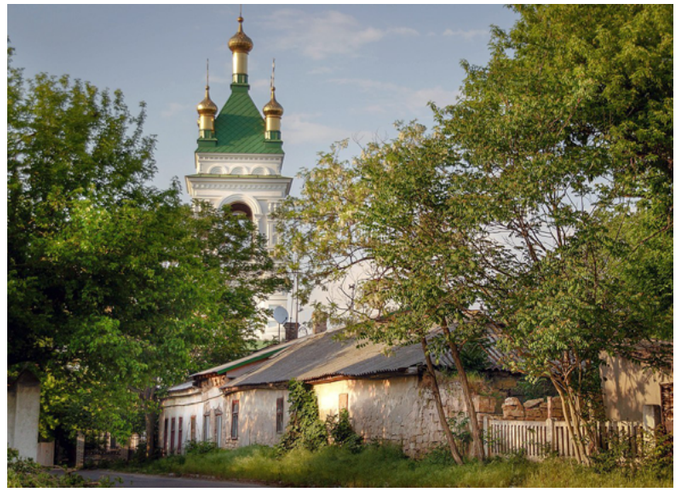
The district is an administrative-territorial unit made up of villages (communes) and cities, united by territory, economic and socio-cultural relations. **The city** where the district council is based is called the city of residence. The district is called the city of residence.

The **city** is a more developed administrative-territorial unit than the village from an economic and socio-cultural point of view, with appropriate municipal-household, industrial and commercial structures, whose population is mostly employed in industry, in the sphere of public service and in different fields of intellectual activity, in cultural and political life.

The village is an administrative-territorial unit that includes the rural population united by territory, geographical conditions, economic, socio-cultural relations, traditions and customs.

Giurgiulesti is a village in Cahul District. The locality is located in the southern extremity of the country, on the border with Romania and Ukraine, on the banks of the Prut. The port adjacent to the locality is the only Moldovan port on the Danube. According to the 2014 census, the population of the locality is 2,866 inhabitants.

Ukraine



The administrative divisions of **Ukraine** are subnational administrative divisions in the geographical area of Ukraine under the jurisdiction of the Constitution of Ukraine. Ukraine is a unitary state with four levels of subnational governance: (1) oblasts or regions (mostly), (2) districts or districts, (3) city councils, and (4) rural councils.

The first level consists of 27 subdivisions, of which there are 24 regions, an autonomous republic (Crimea) and 2 cities with special status (Kyiv and Sevastopol). The second level includes (as of July 2020) 136 districts. (The 2020 reforms, while maintaining the first-tier structure, radically reduced the second tier from 490 districts and 118 "cities of regional significance" to only 136 districts, with "cities of regional significance" merging into districts reformed.)

According to Article 133 of the Constitution of Ukraine, *"the system of administrative and territorial structure of Ukraine is composed of the Autonomous Republic of Crimea, oblasts, districts, cities, city districts, settlements and villages."* Certain types of subdivisions are not mentioned in the Constitution (i.e. rural settlements), but are mentioned for the regional composition. Ordinary districts (districts) are also sometimes designated as rural to distinguish them from urban districts.

The **oblasts** are at the first (top) level of the administrative division of Ukraine. Two cities have special status: Kyiv (capital of Ukraine) and Sevastopol. The **districts** are s**maller territorial units of subdivision** in Ukraine. There are **136 districts**. (Following the administrative changes in 2020, all former cities of regional importance have been absorbed into the revised system of 136 districts.)

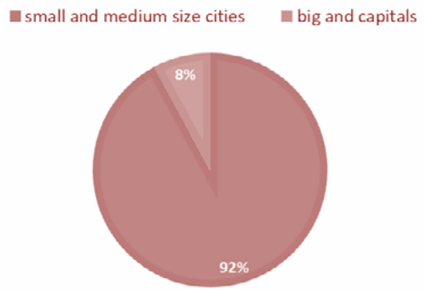
According to Ukrainian law, **a city** in Ukraine is a town of **at least 10,000 inhabitants**. Cities can have different states. Some may be of national importance, others of regional importance (oblast), and the rest of district importance (rayon). For example, the cities of *(Kyiv and Sevastopol have a special status of national importance and each is officially classified as a city with a special status, which from an administrative point of view is equivalent to an oblast.*) Almost every region has at least one city of regional subordination (importance), which is the administrative center (capital) of that oblast

Oblast subordination cities are as important as a district and are often their administrative centers. In addition to the usual districts, several Ukrainian cities with national or oblast status are further divided into city districts, which may include other cities, towns and / or villages. In 2010, Ukraine had 23 such cities with their own city districts. Many districts also have city municipalities of its level of subordination (importance). These are usually the administrative centers (capitals). Not all districts have a city as their administrative center; however, all district centers are at least urban (urbanised). All administrative centers have their own form of self-government. Municipalities of a district subordination may administer several adjacent local councils (municipalities), usually rural. If a rayon has several cities at the rayon (district) level, they can divide the administrative power for the rayon.

In addition to city municipalities, Ukraine has city-like municipalities. The lowest forms of self-government are rural municipalities and villages. *A rural municipality* may consist of a single village, usually large, or a combination of other villages or rural localities. Some vil-

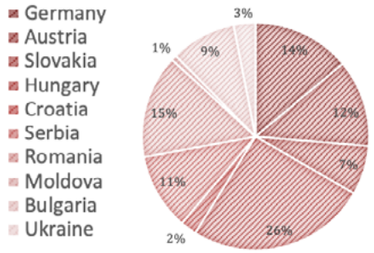
lages have some very small additional settlements. Those settlements, together with the native village, combine a local (rural) municipality (silrada). A silrada (rural municipality) is usually called a village and is the lowest level of administrative division.

Chilia Nouă (20.829 inhabitants -01.01.2011), Ismail (71.985 inhabitants-2018), Reni 19.488 inhabitants -2011), Vâlcov (8570 inhabitants-2011).



Share of Danube cities by size. Small and medium sized cities / big cities and capitals. Within the Danube urban territory, there are 11 large cities and capitals (8%), and 128 small and medium size cities and towns (92%)

Taking into account the specifics of definition of small and medium cities, the project led through all its activities to a collaborative and constructive learning, based on connections with other teachers with the same professional interests.



Centralized number of Danubian SMCs

A centralized number of the Danubian SMCs and an overview using one of the methods detailed in the chapter IV here:

https://storymaps.arcgis.com/stories/47ff5d319a0b4e0cbcd1b45333c2f15e

The project team interactively analysis a matrix of criteria proposed in establishing the most appropriate framework for all these cities resulted in observations of teaching practices that can be emulated and similarly applied. Thus, the common denominator of analytical criteria has been deduced, and will lead in the future to reduce the costs of implementing new teaching strategies or learning methodologies related to this topic.

Besides the population thresholds accorded to each national legal framework, the main criteria which establishes the list of small and medium cities in each country, we developed a number of 9 analytical *criteria* considered the most relevant for the topic approach: *demographic dynamics, main functional profile, territorial autonomy, type of urban structure, heritage concentration, natural protected areas, cross border connections, Danube connection etc, as follows:*

City Population (no inhabitants): Very small cities: 3000-10000 inhab., Small: 10000- 30000 inhab, Medium: 30000-100000 inhab.

Demographic dynamics (by the last 30-year inter-census period**): (**+) growth, (-)decline

Main Functional Profile: I= industrial, T= tertiary, P= ports, O=other

Territorial autonomy: A: autonomous, S: co-related in system; D: dependent

Type of urban structure: C: compact, P: polycentric, T: tentacular, D: dispersed

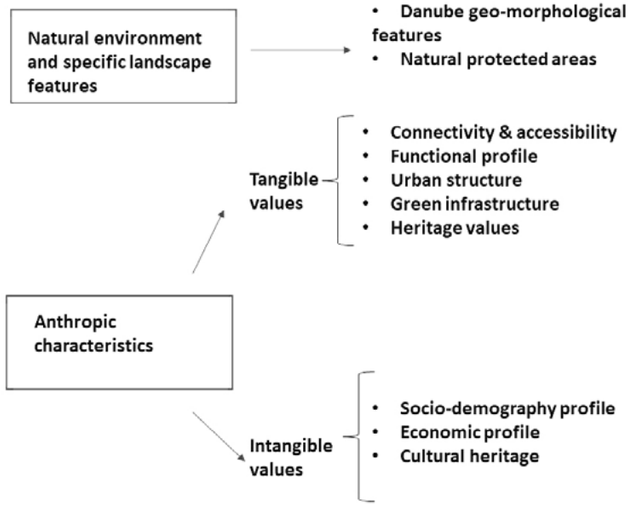
Touristic development: 3: high 2: medium 1: small 0: not developed

Heritage concentration (in relation to DANUrB+) **:**3: high, 2: medium, 1: small

Natural protected areas (included in or tangent to cities territory): 3: high, 2: medium, 1: small, 0: no protected areas

Cross border cities: 1: yes, 0: no

Cross Danube Connectivity: X: bridge (car, train), Y: ferry (car, bike, pedestrian)



A basic common study methodology of the DSMCs

Using this grid, it has been established a common language on this issue, both between teachers and teachers - students. At the same time, these criteria are accepted as a minimum necessary in the analysis of cities from this category, and can be completed with others depending on the local specificity.

I.3.2. Methodological process

The methodology used for the development of the present project evolves around an interactive environment in which each university from the consortium has different roles. In order to define the main concept of the METHODOLOGICAL GUIDELINES AND NEW THEORETICAL AND PRACTICAL METHODS OF INTERDISCIPLINARY TEACHING FOR ASSESSING DSMCs, have been followed 4 main steps:

a) **Pool together all actual teaching methods existing in the 7 SMCs Universities**

This step allows us to compile a comprehensive picture of the degree to which at this time the partner universities are carrying out a teaching-learning process related to the subject of DSMCs. Both theoretical disciplines and practical disciplines are collected from all the partners, on this occasion seeing the proportion between the 2 categories in each case.

From the data collection and their analysis were identified relevant knowledge and skills for the next IPs targets and allowed the visualisation with both quantitative and qualitative accuracy of the information. The analysis takes into account the overlapping between content, learning outcome and teaching methods that might facilitate the integration of the different modules. A series of criteria were selected to form the database: Domain, Study level, National / International context, Discipline's Profile, Connections with SMCs, Innovative teaching methods used, Stakeholders Involvement, Possibility to apply in different context, Inclusiveness approach. (Chapter II.3)

b) **Analyse the innovative aspects in each method**

In addition to the quantitative records resulting as part of the previous step, for a deeper analysis of the innovative aspects used by each partner in the theoretical or practical activities identified as related to DSMCs, a questionnaire was applied that introduced new necessary data. The purpose of this questionnaire is to largely capture the teaching methods and tools used both in theoretical and practical activities in our university/ department, and that can potentially be used in teaching the topic of small and medium-sized cities on the Danube.

All partners selected from several proposed lists the appropriate items that have already been used in current teaching activities, and also, where appropriate, new proposals for methods and tools that may be included in the future teaching activities of this topic. Thus, new values were identified as a result of the combination of the different courses as integral part of the learning outcome and scope.

c) **Combine methods, tools, strategies from all our teaching experiences and other disciplines**

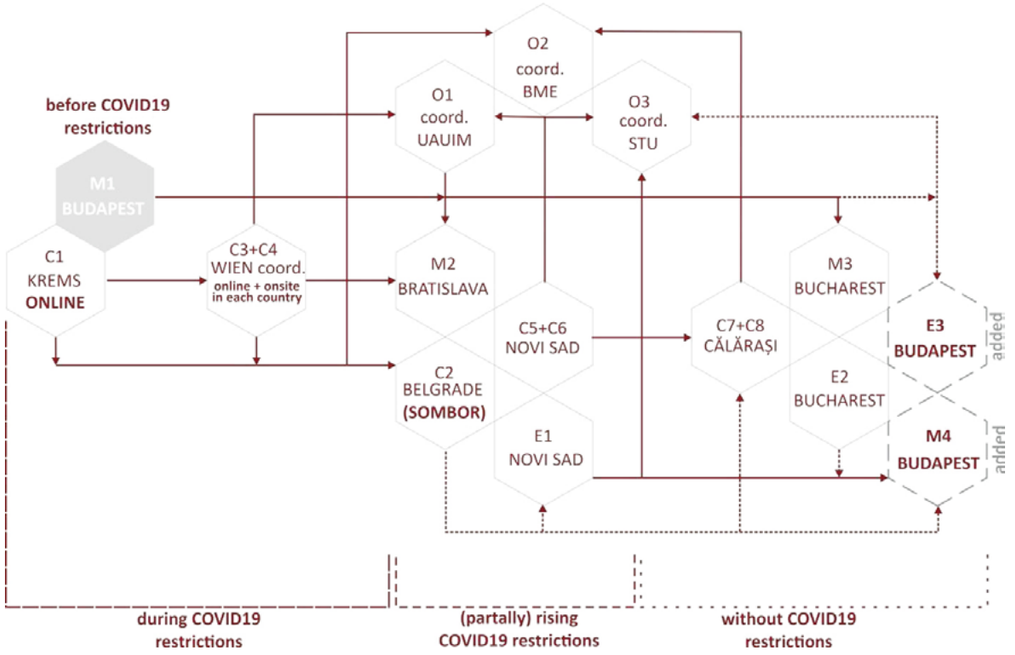
This step is related both to the analyses of the previously performed steps, and to the results of the Intensive programmes (IPs) developed during the project. Although we had set ourselves this goal from the beginning, the pandemic situation forced us even more to innovate and adapt to the new restrictive context. The first IPs coordinated by TU – Wien in a hybrid formula - both onsite and online – led to a creation of a virtual space for meeting of ideas and concepts, facilitating a complex knowledge about the urban life applied to different situations/ case studies SMCs, around the topic of inclusive mobility

(Sensing and mapping the city, 2023). The IP01 webpage is available until 2027 under following link: https://danubiansmcs.project.tuwien.ac.at/.

As correlation to the previous step, the results of the survey applied are faced to the results of the first IP01, and the teaching methods are mapped on different categories: for theoretical disciplines - descriptive methods/ participatory methods, and for practical activities (methods of documentation and data collection, data analysis methods, methods of synthesis and diagnosis, concept generating methods, strategic planning methods, simulation / testing methods, design methods and technical solutions, co-participation methods, methods of presentation and dissemination).

d) Test new methods and tools within IPs & current academic activities

This step is correlated to the next 2 IPs which are addressing the participative and informal methods used in approaching the cross-border cooperation of Danubian_SMCs and the topic of post-industrial and shrinking conditions engaging the inclusive development of these cities. Also, it comes as a conclusive synthesis of the previous phases of this O1, presenting the real possibilities of inventing and testing new methods and tools in near future.



Legend: M - transnational project meeting, C – Learning, Teaching and Training Activities; O – Intellectual Output, E- Multiplier event

Changes of Danubians_SMCs learning process along the timeline before, during and after COVID 19 restrictions, Source: Angelica Stan

The methodological process of the project needed an adaptation ”on the fly”, given the pandemic that occurred immediately after the start of the project (October 2019). The months of imposed restrictions generated new reconsideration of the methodological process, keeping unchanged the fundamentals and the main goals of the project. Thus, the online activities have been increased, communication through video platforms became more intense, the facilities for group and simultaneous access to information

through online platforms (little used before the pandemic) were intensely used and with maximum efficiency. In fact, all Google tools were used intensively (surveys, sheets, websites), and with increasing frequency, leading to very good results, especially regarding the dialog, the data collection and organisation. The learning process also had to be adapted ”on the fly”. The theoretical input parts adapted the fastest, going online and benefiting from a large audience, both by teachers and students, and the onsite activities were modelled in such a way that there was a physical contact with the sites, and with local actors, but limiting the meetings or choosing to take place separately (as within the IP 1 which took place on site in each country from the consortium, but with own group of students, and the joint presentation of the projects, and teachers activities remain online because of the travelling restrictions).

I.4. Premises of studies: Danubian_SMCs & DANURB+ integration and differentiation

Both projects Danubian_SMCs & DANURB+ started from a common creed, issued during the DANUrB project developed between 2017-2019, and which focused especially on tourism and education to strengthen the Danube cultural identity and solidarity. Then it was observed that, at the level of the Danube as a region, there is, from the point of view of spatial-territorial inclusion / exclusion, in very relation with the concept of solidarity, a specific character of small and medium cities and shrinking cities (the first category including the second one). This peculiar character is a complex one, not always being about deindustrialization, not only about the lack of accessibility and connectivity, not only about demographic loss and economic decline, but, in most cases, about a complex combination of all of this, in different proportions.

Danubian_SMCs and DANURB+ have both dedicated to study this problem, especially regarding the undiscovered and unconscious potential of these cities, the management mode that often does not sustainably exploit local resources, the diffuse cultural reserves and especially the human resource that needs a re-invention. In an integrated way, both projects aim at strengthening this human resource made up of local actors who can relate in an active and stimulating network for development. But without an education that supports this at the root, such an enterprise will not be very successful in the long run.

Surprisingly, we have also noticed that the teaching programmes of this topic of small and medium-sized cities in the urbanism-architecture and landscape planning university curricula is only tangentially achieved, without a correct emphasising on their sustainability and socio-territorial inclusion, and without taking into account the need of innovation of methods, given that the purpose of this education is to stimulate young people creativity, energy, entrepreneurship, the ability to imagine and develop projects. Here Danubian_SMCs ERASMUS+ comes to differentiate itself from DANURB +, leading the research towards this field - of innovative teaching-learning methods- so that the young generation to feel again attracted by the spaces of small and medium cities, not only as tourists but also as entrepreneurs, educators, activists, developers.

It is highlighted once again the major role that education has for the future of small and medium-sized cities; a specialised education is needed for this objective - to increase the interest of the young generation in the capacity of small and medium-sized cities to reborn, to become an attractive offer in relation with the big cities and the Capital, based on the openness and potential represented by the local resources, still insufficiently or not creatively exploited.

International context

Methodological guidelines and new theoretical and practical methods of interdisciplinary teaching for assessing small and medium sized cities on Danube

01

II. INTERNATIONAL CONTEXT

II.1. International priorities in higher education & O1 objectives

Teaching and learning through innovative and interdisciplinary methods and tools on the topic proposed in this project is a process within the broader competencies' profiles of the future generations, defined in the spirit of the Education 2030 agenda. "The relevance of education and learning to holistic, inclusive, just, and sustainable development is universally accepted. It is also universally acknowledged that education and learning produce the human resources, and facilitate long term human capital accumulation required to steer development. Evidence of the perceived role of education and learning is in instruments that guide national development such as: constitutions, national visions statements, national development plans, poverty reduction strategies, country investment climate assessments and reports, private sector development strategies, education sector policies, other sector policies, etc" (UNESCO, 2019, p. 11).

We believe that it is crucial to attentively look at the way in which students will be able, in the horizon of the next decades, to connect to the requirements of urban development. "The symbiotic and iterative relationship between education and development is also universally acknowledged. Education inextricably supports development" (UNESCO, 2019, p11). The field of spatial planning is currently tense with different intentions and ideas building on the need to be better prepared for the future stresses - both in terms of technology and environmental protection, and last but not least, as social and cultural involvement in the city's transformations. Recent studies state that planning programmes and curricula need to incorporate learning and teaching approaches that prepare students in higher education for working in co-creation settings by purposefully exposing them to learning environments that involves community, science and practice (Rooij & Frank, 2018).

At the same time, changing demands for competences directly impact education and learning systems as they must produce graduates with such competences. For instance, the heightening awareness of the need for sustainable development spurred demand for green skills; the technology revolution gave rise to digital skills, changes in workplaces created new skills for employability and for work; and, globalisation impelled competencies for global citizenship (UNESCO, 2019, p. 11).

Between the competencies developed through the DSMCs learning module and the general competences (macro-competences) pursued at European level through dedicated documents, an integrative relationship is established. In the same way, the topic of small and medium size cities is a particularly detailed topic of sustainable planning in general, establishing an integration relationship in a broader field of knowledge. Within the Framework of Future Competences (UNESCO, 2019, p. 19) there have been established the **7 stable macro-competences,** listed here in order of their importance:

1. *Lifelong learning* (Curiosity/ Creativity/ Critical thinking)

2. *Self–agency* (Initiative/Drive/Motivation Endurance/Grit/Resilience Responsibility)

3. *Interactively using diverse tools and resources* (Impactful use of resources/ Efficient use of resources/ Responsible consumption)

4. *Interacting with others* (Teamwork/ Collaboration/ Negotiation)

5. *Interacting in and with the world* (Being local and global/ Balancing rights with privileges/ Balancing freedoms with respect)

6. *Trans-disciplinarity* (complex understanding, openness to different disciplines)

7. *Multi-literateness* (Reading & writing/ Numeracy/ Digital competences) (UNESCO, 2019, p. 19)

Preparing our students for an inclusive and sustainable world is in the attention of THE

OECD- PISA- GLOBAL COMPETENCE FRAMEWORK, which argues on the global competence necessity it is a ”multidimensional capacity”. Globally competent individuals can examine local, global and intercultural issues, understand and appreciate different perspectives and worldviews, interact successfully and respectfully with others, and take responsible action toward sustainability and collective well-being (OECD, 2018, p. 3).

In the meaning of this document, referring to the DSMCs assessment within the educational process, the **core competencies** are defined through the intersection of **4 target dimensions** that students need to apply successfully in their practical activity regarding the SMCs problematique:

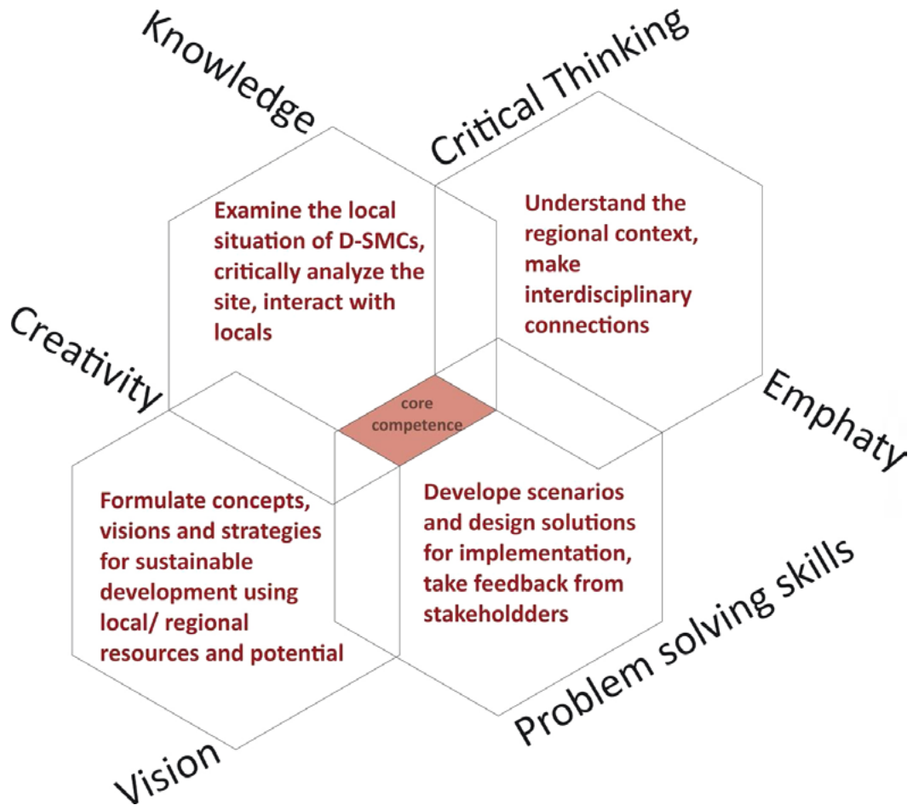
1. The capacity to examine the local situation of DSMCs, critically analyse the physical site and the social layer, interact with locals

2. the capacity to understand the regional context, make interdisciplinary connections

3. the capacity to formulate concepts, visions and strategies for sustainable development using local/ regional resources and potential

4. The capacity to develop scenarios and design solutions, to take feedback from stakeholders and debate on the various possibilities for implementation.

The “mechanism” through which the methodology leads to the core-competencies includes the reference to a series of main skills of students, by getting specific knowledge on a site and on a issue (i.e. critical thinking, contextual thinking, problem-solving attitude, creativity, empathy, vision); they are specific to each stage of the learning process, but are also valid horizontally, intersecting the all 4 target dimensions mentioned above.



Core competencies regarding Danubian_SMCs educational process. Source: Angelica Stan

01

II.2. Academic experience as background. Overview of the relevant experiences in innovative teaching

From the point of view of IO1, the new innovative teaching-learning methods and tools together with the structuring of curricula based on professional competencies, integrated in the EU framework of architecture and urban planning education, are the key-elements of the consortium universities academic programmes. The inter / trans / disciplinary approaches need to access the complexity level of understanding the inclusive development through the case of DSMCs, this being an indispensable way to connect to the modern concepts of education, adapted to the future.

The objective of this analysis is to assess the teaching and learning process in the 7 universities involved in this project, in order to design a methodological guide adapted to the issue of DSMCs that would help improve the following aspects:

» academic performance of students in architecture and urban planning;

» teaching process optimisation;

» integration of sustainability and inclusiveness topic in the theoretical and practical frameworks;

» inclusion of the most creative methods and tools in the educational process;

» including the lifelong learning approach in the current universities' curricula;

» enhancing the main skills of students in architecture and urban planning areas (knowledge, critical thinking, problem-solving attitude, creativity, empathy, vision).

We collected both theoretical disciplines (courses) and practical disciplines (seminars, projects) from all the universities part of the project consortium:

1. **UAUIM:** *The spaces of the city, Dynamics of urban peripheries, The city park, Sitology and sustainable development, Inclusive accessibility within & to the city*

2. **TUW:** *Dynamic Border Landscapes in Europe: Borderline City, Project Pack it up!, Sensing and mapping the City, Project recovering: Designing New Stabilities*

3. **UBGD:** *Methodology of Urban Design, Planning Methodology, Studio Project –Urban Regeneration*

4. **BME**: *Participatory Experiments with Gamification in Urban Design, Department Design Thematic courses on the Danube, Interdisciplinary project-based design*

5. **UNS:** *Architecture Analysis, Functions and Typology, Architecture Theory and Criticism, Urban Design of Complex programmes*

6. **STU**: *Seminar – Bachelor project, Urban Design studio II*

7. **UWK**: *Scola Telcz, SR Module 7: Urban planning and infrastructure, Visual Competencies*

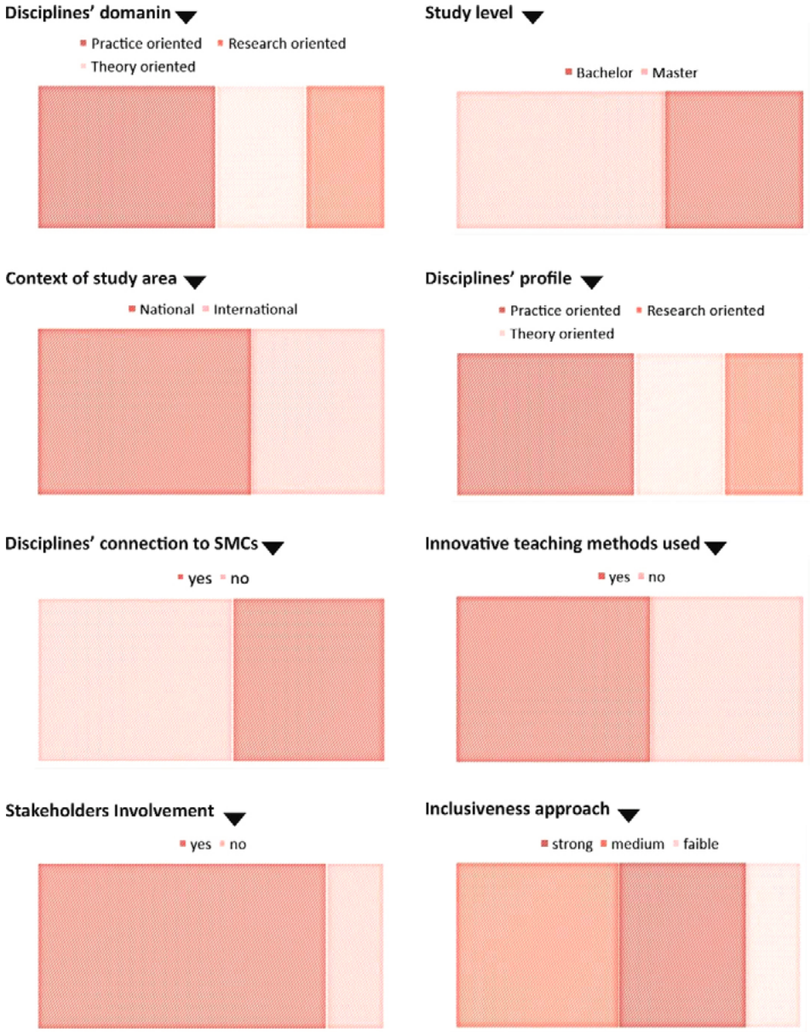
The data resulted from the analysis on existing curricular disciplines related to SMCs in the 7 partners universities of Erasmus+ Project are showing the following synthetically that the dominant study area for all the universities in the consortium is urban planning (46%), followed by architecture (22%), landscaping and other related fields being equal to 16%. The vast majority of studies are master level (60%), and their context is predominantly national (62%). For 51% of the universities in the consortium, the disciplines related to SMCs are mostly oriented towards practice, only 23% towards theory and 26% towards research. However, the connection of these

existing disciplines in the current curricula of the universities in the consortium is not very strong (47%), in the assessment of the survey participants. Regarding the use of innovative methods, 56% of the respondents' state that they are present in the current teaching methods, and 54% state that the involvement of stakeholders is achieved within these disciplines. A very large majority (84%) consider that the transfer of knowledge to and from other disciplines is specific to actual curricula, but the social inclusion as a topic within them is only in proportion to 44%.

The criteria chosen to be used for analysing the general content of these disciplines are:

1. **Domain:** Architecture/ Urban planning/ Landscape planning/ Other disciplines
2. **Study level**: Bachelor/Master
3. **Context of study area:** National / International
4. **Discipline's Profile:** Practice oriented/ Research oriented/ Theory oriented
5. **Discipline connections with SMCs:** strong/ medium/ faible
6. **Innovative teaching methods used:** yes/no
7. **Stakeholders Involvement:** yes/no
8. **Knowledge transfer possibility:** yes/no
9. **Inclusiveness approach:** yes/no

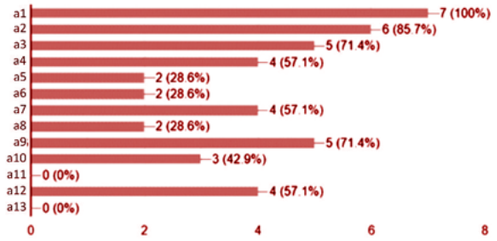
On each criterion, the results presented are as follows, showing the synthetic current stage within the the consortium:



II.3. Mapping existing teaching methods & tools for assessing the urban complexity of Danubian SMCs

Based on the **survey applied for all the 7 partners university**, through targeted questions regarding the teaching methods and tools used both in theoretical and practical activities and that can potentially be used in teaching the topic of DSMCs in further programmes, we find out the realistic image of the existing teaching methods & tools used for assessing the urban complexity of Danubian SMCs. These results, together with the ones referring to the future / proposed methods related to desirable competencies envisioned within this project, compose **an inter-relational system** on which we build on the *Teaching module framework.*

For the question related to the most already used methods/tools of teaching in the faculty/ department within the theoretical disciplines (courses, seminars), the results show that for all participants to the survey (one member per each university involved), the INPUT LECTURE (a lecture that initiates, motivates and frames a process, chaired by the teacher or a student) is the most frequent (85%,) method used, followed by EXPERT LECTURE (a lecture that provides knowledge on a specific topic, given by one or more teachers, then the SEMINAR method (a chaired, dialogue-oriented and interactive teaching setting focused on a topic; participative, interactive), the ESSAY WRITING (71.4%). Also very well present are BRAINSTORMING (group discussion to produce ideas or solve problems) and ANALYTICAL READING (collecting and presenting facts from different types of written sources, to deeply understand the message and goal), in proportion of 57% each.



a1.INPUT LECTURE (a lecture that initiates, motivates and frames a process, chaired by the teacher or a student))

a2. EXPERT LECTURE (a lecture that provides knowledge on a specific topic, given by one or more teachers)

a3.SEMINAR (a chaired, dialogue-oriented and interactive teaching setting focused on a topic. Some characteristics: participative, interactive.)

a4.BRAINSTORMING (group discussion to produce ideas or solve problems)

a5.LECTURE WITH CRITICAL READING (lecture based on a required bibliography, critique points out the strengths and weaknesses)

a6.STORYTELLING (qualitatively describing the social and cultural context by sharing stories, sometimes with improvisation, theatrics or embellishment)

a7.ANALYTICAL READING (collecting and presenting facts from different types of written sources, to deeply understand the message and goal)

a8.DISTANT READING (collecting and presenting only numerical data from different types of open sources)

a9.ESSAY WRITING

a10.GAME (group activity with investigation from different perspectives through exploration of rules and relationships)

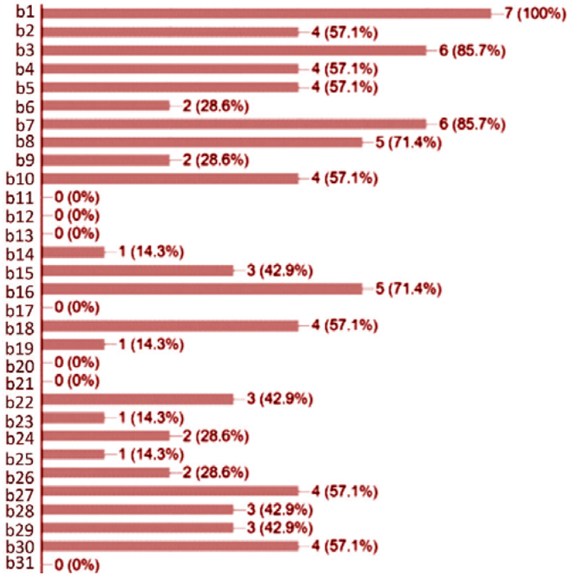
a11.PLENARY DISCUSSION (a discussion between few experts in front of a larger audience)

a12.DEBATE (a structured format discussion where different viewpoints are being argued, to raise awareness of the fact that there are many viewpoints and one need to allow for a balanced/democratic exchange of ideas)

a13.OTHER

For the question related to the most already used methods/ tools of teaching practical disciplines (workshops, studios) in the correspondent faculty/ department, the respondents unanimously considered that ON-SITE VISIT WITH FIELD OBSERVATION AND / OR WALKING TOUR is essential, then significant (85.7%) considered that ON-SITE VISIT FOR QUALITATIVE DATA COLLECTION, PHOTO-VIDEO RECORDINGS and ANALYTICAL DRAWING / SKETCHING / DIAGRAMS are also widely used methods in current teaching practice.

In 3rd place are the methods that include BRAINSTORMING and DESIGN THINKING (71%) and in 3rd place (57%) are the following teaching methods / tools used: on-site visit with stakeholders interviews, quantitative data collection based on desk-research, open source web - mapping, swot analysis, mind mapping (brain mapping), supervision and consultation, exhibition with round table or panel discussion.



b1.ON-SITE VISIT WITH FIELD OBSERVATION AND/ OR WALKING TOUR

b2.ON-SITE VISIT WITH STAKEHOLDERS' INTERVIEWS

b3.ON-SITE VISIT FOR QUALITATIVE DATA COLLECTION, PHOTO-VIDEO RECORDINGS

b4.QUANTITATIVE DATA COLLECTION BASED ON DESK-RESEARCH

b5.OPEN-SOURCE WEB – MAPPING

b6.VOLUNTEERED GIS, DATA ACQUISITION AND VISUALIZATION

b7.ANALYTICAL DRAWING / SKETCHING/ COLLAGE/ DIAGRAMS

b8.BRAINSTORMING

b9.MOOD BOARD

b10.MIND MAPPING (BRAIN MAPPING)

b11.STORYTELLING

b12.LOTUS BLOSSOM IDEATION TECHNIQUES

b13.GOING WITH THE FLOW

b14.BLUE SKY VISION

b15.ZOOM- IN / ZOOM- OUT ANALYSIS

b16.DESIGN THINKING

b17.DRSPI DIAGRAM

b18.SWOT ANALYSIS

b19.TRANSECT METHOD

b20.VALUE PROPOSITION CANVAS

b21.CRITICAL PATH DIAGRAM

b22.SIMULATION OR SCENARIO PLANNING

b23.GAMIFICATION

b24.ROLE PLAY, PERSONA BUILDING CASE

b25.CO-COMMITMENT

b26.TABLE CRITIQUE

b27.SUPERVISION AND CONSULTATION

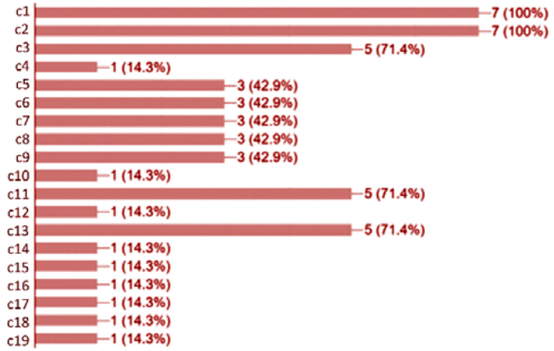
b28.PLENARY DISCUSSION

b29.DEBATE

b30.EXHIBITION WITH ROUND TABLE OR PANEL DISCUSSION

b31.OTHER

The questionaire also reffered to the methods & tools mainly used in current activity after the participating to the activities under CREATIVE DANUBE ERASMUS+ project (IPs in Krems and Vienna). The participants answers mainly included "On site research and online application", but also "mapping, collaboration with stakeholder"s and use of ICT, design thinking, supervision and consultation, geo mapping,



integrating georeferenced digital tools into site research and data collection.These results show a clear direction towards the use of digital tools both in data collection and in analysis, interpretation and representation.

In order to identify the level of interdisciplinarity in teaching activities and academic research, in partners universities/ departments, respondents choose from a range of suggested disciplines/ fields of study those connected to the topic of DSMCs. Besides urbanism and architecture which are obviously the most connected study fields to this subject, through the profile of the responding institutions, the interdisciplinary field connected with SMCs was composed mainly of area such as: LANDSCAPE PLANNING, SOCIOLOGY, ART, (71%), and TOURISM, GEOGRAPHY, ENVIRONMENTAL SCIENCE, ECOLOGY (54%). It was mentioned that these related fields are achieved through the contribution not only of the internal teams that teach in these universities but also through the contribution of the invited experts, specialists from outside the respective institutions.

c1.ARCHITECTURE

c2.URBAN PLANNING

c3.LANDSCAPE PLANNING

c4.ANTHROPOLOGY

c5.ECONOMY

c6.TOURISM

c7.GEOGRAPHY

c8.ENVIRONMENTAL SCIENCE

c9.ECOLOGY

c10.COMPUTER SCIENCE

c11.SOCIOLOGY

c12.LITERATURE

c13.ART

c14.PSYCHOLOGY

c15.PROJECT MANAGEMENT

c16.OTHER, PLEASE ADD

c17.MONUMENT PRESERVATION, MEDIA, REPRESENTATIONS

c18.SUSTAINABLE DEVELOPMENT

c19. unclear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II.4. Challenges in teaching - learning process identified within the university activities

The development of this framework includes also a critical self-assessment procedure, regarding the current teaching and learning activities within the existing universities of the consortium project, very different in terms of tradition, organisation, educational goals, duration of studies etc. The main challenges and difficulties of the current didactic process that the group of teachers involved identified as still possible to be encountered in the case of the program dedicated to DSMCs, are presented in the SWOT analysis below:

» Strengths

» Double orientation to theory and practice of most of the university consortium programmes;

» Inter/ transdisciplinarity involved in most of the cases, especially in project type activities;

» Existing methods and techniques specific to architecture education that involve openness in communication and increased creativity;

» The good ability of teachers to adapt to new technologies;

» The existence of disciplines already oriented towards the subject of social inclusion, sustainability in the development of cities.

» Weaknesses

» Repeated contents in the different courses;

» Lack of continuity and connections between various theoretical courses, and/or from theoretical to practical activities;

» Insufficient degree of communication between the teachers regarding the courses content, methods, goals;

» Lack of novelty and creativeness elements in teaching theoretical notions;

» Lack of specialisation of the teaching staff in specific program contents;

» Lack of transparency in the use of new methods that require an openness of the students and their co-participative contribution.

» Opportunities

» to share the most attractive and effective methods used in the academic spaces involved in this project, geographically delimited by a certain specificity related to the Danube;

» to increase the role of architecture and urban planning education in improving the young people's perception of the development of small and medium-sized cities and in regaining their attachment to local values;

» to find new methods and techniques of teaching – learning derived from the direct contact with local actors involved in the project;

» to develop the local community spirit of small and medium-sized cities through the visibility of the students' projects, intellectual outputs and their international exposure through the Erasmus+ program.

» Threats

» the different national languages in the universities and the cities involved in the project (and the need to use English as a foreign language for all those concerned);

» the differences in the organisation and administration of the universities/ faculties/ departments involved, generating differences in the curricula related to this topic;

» an insufficient theoretical delimitation of the topic of small and medium-sized cities in the specialised literature;

» strong differences in the definition and classification of SMCs in the countries bordering the Danube.

The conclusions of this SWOT analysis show that there are a number of things that can be improved and which are general aspects of university education, found in most European faculties, not specifically in architecture - urban planning programmes (i.e. repeated contents in the different courses; lack of continuity and connections from theoretical to theoretical courses, and/or from theoretical to practical activities; insufficient degree of communication between the teachers regarding the courses content, methods, goals; lack of novelty and creativeness elements in teaching theoretical notions),but also others that are specific only to some programs and that come from structural defects (lack of specialisation of the teaching staff in specific program contents; lack of transparency in the use of new methods that require an openness of the students and their co-participative contribution).

The aspects related to the intrinsic cultural differences between the countries of the consortium and which also induce certain characteristics on the educational process are overcome by integration and by the openness that the proposed methodological framework offers to the participants. Regardless of the differences of language, culture, history, way of organisation of the cities from this region, there is a common vector of this approach that was built on the belief that the urban phenomenon associated with the Danube territory preserves the centrality given by the river itself, as the main generator of civilization and urban development, and that the existing qualitative/quantitative differences, as well as the gaps between cities/regions, only prove the vitality and continuity of this emblematic phenomenon for the development of the whole Europe.

How to teach urban planning and design for danubian-smcs through innovative methods

Methodological guidelines and new theoretical and practical methods of interdisciplinary teaching for assessing small and medium sized cities on Danube

01

III. HOW TO TEACH URBAN PLANNING AND DESIGN FOR DANUBIAN-SMCs THROUGH INNOVATIVE METHODS

From the so far experience of teaching-learning of this topic even directly, tangentially or included in other curricular contents, a series of new methods and tools desirable for further sustainable and inclusive approaching of Danubian SMCs can be presented below, as key-elements that derive from the specifics of each school but which, beyond this, lead to a common approach.

But, first, in order to show the most suitable innovative methods and tools that can be used for education on this topic, it is necessary to explain the entire process of teaching-learning specific to the field of architecture-urbanism with interdisciplinary connections, valid for the topic of the Danubian SMCs.

Methodological guidelines and new theoretical and practical methods of interdisciplinary teaching for assessing small and medium sized cities on Danube

01

III.1. The process of teaching - learning of the topic of sustainable and inclusive development of Danubian SMCs

The teaching-learning process in the case of the topic of small and medium-sized cities located along the Danube involves a series of stages, tested by the group of teachers of the consortium during the 3 Intensive programmes carried out within this project, and also tested within current teaching activities in the universities involved. This process includes the following major stages, which could have variations and sub- divisions, depending on the teaching specifics of each group/series of students:

0) theoretical inputs. The theory teaching stage is assumed to be mandatory, but it is treated in a condensed way, there being a limited number of lectures of 2 major types: a) introduction lectures to the issue, with the main goals and specific of the SMCs, and b) given by experts in different fields/sections for deepening the topic and to adapt to the site- specific problems. The first type takes place at the beginning of the process, the second type intervenes both at the beginning and along the process, as the students become more deeply involved in solving some problems and elaborating the concept.

1) documentation and co-participative data collection - about the main topics involved in the program: Danube region specificity, Danube regions territorial systems of settlements, Danubian small and medium small cities, urban inclusiveness, sustainability, interdisciplinarity, co- participative approaches. It is also the stage of collecting data from the field, through visits and interviews with local actors and residents of these cities, through appropriate tools;

2) synthesis and diagnosis - the stage in which the collected data and information are mapped, graphically represented to be understood, ranked according to different criteria and synthesised to be able to form the basis for the diagnosis of the existing situation. The diagnosis consists of a sub-stage, most often graphically represented by diagrams illustrating negative/positive aspects, positive trends and suspicions regarding future negative developments, areas exposed to risks, barriers for development etc;

3) concept development stage is usually the most creative and at the same time, the most difficult and laborious stage, involving careful coordination on the part of the teacher and both mental and emotional involvement of the student.

We consider the creativity as given by The World Conference on Higher Education, which proclaimed creativity as “an innovative educational approach” (Reid & Petocz, 2004, p. 51), as in other disciplines, it have different approaches: in business, creativity is ”trans-

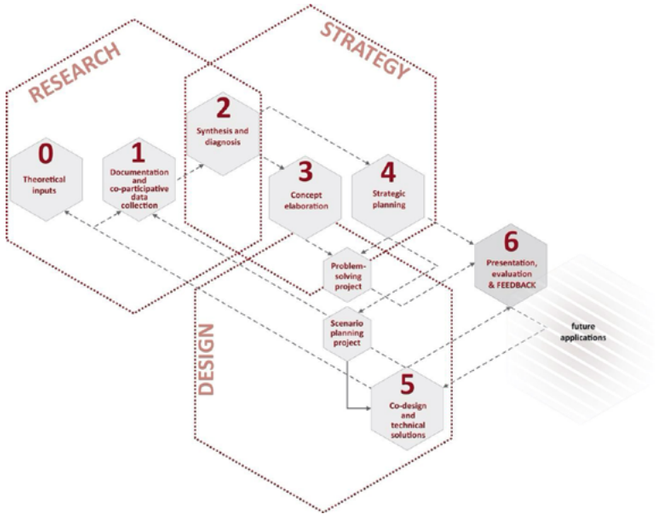

Diagram of DSMCs teaching – learning process

lated" by "entrepreneurship", in mathematics it is sometimes equated with "problem-solving", in music it is "performance or composition".

In this aim, a creative product of the teaching – learning process in architecture and urban planning, in relation to DSMCs topic is measured through the prism of the specific difference it brings to the understanding of the subject at the end of the didactic process, sometimes "against the norms of that domain, its own rules, approaches and conceptions of creativity" (Reid & Petocz, 2004, p. 45).

The concept development - be it at the urban-territorial scale, of the landscape or at the architectural-object scale of interventions – it always involves a series of skills/competencies that the student must have, and the teachers must encourage and stimulate, including originality, persistence, independence, involvement, incubation, discover problems, generate alternatives, verification (Gomez, 2007).

4) at the stage of **strategic planning,** the methods and tools used will be more oriented towards the materialisation of the link between what was concluded in the diagnostic phase, and what the concept stage brought as novelty. It is also an essential and difficult stage, because the student must be guided in relating the initial layers of very concrete site-related data, and the conceptual horizon - much more abstract and open to interpretations. Strategic stage focuses on setting high-level goals and determining desired interventions, "translated" from the main concept to details, future objectives and actions, and it is possible to be applied both at macro and microscale projects.

5) the stage of **co-design and technical solutions** continues the process with the answers and solutions that meet the previously set goals and objectives. It is a stage that once again requires a high level of creativity, the student having to call on the ability to produce that design and technical solution that optimally meets the expectations - not only of the teachers but also (especially) of the local actors, who thus become part of this process. Following Marc Steen, co-design is seen here "as a process of joint inquiry and imagination" (Steen 2018), the design part is segmented into sub-levels of adjustment between the proposals from the student and the suggestions offered from the relevant external environment. As Michael Farr states, "co-production and co-design techniques involve facilitating, managing and coordinating a complex set of psychological, social, cultural and institutional interactions" (Farr, 2018). Given that the topic of small and medium-sized cities on the Danube touches on themes such as sustainability, equitable and inclusive development, multiculturalism, techniques of co-design are comprising diverse tools, ranging from research-oriented tools, to generative-design tools, or focused on user involvement ones.

III.2. For assessing the small and medium sized cities on Danube, the new theoretical and practical methods proposed here follows several main goals:

» developing skills for deeply understand the DSMCs specifics - to analyse the strengths, problems, opportunities and threats;

» building trust and co-participative attitude regarding the inclusiveness;

» enhancing creating knowledge about the hidden values of DSMCs;

» creating competencies of interpreting the data;

» creating skills of interdisciplinary learning;

» developing skills for innovative concept and design;

» understand and apply energy efficiency concepts from the architectural and planning perspective.

III.3. New methods and tools desirable for further sustainable and inclusive approaching of Danubian SMCs

The methods considered the most relevant for the present study are classified according to the moment when they occur in the teaching-learning process.

III.3.0. For the stage 0 of the teaching – learning process: theoretical lectures, we identify and agreed on the following methods&tools:

III.3.0.a. Introductory lectures

III.3.0.b. Expert lectures

III.3.0.c. Critical Thinking Session

III.3.0.d. Seminar

III.3.0.e. Debate

III.3.1. For the stage 1 of the teaching– learning process: documentation, analysis and co-participative data collection, we identify and agreed on the following methods&tools:

III.3.1.a. Mapping Resources through Exploration

III.3.1.b. Photovoice and Cellphone Diaries

III.3.1.c. Storytelling maps

III.3.1.d. Story+web (GIS) map

III.3.1.e. Walking tours

III.3.1.f. Emotional mapping

III.3.1.g. Georeferencing

III.3.1.h. Living Lab

III.3.1.i Adjusted "The Image of City" Method

III.3.2. For the stage 2 of the teaching– learning process: Synthesis and diagnosis, we identify and agreed on the following methods&tools

III.3.2.a. SWOT analysis

III.3.2.b. DPSIR diagram

III.3.2.c. Potential & Barriers Mapping

III.3.2.d. Power / stakeholders Mapping

III.3.3. For the stage 3 of the teaching– learning process: Concept generation, we identify and agreed on the following methods&tools

III.3.3.a. "Super hero" Brainstorming

III.3.3.b. Brainwriting

III.3.3.c. Storyboard

III.3.3.d. Role Play

III.3.3.e. Co-creative thematic sessions

III.3.3.f. "Ambiguity is good". III

III.3.3.g. Mind Mapping

III.3.4. For the stage 4 of the teaching– learning process: Strategic planning, we identify and agreed on the following methods&tools

III.3.4.a. Problem-solving based project

III.3.4.b. Scenario planning based project

III.3.4.c. Urban Gaming

III.3.4.d. Space Syntax Scenario

III.3.4.e. Urban acupuncture

III.3.4.f. Theory of Change (TOC)

III.3.5. For the stage 5 of the teaching– learning process: Co-Design and technical solutions, we identify and agreed on the following methods&tools:

III.3.5.a. Participatory Decision Making

III.3.5.b. Transect planning

III.3.5.c. Peer-to-peer learning

III.3.5.d. Co-design abduction

III.3.5.e. Persona's method

III.3.6. For the stage 6 of the teaching– learning process: Presentation and evaluation, we identify and agreed on the following methods&tools:

III.3.6.a. Before & After diagram

III.3.6.b. Exhibition with round table

III.3.6.c. Co-evaluation

III.3.6.d. Panel discussion

Most important elements of these methods are described in terms of short summary, goals, situation in which each is suitable to be used, appropriate tools, steps of the method development, results of its use within the project objectives, and references.

III.3.1. Documentation and co-participative data collection teaching methods. Description and results

III.3.1.a. Mapping Resources through Exploration

Description

Urban exploration is essential for any urban planning approach. For the case of small and medium-sized cities, many of them in a state of decline, with local values falling into decay or abandoned, this method is a rich one that can guide the entire subsequent process, provided it is done with care and sensitivity, regarding both the aspects related to space and the urban form, as well as those related to the life of the communities and the daily use of the public spaces.

The method is one of the co-design frameworks, addressing territorial and landscape questions by team - mapping of the main problems and specific aspects, resources of the sites, then using sharing tools in involving participants to the elaboration of concept and further steps of a project.

Goals

- to identify local resources and how they are used by the residents
- to geo-localise information intuitively
- to structure it according to thematic layers
- to share the results and open a common space to elaborate planning/design solutions.

Situation

all cases, especially for the large area when participants to exploration needs to share the site among them

Tools

i.e. "Google my maps" (https://www.google.com/maps/d/u/0/), Carto (https://carto.com/) or other easy-to-use platform to map various types of information, both on site with mobile phones and remotely.

Steps

1) introducing the participants; 2) Data collection of the study area; 3) Install and quick training on "Google my maps" tool; 4) Setting the exploration sites/ routes; 5) Setting a group leader/ facilitator; 6) Exploration walking, shooting and inserting the photos to platform, geolocalized. 7) Providing a short note to comment the documented images; 8) Discussion of the outcomes collected

Results

local resources identified and classified according to different criteria, including the sustainability and efficiency in which they are used

The spatial problems solved using data and analysis to understand where and why things happen in 4 simple steps. Source> https://carto.com/

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III.3.1.b. Photovoice and Cellphone Diaries

Description

The photovoice and cellphone diaries method are useful in the research phase, with the intention of capturing as much as possible of the inhabitant's behaviour in the study area. It engages residents in the use of smartphones to document places that had meaning for them. Without replacing a sociological survey, it is a way to quickly reach people's opinion and intrinsic behaviour in relation to the daily used spaces. A select number of people considered representative or quantitatively dominant in the study area are asked to participate using their smartphones equipped with GPS and for a short period of time (e.g. one week) to record short video or photos to show various city aspects (urban, architectural, social etc) which affect their life. All videos are uploaded to a server and linked to an online map

Goals

to document various aspects of the daily urban life of Danubian small and medium size cities, and to provide visual commented data

Situation

all cases

Tools

smartphones equipped with Global Positioning Systems (GPS), camera, video recording, voice recording

Steps

1) select a group or participants; 2) train (or eventually, guide) them regarding the scope of the work and how to technically use the device; 3) make an indicative list of urban life aspects which need to be documented; 4) link the recordings to an online map.

Results

local resources identified and classified according to different criteria, including the efficiency in which they are used

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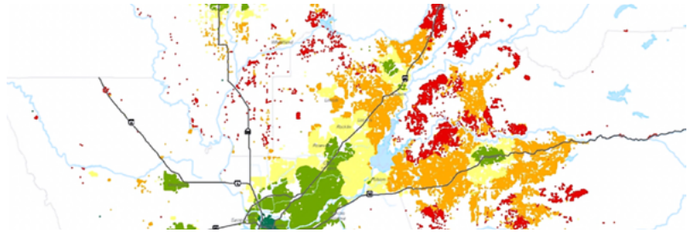


III.3.1.c. Geospatial analysis

Description

Geospatial analysis (GA) involves using geographic information systems (GIS) to analyse and visualize data that has a spatial component, such as the location of buildings, roads, or other features in a city. It demands knowledge and skills in preparation and generation of geospatial data and in map generation and visualisation. (Bill, 2016)

Different (geo) data is provided on a wide range of topics relevant to urban planning via geo databases by various sources, such as:
- (Open) Government Data is data collected and/or provided by public authorities on e.g. the population (census data), land use, transportation, infrastructure and more. Census data is a detailed count of the population and their characteristics, such as age, gender, race, and income. This data can be used to create demographic maps and analyse the characteristics of different neighbourhoods in the city. Remote sensing is a technique used to collect data about the Earth's surface using sensors on satellites or aircraft. This data can be used to create detailed maps of the city, including maps of land cover, land use, and environmental conditions.
- Open Data of non-governmental organisations, social initiatives and projects (e.g. OpenStreetMap.org)
- Private data sources (such as real estate companies, transportation companies, or utility providers) Depending on the analysis tasks using social media data and crowdsourcing data can provide insights into people's activities and preferences, data on traffic and more.

Goals

GA is used to get an overview and orientation within a designated area via topographic and thematic maps.

Situation

GA is an essential part of desk research to deal with large-scale areas from plot to regional level. GA helps with thematic analysis and communication of complex issues in spatial context.

Tools

GIS (eg. ESRI ArcGis™ or QGIS®) to organise and store spatial data and to create maps Interoperability is being pursued and promoted by the Open geospatial consortium (OGC, 2022)

Steps

1/ Concept of cartographic information transfer

a) Visualisation of spatial information in a plan- and scale-oriented form of representation or

b) Visualisation of an abstract topic

- Limits of visual comprehensibility force interventions in the cartographic information design (definition of facts - geometry of facts - explanation of facts)
- Conceptual definition and selection of spatial information

2/ Realisation of the cartographic design concept

- cartographic information processing for specific information tasks, certain scale of presentation
- geometric definition of spatial information
- Coordination of spatial information by map graphics / Selected heterogeneous visualisation of facts, partly by means of map graphics, with partial abandonment of object scale and floor plan presentation.

3/ Decoding of graphically coded map elements (creating a map legend)

Results

Topographic and thematic maps

References

Bill, R. (2016). Grundlagen der Geo-Informationssysteme. (6th ed.). Herbert-Wichmann-Verlag.

OGC. (2022). The Home of Location Technology Innovation and Collaboration | OGC. https://www.ogc.org

III.3.1.d. Storytelling (web) maps/narrative mapping

Description

Spatial Planning relates on mostly publicly available common data concerning the basis of infrastructure, settlement, etc. Regarding certain pin-pointed problems or issues, the general available dataset often can't provide the information needed. Space as a research laboratory can be seen as a complex next to and with each other of various impacts. Facts of certain narratives, certain stories, can therefore be distinctively represented in different contexts.

Maps usually deliver the base of decision in a spatial planning context from a quantitative perspective. They are therefore meant to be the most objective representation of contents. Nevertheless, "maps articulate statements that are shaped by social relations, discourses and practices, but these statements also influence them in turn" (Kollektiv Orangotango 2018: 13).

Narrative Maps show the circumstances of a story or persona connected issue, e.g. the influence of the every-day-life of people with physical disabilities in a certain urban context. In these cases, information has to be collected "by foot" by students or researchers, to treat important and very specific questions by collecting qualitative information. It can somehow be used as a bridge between sociology and the geographical setting.

Goals

The narratives, which are explored and include foremost qualitative data, impressions, e.g., can be shared and the urban or spatial relations can be shown. This includes moreover the visibility of certain social aspects, space-people relations, the physical perception of spaces for different groups of people, just to name a few.

The urban context is enriched by these qualitative datasets of unseen details of the surroundings, people's behaviour, stories of personas.

Situation

- all types of spaces, ideally in an urban context
- in particular, disadvantaged areas, or areas where distinct barriers in a socio-cultural sense are manifested

Tools

- interviews, other qualitative tools
- (web-)mapping incl. software (GIS based)

Steps

- creating a specific narrative/storyline (based on questions, issues, e.g.)
- exploration of a certain (urban) area in the context of the chosen narrative
- mapping records "on the go" in real time using apps on a mobile device
- creating maps including these findings
- integrating maps in a web-based environment

Results

Web maps based on topic-specific contents, elaborated by the researcher/student on site by exploration of the urban area or other qualitative measures

StoryMaps of a region of the Danube with less usual data, results of exploration and interviews

References

Caquard, S. (2013) 'Cartography I', Progress in human geography, 37(1), pp. 135–144. doi: 10.1177/0309132511423796 .

Dickinson, S. and Telford, A. (2020) 'The visualities of digital story mapping: teaching the 'messiness' of qualitative methods through story mapping technologies', Journal of geography in higher education, 44(3), pp. 441–457. doi:10.1080/03098265.2020.1712686 .

Kollektiv Orangotango (2018) This is not an atlas: a global collection of counter-cartographies. Bielefeld: transcript.

Ameel, L. (n.d.) Narrative Mapping and Polyphony in Urban Planning. [online] https://www.yss.fi/journal/narrative-mapping-and-polyphony-in-urban-planning/

https://lincolnmullen.com/projects/spatial-workshop/narrative-maps.html

III.3.1.f. Emotional mapping

Description

Emotional mapping allows participants to explore their emotional responses while moving through neighbourhoods and cities. It maps out how people feel in their community, and gives rich qualitative information about which areas of the neighbourhood feel vibrant and safe, and which areas may be candidates for improvement (https://participatoryplanning.ca/) This tool, as understood in the field of participatory planning, is a method that allows citizens and municipalities to initiate a map-based dialogue concerning the current and future state of public space, drawing upon their experiences of that place (Pánek, 2018). This tool can either be facilitated as a part of a group walk, or as a stationary mapping activity. The tool can be combined with other mapping tools to add a layer of qualitative emotional observation (https://participatoryplanning.ca/)

Goals

The goal is to map the emotional experiences evoked in different areas of the city/neighbourhood/block etc.

Situation

City, neighbourhood, block

Tools

Mapping, interviews, participatory GIS

Steps

1. Creation of a base map
2. Optionally, the facilitator can select emotions to be mapped
3. Mapping + adding short comments (1-2 words)
4. Analyses of the maps

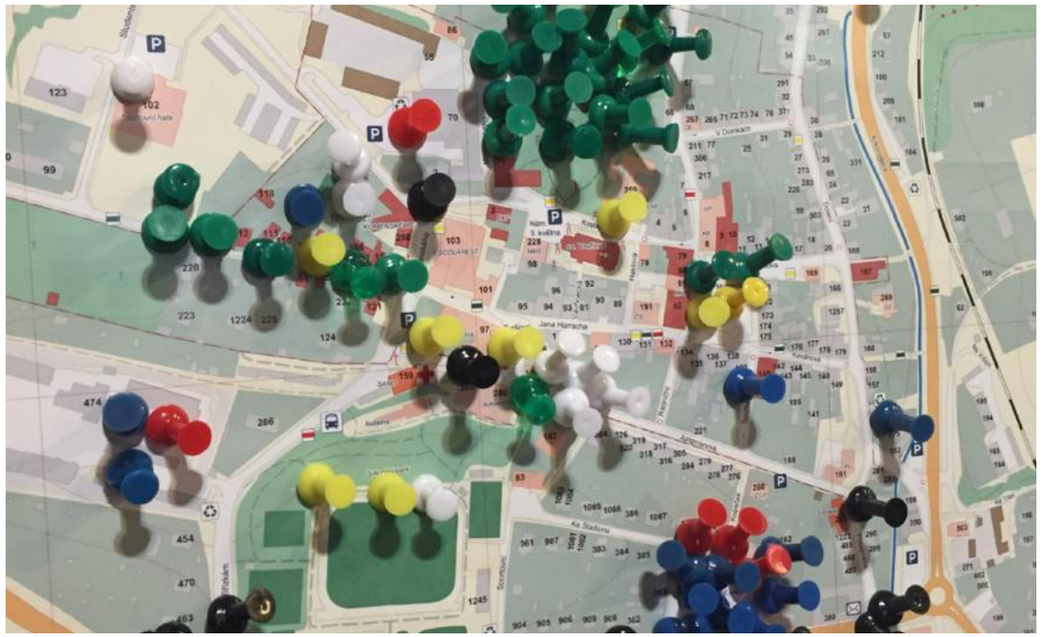
Results

Emotional maps, as a tool for the participatory crowdsourcing of citizens´ perceptions of their urban environment, have the potential to attract citizens' attention and to deliver tangible results that are readable and acceptable to municipality representatives (Pánek, 2018).

References

Facilitation guide: emotional mapping https://participatoryplanniwng.ca/sites/default/files/upload/document/tool/09_emotional_mapping.pdf

Panek, J. 2018. Emotional Maps: Participatory Crowdsourcing of Citizens´ Perceptions of Their Urban Environment, Cartographic Perspectives, (91), 17–29. https://doi.org/10.14714/CP91.1419



Example of using colourful pins for creating an emotional map in 2016. Source: Pánek, 2018

III.3.1.h. Living Lab Method

Description

”Living Labs (LLs) are open innovation ecosystems in real-life environments using iterative feedback processes throughout a lifecycle approach of an innovation to create sustainable impact.”

”Living Labs (LLs) are new ways of innovation and are defined as user-centred, open innovation ecosystems based on a systematic user co-creation approach, integrating research and innovation processes in real life communities and settings.” (Verhoef & Bossert, 2019).

D SMCs is based on the contribution in all stages of associate partners from many of the studied small and medium-sized cities and the Living Lab provides a space for their collaboration among the Danube region.

Goals

Co-development of solution integrating education, research and innovation

For the DSMCs it is important to understand the multiple layers of the cities, to evaluate risk assessment and potentials. The Living Lab is an intermediate among the D SMCs partners, DMSCs local communities and local authorities and Danube regional level to prioritise the community collaboration for the future strategies and visions.

Showcase intervention for sustainable and inclusive development of the Danubian SMCs according to the European directive, etc

Linking key actors as universities, stakeholders, administration in an integrated approach to develop liveable and accessible cities for all.

Testing of the (innovative) learnings from the project into scale up action for public or private stakeholders, making lifelong learning for sustainable development of the Danube region.

Situation

for rural and urban planning (urban living labs)

Tools

- co-creation;
- user involvement- participatory approach;
- multiscale network and scale up.

Steps

- Exploration
- Experimentation
- Evaluation

Results

- user-centred and open innovation eco-systems;
- solving complex problems in a multi-stakeholder context;
- societal/sustainability problems benefit from involving all stakeholders for co-creation and co-production;
- create reference model by implementing proposals for a real-life setting;
- scale up, replicate and transfer;
- building Danube SMCs related competencies.

References

Verhoef , L. , Bossert , M. 2019,.The University Campus as a Living Lab for Sustainability A Practitioner’s Guide and Handbook, Delft University of Technology, Hochschule für Technik Stuttgart, https://campusaslivinglab.org/wp-content/uploads/2019/06/new_RZ_Living_Lab_handbook_9.5.19.pdf

The European Network of Living Labs (ENoLL): https://enoll.org/about-us/what-are-living-labs/

https://www.iscapeproject.eu/wp-content/uploads/2020/02/Tips-Tricks-for-Living-Labs.pdf

Living Lab Concept apud. Verhoef, L. , Bossert , M. 2019

”In a Living Lab, urgent, complex problems connected with societal challenges are tackled. Key elements in these Labs are co-creation and experimentation in real life setting, a location, an organisation and reflection and learning. All active participants have influence and decision power in the Lab”. (https://campusaslivinglab.org/wp-content/uploads/2019/06/new_RZ_Living_Lab_handbook_9.5.19.pdf)

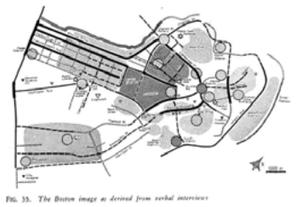


FIG. 35. *The Boston image as derived from verbal interviews*

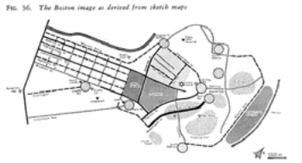


FIG. 36. *The Boston image as derived from sketch maps*

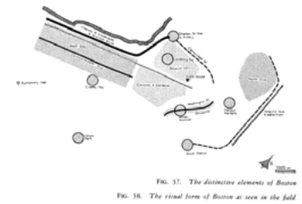


FIG. 37. *The distinctive elements of Boston*

FIG. 38. *The visual form of Boston as seen in the field*

III.3.1.i. Adjusted "The Image of City" Method

Description

"The Image of City" Method was developed by Prof. Aleksandra Djukić, based on the same-name book and research technique from 1960, authored by American urban theorist Kevin Lynch. This technique strongly influenced environmental psychology and environmental behaviour in the late 20th century. It is based on the on-site research of the basic physical elements in a city/town/ settlement to form the mental maps of this area. K. Lynch found that five such elements make the mental image of a certain city in human mind: paths, edges, districts, nodes, and landmarks.

The core of the "Image of City" Method is further developed, to allow a proper interpretation of the obtained results in urban design projects. The method starts with identifying five aforementioned basic elements in the focus area, obtained through a survey with questionnaires. The results of the survey are then comprehended through mental maps and finally developed into the projects.

Goals

The goals of the adjusted "The Image of City" Method are:

- to bring students closer to the importance of environmental psychology and environmental behaviour for the identity of urban space;
- to show students how qualitative and psychologically-based data, such as human opinion and behaviour, can be adequately collected, quantified, analysed and utilised for urban design thereof;
- to underpin the significance of five basic urban elements – paths, edges, districts, nodes, and landmarks – for the mental image of urban space and, therefore, for the process and solutions of urban design.

Situation

Usually macro-urbanism – the whole city, town, settlement or the significant part of a large city (for example, city quarter).

Tools

Very basic classroom tools, such as papers, printed questionnaires, flipcharts, tables, pens. It can be supported with computers for the final design and presentation of the entire process.

Steps

» A mentor (teacher) presents and elaborates the theory of "the Image of City", developed by K. Lynch, to students.

» The whole group (mentor + students) develop a short survey with a questionnaire. The questionnaire usually consists of 10 semi-closed questions – two questions per a basic urban element.

» Students conduct the survey. This can be done as fieldwork or as an online survey. The first option gives better and more secure results, as it enables the further explanations to respondents (which are sometimes necessary).

» Students comprehend data in two half-steps. First, by forming tables with results scores, and, then, by creating mental maps. The maps can be created for each basic urban element or just one for all of them.

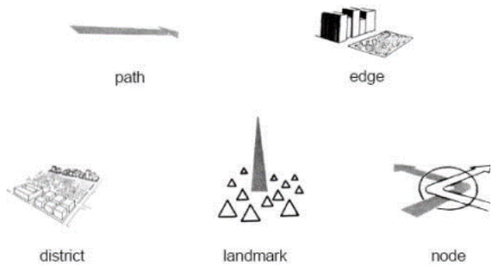
» Joint analysis of the maps, with the extraction of main conclusions regarding frequencies, concentrations, sprawl and order of the urban elements.

» The utilisation of the conclusions as the starting point for urban design projects, with several inner steps: concept, programme, general design and detailed design.

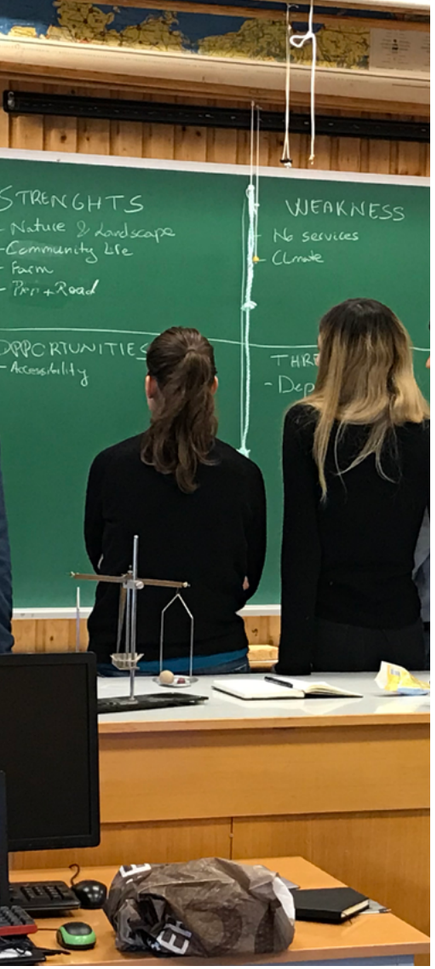
References

Klippel, A. (2003). Wayfinding Choremes – Conceptualizing Wayfinding and Route Direction Elements Bremen: Universität Bremen, (SFB/TR 8 Monographs; Bd. 1) https://www.researchgate.net/publication/34443048_Wayfinding_choremes_conceptualizing_wayfinding_and_route_direction_elements

https://www.miguelangelmartinez.net/IMG/pdf/1960_Kevin_Lynch_The_Image_of_The_City_book.pdf)



Five basic physical elements of urban space by Kevin Lynch / Mental maps of Boston, USA, developed by K. Lynch



III.2. Synthesis and diagnosis

III.3.2.a. SWOT analysis

Description

SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis provides a simple but useful tool for evaluation of the strategic position of a city or organisation. It is a strategic management tool designed for use in the preliminary stages of decision-making processes and is usually associated with strategic planning (Nunes Silva, 2005), but can be tailored for application in other scopes of urban planning and design, as well.

Goals

The aim of SWOT analysis is to identify internal and external factors (characteristics, elements) of the plan or project. Strengths and weaknesses are considered internal, while opportunities and threats are considered external factors.

Situation

All types of places, strategic planning, urban planning and design, regional planning

Tools

Data collection and analyses, tables

Steps

1) identification of strengths (characteristic that are seen as potentials, and gives advantage)

2) identification of weaknesses (characteristics that could be improved)

3) identification of opportunities (factors in the environment with the potential to increase the city's strengths)

4) identification of threats (factors in the environment which are seen as obstacles)

Results

Creates clearness for strategic development and enables prioritisation of goals.

References

Nunes Silva, C. SWOT analysis in Roger W.Caves (2005), Encyclopedia of the City, Routledge

III.3.2.b. DPSIR diagram

Description

The Driver, Pressure, State, Impact & Response (DPSIR) framework is a conceptual tool, used to define cause and effect relationships among the drivers (human/ territorial needs), pressures (human activities, legislation, social aspects), environmental state (negative trends), impacts (cascading social, environmental or economic changes), and responses (institutional policy, urban regulation, strategies, projects).

Goals

The aim of DPSIR is to „understand the real drivers which are sometimes unique to the local situation and then to identify and implement the most effective responses to remove or at least reduce the pressure" (Pearson, Fippinger, 2019)

Situation

All types of D SMCs

Tools

Analyse documents, template DPSIR

Steps

1) building a contextual understanding of cause-and-effect relationships,

2) identifying key gaps in understanding to prioritise research and monitoring,

3) identifying the key pressures and drivers that "if addressed" would provide the greatest conservation benefit for DSMCs

Results

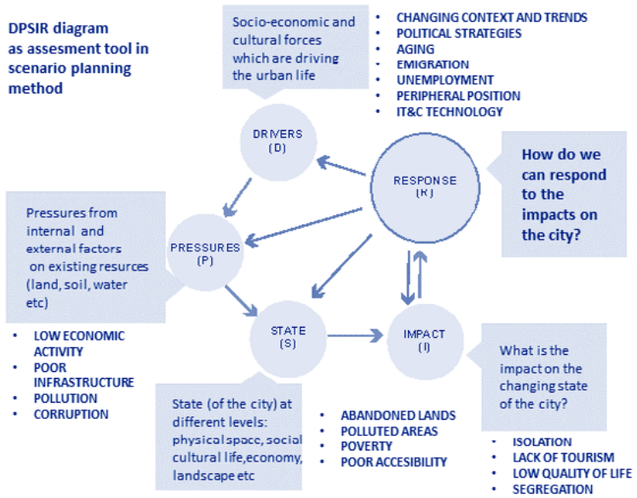
Enabling prioritisation of limited resources to the most impactful issues.

Create clearness and envisioning for development scenario and strategic concept

References

Drivers, Pressures, State, Impact, Response (DPSIR): A model for targeted and effective conservation (2018).

https://www.dugongconservation.org/news/drivers-pressures-state-impact-response-dp-sir-a-model-for-targeted-and-effective-conservation/



DPSIR Diagram applied within Scenario Planning Method in the case of a small danubian city in Romania (Călărași). Source:authors

III.3.2.c. Potential & Barriers Mapping

Description

Internet research shows massive use of potentials (facilitators) and barriers methodology in appraisal of health issues but it can be applied in urban studies, as well, especially those multidisciplinary, including complex social phenomena. Factors are considered as facilitators if their presence promotes positive change, and as barriers if they limit the progress.

Goals

Aim of this methodology is to understand the given issue, highlighting the specific determinants that influence it, sorting them as barriers and/or facilitators.

Situation

All types of places, strategic planning, urban planning and design, regional planning

Tools

Data collection and analysis, interviews, questionaries, examination of planning policies and documents

Steps

1. Identification of determinants

2. Classification of facilitators and barriers depending on the spatial level and the project theme.

Results

Providing simplistic critical reflection on complex urban phenomena.

References

Carmichael, L. Et al. (2012). Integration of health into urban spatial planning through impact assessment: Identifying governance and policy barriers and facilitators, Environmental Impact Assessment Review, Volume 32, Issue 1, 2012, Pages 187-194, ISSN 0195-9255

III.3.2.d. Power / stakeholders Mapping

Description

Stakeholders' engagement is crucial process in creating strong communities and inclusive societies. Urban planning and design encompass large number of different actors, from citizens (users) and civil society, via planners and investors, to politicians (policy- and decision-makers), making it difficult to coordinate their participation in the processes. Stakeholder mapping is the visual process of laying out all the stakeholders of a product, project, or idea on one map. The main benefit of a stakeholder map is to get a visual representation of all the people who can influence the project and how they are connected (Savina). The stakeholders can be classified based on various variables – power, interest, knowledge, attitude etc. depending on the type of the project/plan and the phase of the engagement.

Goals

To identify relevant stakeholder groups and to facilitate communication with them and among them.

Situation

All types of places, strategic planning, urban planning and design, regional planning

Tools

Brainstorming, analysis of stakeholders, interviews, questionnaires, online tools like Miro (https://miro.com)

Steps

1. Identification of actors which have an impact, or are impacted by the project/plan.

2. Categorization of stakeholders

3. Prioritization

4. Communication

Results

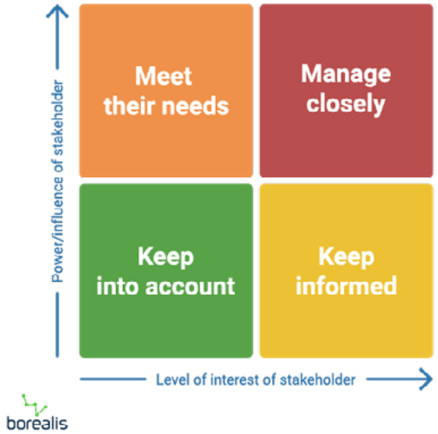
Enhanced knowledge about different actors in the project/plan and improved communication with stakeholders, foreseen and resolved issues.

References

Savina, A. Complete Stakeholder Mapping Guide https://miro.com/blog/stakeholder-mapping/

Which Stakeholder Mapping Method Should You Use? https://simplystakeholders.com/stakeholder-mapping/

Stakeholder Mapping: When, Why, and How to Map Stakeholders https://www.boreal-is.com/blog/stakeholder-mapping-identify-stakeholders/



Stakeholder Mapping: Identify & Assess Project Stakeholders. Source: Grégoire, Patrick. Boréalis, www.boreal-is.com/blog/stakeholder-mapping-identify-stakeholders/.

III.3. Concept generation methods

III.3.3.a. "Urbanism-customised" Superhero Method

Description

Super Hero method is one of brainstorming methods. The essence is to choose one well-known character ("super hero" or, even, "supervillain") and to imagine his/her thinking and feelings on a certain task/problem. Practically, to put his/her shoes in finding a proper solution for the problem. This method can be arranged as a game with several players, where all of them try to solve a problem by taking the role of different superheroes and, finally, compare their solutions relating to their rationality or simplicity.

This method is relatively simple. Nevertheless, it can be modified to be more complex with several steps. For studio work in an urbanism related studio, this was adapted to involve an additional – middle step, where a superhero or supervillain first chooses his/her superpowers to modify the urban environment. For example, if superhero can easily transfer huge objects and structures to move one building from place A to place B. In the next step, this superpower-based change had to be "customised" to a viable modification in this urban environment. In the explanation, this can be, for example, to transfer building codes of construction principles from place A to place B.

01

Goals

The goals of the "Urbanism-customised" Superhero Method are:

- to encourage students to take different characters (users) so as to teach them a participation process in a smart way.
- to enable a "cosy" environment for teaching and learning, in the form of a game workshop.
- to reveal to students how different identities and behaviours produce different spatial solutions.
- to develop creativity in the learning process.
- to support the visual and graphical presentation, important in spatial-related disciplines, such as urbanism and architecture.

Situation

All cases in urbanism and architecture

Tools

Very basic classroom tools, such as papers, flipcharts, tables, pens. It can be supported with computers for the final presentation of the entire process.

Steps

Choose a "task" – place with a certain problem/challenge and character (superhero or, even, supervillain).

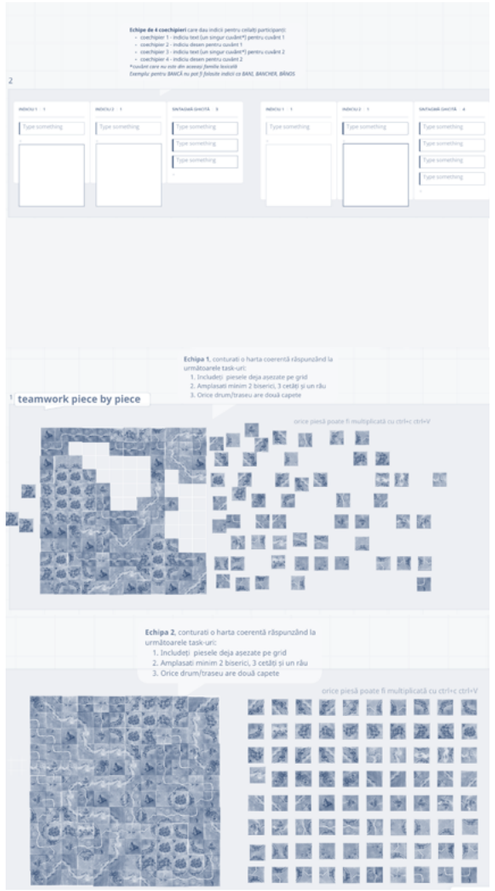
Enlist his/her superpowers + explain them in brief.

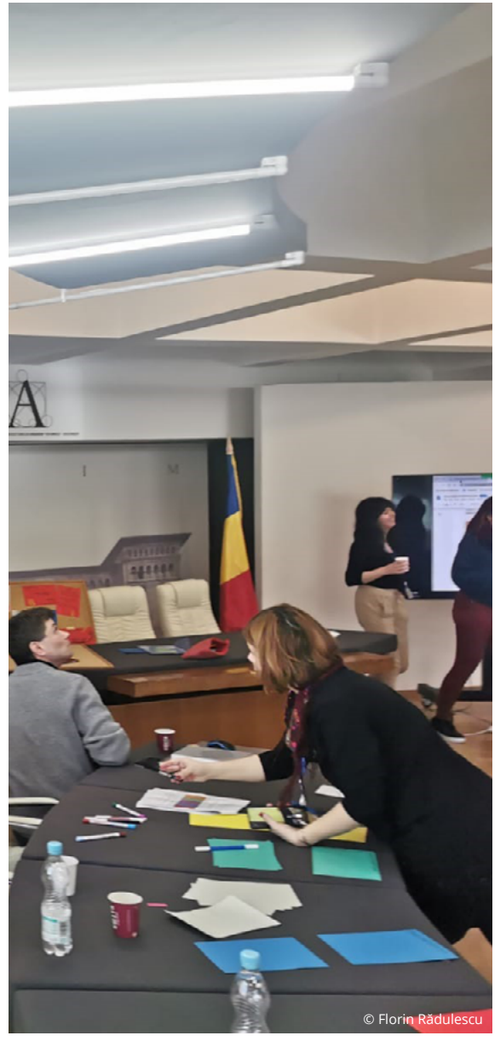
Propose "direct" albeit surreal solutions (modifications in/of place) using the superpowers.

Customise the surreal solutions to real-life solutions, so the essence of the modification should be preserved.

References

Brainstorm like a Superhero – Steps, https://stormz.me/en/templates/superhero





III.3.3.b. "Urbanism-customised" Brainwriting

Description

The brainwriting method is developed as an alternative to the brainstorming method, to overcome its disadvantages. Although brainstorming is generally a very popular method to get new ideas within group work, it can also be inefficient or to suffer due to participant/group anxiety or difference between people's openness. The advantage of brainwriting is to do this in a different and more secure way – to write thoughts and ideas down instead of partake in oral discussion. This method was designed by German marketing expert Bernd Rohrbach in 1969. However, both methods share the same values of sharing ideas and thoughts in a group environment.

The traditional brainwriting method usually has several steps. It starts with identifying a problem, then each person in the group writes his/her ideas and thoughts on paper, which is then passed to another person to check and expand them. This step can have several rounds. At the end, the whole group checks all written ideas jointly, usually on a whiteboard.

For teaching and learning in urban studies, it is important to include a 'spatial element' in brainwriting. This is done by not just writing ideas, but also drawing them as spatially-related measures and proposals. In addition, each participant proposes his/her own urban problems to be discussed.

Goals

The goals of the "Urbanism-customised" Brainwriting Method are:

- to enable a creative joint discussion within group about important issues in easy way;
- to create an atmosphere where everyone can rationally generate new ideas.
- To strengthen student ability to understand the positions and thoughts of other persons (city dwellers, users of public space).
- to allow all participants to share their ideas through different mediums, such oral explanation, drawing and/or writing.
- to understand the problems of other participants and, consequently, to be ready to give ideas and solutions on the problems on which you are not deeply familiar.

Situation

All cases in urbanism and architecture

Tools

Very basic classroom tools, such as papers, flipcharts, table, pens. Papers had to be suitable for drawing. It can be supported with computers for the final presentation of the entire process.

Steps

» A moderator (teacher) explains the method and its steps;

» Each participant (student) proposes one or two problems related to the urban area in focus. A usual situation is that students worked on the different aspects (functional, social, physical, networks, etc.) of the analysed area before this workshop, so they give the problems related to their assigned aspects.

» Students pass their problems to the next one, who initially worked on the other aspect. This student had to write three ideas and proposals on the problem. In this way, he/she is becoming familiar with the other aspect, i.e., with the stance of the other person in the same analysed urban area. Ultimately, strengthen student ability in the participation process.

» Each student draws spatially-related solutions and measures or finds best-example ones from the internet on the given ideas. This step also helps students to better articulate the ideas – the size, complexity and level of intervention.

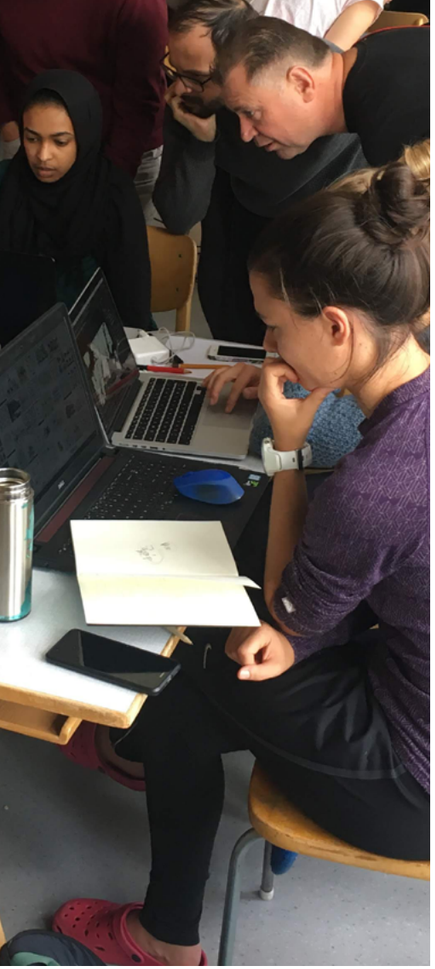
» All students present their solutions and measures developed through brainwriting methods as posters in a joint final discussion.

References

Use the brainwriting technique to boost idea generation https://conceptboard.com/blog/brainwriting-template/

Creativity Techniques https://www.ideenfindung.de/Brainwriting-Pool.html

Brainwriting atmosphere / Brainwriting atmosphere.
© Florin Rădulescu



III.3.3.f. "Ambiguity is good"

Description

Dwight Eisenhower - the man who was responsible for planning the Allied invasion of Europe in World War II- said that "plans are nothing, but planning is everything". It's a remarkable statement which nowadays gives birth to a new branch in management theories, speaking about "Planning for ambiguity", and set up tools and concepts that can be applied in highly ambiguous work settings. Moreover, in the concept stage of a project, considering a wide spectrum of possibilities, although none is clear enough, is a premise of good risk management, ensuring a buffer to accommodate variations, learning from going through experiences, and selecting viable cases.

Christoph H. Loch, Arnoud DeMeyer, and Michael T. Pich propose a method to uncover hidden unknown unknowns at the beginning of a project with the goal of enabling a systematic process for project managers. The process involves asking: "What do I know and what do I not know? and where are the major knowledge gaps?" where the knowledge gaps identify where unknown unknowns may emerge.

Goals

Overcoming the mental obstacles due to the lack of data and/or the imprecision resulting from the analysis

Advancing towards a personalised and correct vision, step by step guided by substantiated answers in an uncertain context

Situation

Cities/ region where the data are not accessible to public

Local situations with a high degree of uncertainty regarding the futures because of various global factors

Tools

Mapping risks, diagrams, flows analysis, process maps

Steps

1) Identify the problem structure.

2) Break the overall problem into pieces.

3) For each piece, perform risk identification, identify knowledge gaps by probing assumptions in an iterative way.

4) Estimate the complexity of each project piece and the overall project.

5) Manage pieces in parallel pieces according to the project risk management framework above.

(apud. Christoph H. Loch, Arnoud DeMeyer, and Michael T. Pich, 2006)

Results

» Enhancing student's own creativity

» Enlarging the definition of learning ("Learning in projects is the flexible adjustment of the project approach to the changing environment as it occurs; these adjustments are based on new information obtained during the project and on developing new – that is, not previously planned – solutions during the course of the project." (Loch et al, 2006)

» Managing projects where lack the input data

References

Christoph H. Loch, Arnoud DeMeyer, and Michael T. Pic. (2006). Managing The Unknown: A New Approach to Managing Uncertainty and Risk in Projects, John Wiley and Sons, Inc.

Kazerounian, K., Foley, S. (2007). Barriers to Creativity in Engineering Education: A Study of Instructors and Students Perceptions. In Journal of Mechanical Design 129(7)

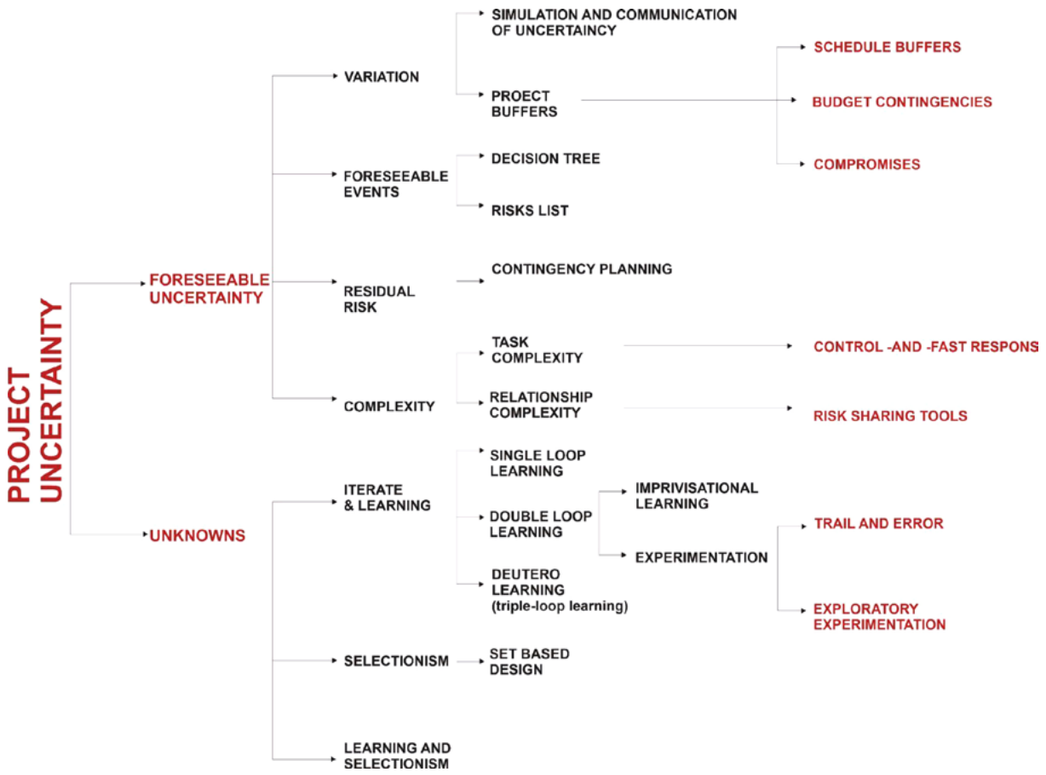
III.3.3.g. Mind Mapping

Description

Mind map, not to be confused with mental map, is a graphic representation of ideas organised around main topic. Mind maps are useful in various aspects of architectural and urbanistic education – as a tool for acquiring theoretical knowledge, as a result of class brainstorming, as a method for site analysis and development of the project concept, as a means to accelerate research etc. The diagram is visually organised around a central idea, to which branches of sub-topic are associated, expressing the relationships among them. The main idea can branch out to as many sub-ideas as needed.

Goals

The aim of mind maps is to structure concept coherently, and to show relationships between various (sub-)topics and ideas.



Innovative learning methods within risk management in uncertain situations. Source: https://alopexoninnovation.com/2013/08/23/project-risk-management-with-high-uncertainty/

Situation

All types of places, strategic planning, urban planning and design, regional planning

Tools

Brainstorming, literature analyses, contextual analyses, online tools like MindMeister, (https://www.mindmeister.com)

Steps

1. Definition of the central concept/theme/idea
2. Adding main branches – relevant subtopics/ideas
3. Elaboration of each subtopic

Results

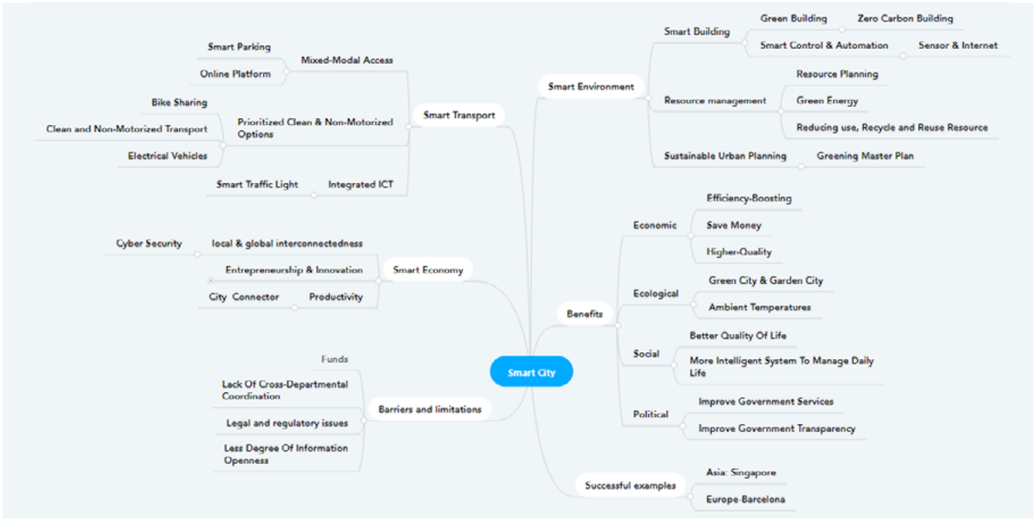
The result of mind mapping is visual elaboration and representation of an idea which facilitates decision making in many fields of urbanism.

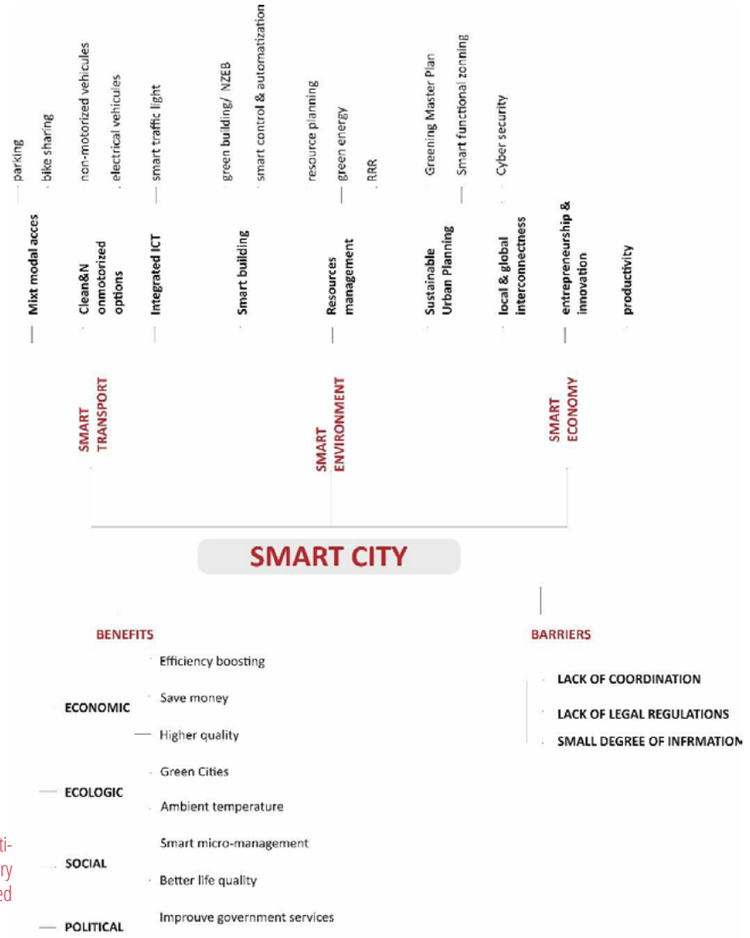
References

Mind maps for urbanists https://methodologyforurbanism.wordpress.com/2014/10/21/mind-maps-urbanist/

Collaborative Mind Mapping https://www.mindmeister.com

Mind map of Smart City, Source: sim yee ng https://www.mindmeister.com/912794014/smart-city?fullscreen=1#





III.4. Strategic planning methods

III.3.4.a. Problem-solving based project (Problem-based learning)

Description

Architectural education throughout the Western World is dominated by `studio teaching' which might be referred to as `tutorial-based teaching' and `apprentice-based teaching' or mentor-based teaching. Problem-based learning (PBL) is a student-centered approach in which students learn about a subject by working in groups to solve an open-ended problem (Nilson, 2010). Rather than teaching relevant material and subsequently having students apply the knowledge to solve problems, the problem is presented first. Although group learning is not essential to PBL, in most established PBL courses learning is characteristically enhanced by small group work, where students co-operate in defining their own learning objectives. Group discussions about practice problems, activate prior knowledge, and learning is crosslinked with existing knowledge, fostering the development of a thinking structure that is relevant to practice (de Graaff & Cowdroy, 1997).

Goals

Instead of emphasising the transfer of knowledge by teachers, problem-based learning (PBL) focuses on stimulating the students' learning process. In PBL, students are expected to define their own learning goals and to pursue actively the accumulation of knowledge and skills.

Situation

All types of places, strategic planning, urban planning and design, regional planning

Tools

Literature analyses, contextual analyses

Steps

Students generally must:

1. Examine and define the problem.
2. Explore what they already know about underlying issues related to it.
3. Determine what they need to learn and where they can acquire the information and tools necessary to solve the problem.
4. Evaluate possible ways to solve the problem.
5. Solve the problem.
6. Report on their findings. (Nilson, 2010)

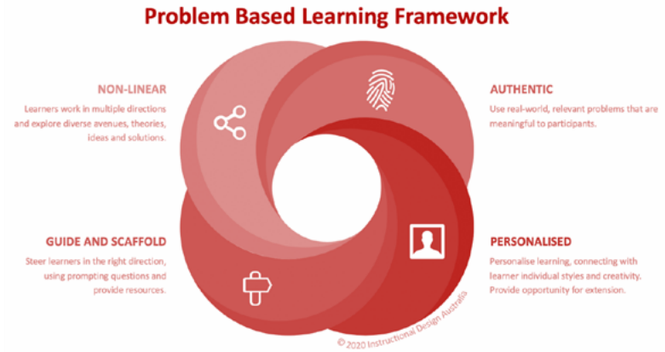
Results

Active acquisition of knowledge and skills throught co-operation rather than competition. Holistic orientation towards professional practice and integration of knowledge (from different domains), skills and attitudes (de Graaff & Cowdroy, 1997)

References

de Graaff, E., Cowdroy, R. (1997) Theory and Practice of Educational Innovation through Introduction of Problem-Based Learning in Architecture, International Journal of Engineering Education, Vol. 13, No. 3, p. 166-174

Nilson, L. B. (2010). Teaching at its best: A research-based resource for college instructors (2nd ed.). San Francisco, CA: Jossey-Bass.



Problem Based Learning Framework, Source: Instructional Design Australia, https://instructionaldesign.com.au/pbl/

III.3.4.b. (Urban) Scenario planning ("what if?" method)

Description

One of the methods of approaching the diffuse phenomena such as shrinking cities is the scenario planning; although shrinking has its roots and multiple causes in the negative spectrum of the urban development, the imaginative approach is meant to generate a change of attitude, to see as an opportunity what at first glance seems to be a fatality. Urban Scenario planning method is a framework in 4 steps of testing the implications of different driving forces, and consequently imaging the intervention possibility, through several pilot-places. The DPSIR diagram (Drives-Pressures-State-Impact-Response) is a tool as part of the planning scenario, used in the assessment stage. *"Scenario planning is a method of long-term strategic planning that creates representations of multiple, plausible futures of the system of interest"* (Goodspeed, Robert. Scenario Planning for Cities and Regions: Managing and Envisioning Uncertain Futures (p. 8). Lincoln Institute of Land Policy)

Goals

Testing the implications of different driving forces active in a particular situation of DSMCs, and consequently imaging the possibilities for intervention.

Situation

all cases

Tools

DPSIR diagram (Drives-Pressures-State-Impact-Response)

Data analyse, documentation to understand global & local drivers, site exploration

Steps

1) Identify the Driving Forces

2) Identify the Critical Uncertainties

3) Develop Plausible Scenarios

4) Discuss Implications and Paths for Action

Results

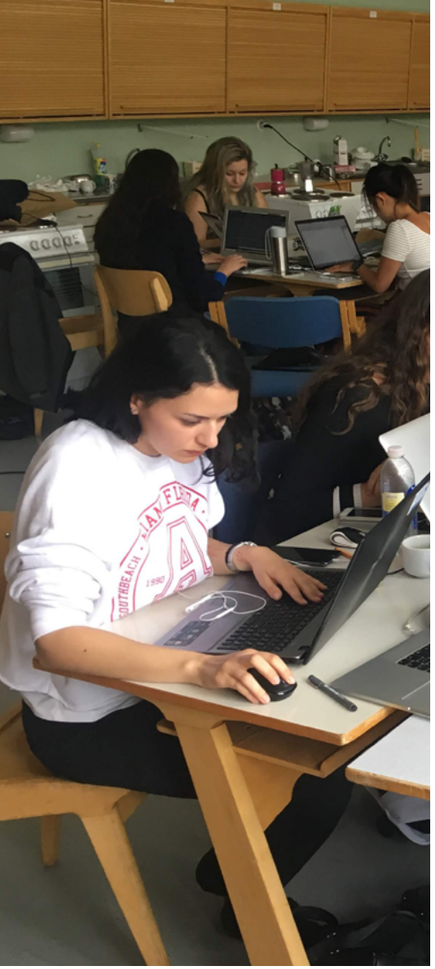
Creative strategies for intervention according to the proposed scenario, with solutions for the found problems.

References

Goodspeed, R. (2020). Scenario Planning for Cities and Regions: Managing and Envisioning Uncertain Futures. Lincoln Institute of Land Policy

Amer, M., Daim U.T., Jetter, A.2013. A review of scenario planning. in Futures, Volume 46, Pages 23-40, https://doi.org/10.1016/j.futures.2012.10.003

Yamagata Y, Seya H, Nakamichi K. (2013). Creation of future urban environmental scenarios using a geographically explicit land-use model: a case study of Tokyo. *Annals of GIS* 19(3): 153-168.



III.3.4.d. Urban Scenarios driven by Space Syntax

Description

SPACE SYNTAX is a method which analyses human behaviour in a certain settlement area in a spatial way. Hence, it belongs to the theories that analyse spatial configurations. It was developed by Bill Hillier and Julienne Hanson at the Bartlett School of the University College London in early 1980s. The simplest version of the method is to decompose the open urban space of a certain settlement or its part (urban quarter) into basic components – axes (streets) and nodes (crossroads). Then, users' flow is measured on each node in defined periods a day/week/year to collect their frequency. It is usually the number of pedestrians per hour on a certain node in the urban matrix several times a week, where some periods are critical ones ('extremes'). This data is collected for all nodes in the targeted area to form so-called "axial maps". Space syntax has an advantage to be easily implemented by software, where it can be upgraded to generate more complex data. However, it can be done by simple on-site collection, within one studio group (20-30 students).

The "axial maps" of pedestrian, vehicle, and cyclist flows are just the presentation of the current use of the open public space, so URBAN-SCENARIO PLANNING is introduced to properly address the data acquired by space syntax. Urban scenarios are a relatively new approach in urban planning to adequately 'navigate' though uncertain urban futures. Student groups first analyse the axial maps with the other information about the analysed urban area to extract the most challenging spatial segments in this area (streets, squares, parks, riverfront parts, etc.). Then, they develop several urban scenarios – one scenario per student. Each scenario includes several elements: to name and explain space-related actions (urban interventions) for the challenging nodes and axes by space syntax, their prioritisation, implementation phases, the main actors and stakeholders for their implementation, monitoring and use.

Goals

The goals of the method of urban scenarios driven by space syntax are:

- to enhance student ability to comprehend cause-consequence relation through urban analysis, conceptualisation and design;
- to easily identify the basic use (users' flow) of open public space;
- to develop professional and technical competences to spatially express ('map') essentially non-spatial elements, such as the human behaviour of using open public space to axial maps.
- to learn urban scenario-planning as an answer on uncertain urban future;
- to understand the logic of different elements in the project/action implementation – what, who, how, where, in which way?

Situation

Generally, macro-urbanism – from the entire settlement to the level of urban quarters.

It can be used at architecture level, too, where a significant number of nodes and axes can be identified: for example, shopping malls, megastores, etc.

Tools

The simplest version of on-site data collecting needs just a paper, pen and clock/timekeeper; however, ICT-driven versions include special gadgets for collecting users' flow.

The data analysis to create axial maps can be also done in two ways. The more 'modest' version is to create the maps by the frequent computer-aided design programmes, such AutoCAD, PhotoShop, Adobe Illustrator or Corel Draw. The more complex versions are based on special, GIS-based software programmes, which can generate more complex data.

Steps

- Classroom work: A mentor (teacher) and participants (students) jointly define an analysed area in a settlement (usually, city or town quarter) and identify all axes (usually streets, but also quays) and nodes (usually crossroads, but also public square, parks, open markets, etc.);
- Classroom work: A mentor (teacher) and participants (students) jointly choose one-hour periods and day(s), when the on-site counting had to be done. In the case of a small city or town, the most suitable day is usually a 'market day' (for farmers' market). One-hour periods are set by the expected flow of users: morning and afternoon rush-hour, as well as slow-going periods in the middle of day and in the evening.
- On-site work: Students count the users of public spaces (usually pedestrians, but also cars, bicycles, heavy vehicles) for assigned nodes for the previously defined one-hour periods per day.

• Group work: The joint tabular collection of all acquired data – users' numbers per node per measured period.

• Group work: The creation of axial maps for each counted period by extracting the data from the table.

• Classroom work: A joint analysis of the created axial maps and the identification of the most striking spatial challenges (the nodes and axes with extremes or with the largest differences per counted periods).

• Group work: The selection of the area most affected by the spatial challenges.

• Group work: The group of students develops the basic concept for the selected area.

• Individual work: Each student in the group develops one urban scenario with a specific sub-theme. Each scenario includes several elements: to name and explain space-related actions (urban interventions) for the challenging nodes and axes by space syntax, their prioritisation, implementation phases, the main actors and stakeholders for their implementation, monitoring and use.

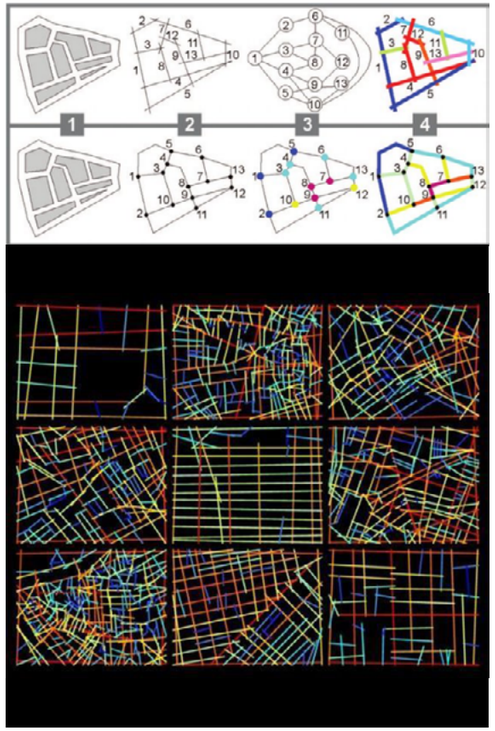
• Group work: A discussion about the created urban scenario and a joint decision about the best one, to be further elaborated (3D model, zoning plan, etc.).

• Classroom work: A joint discussion between students and teachers about their best urban scenarios and their impact on urban space.

References

https://www.researchgate.net/publication/7179558_Centrality_in_Network_of_Urban_Streets

https://www.researchgate.net/publication/23421243_Automatic_Generation_ of_the_Axial_Lines_of_Urban_Environments_to_Capture_What_We_Perceive



Space syntax: from urban matrix to axial maps. Source: https://www.researchgate.net/publication/7179558_Centrality_in_Network_of_Urban_Streets

The variety of axial maps by space syntax method. Source: https://www.researchgate.net/publication/23421243_Automatic_Generation_ of_the_Axial_Lines_of_Urban_Environments_to_Capture_What_We_Perceive

III.3.4.e. Urban acupuncture

Description

It is not completely clear who coined the term urban acupuncture, but there seems to be a broad consensus on basic tenets of this urban environmentalism theory. Borrowing from the medical concepts of acupuncture, proponents advocate a targeted (small-scale) approach to "healing" the (large-scale) malady of urban decay. Above all, however, proponents suggest that cities must be treated as living organisms, requiring solutions as dynamic as life itself (Miller, 2011). Those interventions could also be defined as short-term actions for long-term change (Lydon & Garcia, 2015) primarily in term of improvement of social structure of the city. Interdisciplinary approach and participation enable achieving results, primarily through understanding and education of the community and local governments (Careva, 2014).

Goals

The main goal of urban acupuncture is to achieve broad urban revitalisation through small-scale interventions at the hyperlocal level.

Situation

Small-scale interventions

Tools

Analyses, user involvement – participatory approach,

Steps

1. Site Analyses

2. Exploration of potential local site points for interventions and their mapping

3. Collaboration with users (local community)

4. Final design proposal

5. Realisation of proposal (preferably)

Results

By working on small-scale intervention, students are getting familiar with the whole architectural process – from site analyses to realisation. They develop skills in the fields of leadership, organization, communication, presentation and realization of the project.

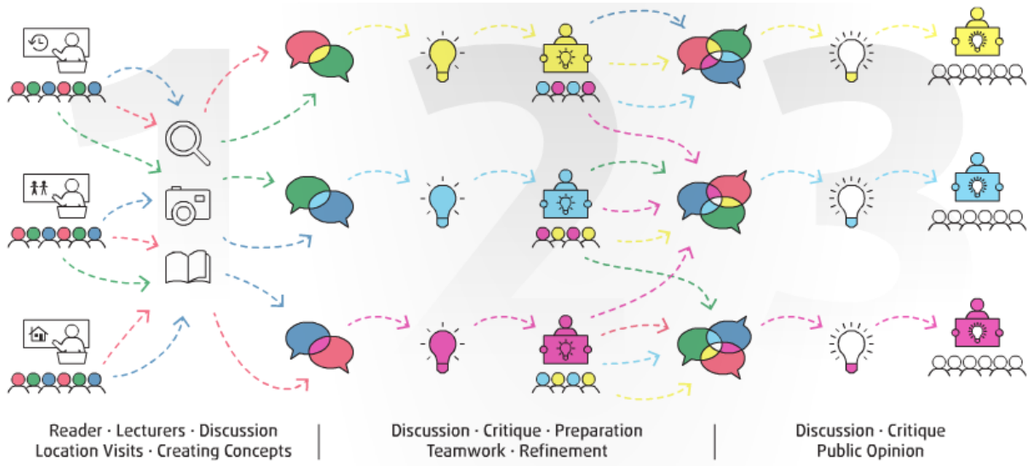
References

Miller, K. (2011). Urban Acupuncture: Revivifying Our Cities Through Targeted Renewal. from Kyle Miller MSIS: https://kylemillermsis.wordpress.com/2011/09/25/urban-acupuncture-revivifying-our-cities-through-targeted-renewal/

Lydon, M., & Garcia, A. (2015). Tactical Urbanism: Short-term Action for Long-term Change. Island Press.

Careva, K. (2014). City Acupuncture. Zagreb: Zagreb Society of Architects.

Reba, D., Carević Tomić, M., Kisin, I. 2019. Public Participation In Studies Of Urban Acupuncture, in M. Kostreš, H. Hanson: Participatory Processes in Urban Planning, 274-287



City Acupuncture Methodology, Careva K., City Acupuncture, Zagreb Society of Architects, 2014

III.4.5. Co-Design and technical solutions

III.3. 5.a. Participatory Decision Making

Description

Participatory Decision Making is a creative process to give ownership of decisions to the whole group, finding effective options that everyone can live with. A common form of participatory decision making is called consensus. This is a process that works to find common ground and solutions that are acceptable to all and best for the group. It tries to avoid the alienation of minorities that majority rule can create and values everyone's opinion equally. With consensus everyone in the group must agree to a decision for it to be adopted (peopleandplanet.org). The method is applicable in participatory planning, and in group student projects.

Goals

The goal is to find a common solution, especially for difficult problems, which is acceptable for all involved.

Situation

All types of places, strategic planning, urban planning and design, regional planning

Tools

Brainstorming, discussion, debate

Steps

1. Definition of the problem
2. Gathering and sharing of all relevant information.
3. Brainstorming of solutions and ideas
4. Discussion of the options
5. Prioritising proposals
6. Debate and discussion
7. Restate of the final proposal
8. Testing the consensus

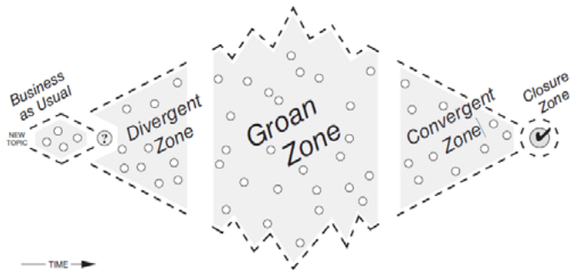
Results

When people make an agreement, it is assumed that the decision still reflects a wide range of perspectives (Kaner, 2014).

References

peopleandplanet.org/unis/gg/decisionmaking

Kaner, S. Et al. 2014. Facilitator's Guide to Participatory Decision-Making



Diamond of Participatory Decision-Making. It was developed by Sam Kaner with Lenny Lind, Catherine Toldi, Sarah Fisk and Duane Berger

III.3.5.b. Transect Planning

Description

Based on a research of Von Humboldt 1790 "A transect, in its origins, is a geographical cross-section of a region used to reveal a sequence of environments". Biologists and ecologists also use transects to study the many symbiotic elements that contribute to habitats where certain plants and animals thrive." (Center of Applied Transect Studies https://transect.org).

Extending to urban environments, the actual Transect Planning method is used in urban and landscape planning in order to identify various habitats different by their inside character and intensity, and to show the continuity transgression from rural to urban or vice versa. The method ensures the effective visibility of the "organising the components of urbanisation: building, lot, land use, street, and all of the other physical elements of the human habitat." (Duany Andrés et al., SmartCode & Manual, Miami: New Urban Publications, Inc., 2005).

Goals

For the DSMCs issue, the Transect method is very useful for mapping the complex relationship between the city and the Danube water, as well as between the city and its hinterland; it makes accessible the comparison among different cities from various zone / regions, enlighten the deep environmental specificity of Danube context.

Situation

- for all cities situated on the Danube shores, or at a distance (on tributaries canals/ rivers)

- both for urban and rural contexts

- appropriate for scientific landscape analysis and design development

Tools

Topographic plans, Elevation Transect in Google Earth, site observation, mapping, interviews

Steps

Prepare a map of the complete urban fabric

Make a section across the water

Represented the gradient of the topographic terrain, and/or water structure

Represented the gradient of the built / unbuilt (open) spatial structure

Represented the gradient of the landscape types and ambiances

Observe and define the main sequences of the gradient

Compare the section sequences with the plan structure

Define on the plan the limits resulted from the sequences section

Results

By the tool of section, the gradient of the scale change, the urban fabric structure, and the landscapes combination can be quickly visualised. Translated into the plan, these sequences may (or may not) coincide with the historical periods of development of the city and may indicate areas with potential for intervention, or fragile areas.

References

CATS (Center of Applied Transect Studies), https://transect.org/

Brian Falk, Andrés Duany (Eds. 2020): Transect Urbanism: Readings in Human Ecology.

Lisa Diedrich, Gini Lee, Ellen Braae (2014): The Transect as a Method for Mapping and Narrating Water Landscapes: Humboldt's Open Works and Transareal Travelling.

Major, Mark. (2013). The City's Essential DNA: Formal design and spatial processes in the urban patterns.

https://www.nanocrit.com/issues/issue6/transect-method-mapping-narrating-water-landscapes-humboldts-open-works-transareal-travelling

Interpretation of a classical diagram of the Transect method applied to a danubian city

III.3.5.d. Co-design abduction

Description

"The abductive approach to co-design allows for inclusion of expert knowledge, providing theoretical guidance while simultaneously investigating user views and ideas extending understanding beyond known effective approaches". (Hurley et al, 2021).

Co-design is understood as a process of abduction— a term coined by pragmatist philosopher C. S. Peirce, which refers to a type of reasoning that is different from deduction or induction: "deduction proves that something must be; induction shows that something actually is operative; abduction merely suggests that something may be." (Cross, 1995)

The co-design abduction used in the issue of DSMCs is based on the inclusion of both inductive and deductive approaches, i.e., experts/ professors and students' views, top-down planning documents and bottom-up (onsite) findings.

Goals

- permits the inclusion of theory in user-centered planning and design practice

- integrate the expert's opinion into the process of teaching – learning without overshadowing individual voices

Situation

All type of cities

Open learning environment (outside the room)

Tools

Interviews with both experts and users/ residents

Map of interests

Steps

Alternative sessions of experts/ users' inputs

Mapping different voices

Discussion

Results

theory can be successfully integrated into the co-design process through utilisation of theory-mapped activity, suitable for understanding the DSMCs

References

Hurley, E., Dietrich, T., & Rundle-Thiele, S. (2021). Integrating Theory in Co-design: An Abductive Approach. Australasian Marketing Journal, 29(1), 66–77. https://doi.org/10.1177/1839334921998541

Cross, N.1995. "Discovering Design Ability" Discovering Design: Explorations in Design Studies, Richard Buchanan and Victor Margolin, eds., Chicago: The University of Chicago Press.

III.3.5.e. Persona's method

Description

A persona is a precise description of the user and what they wish to achieve. They are considered to be abstract representations of archetypal users that were developed based on real user data that derive from interviews, focus groups, observations, field research and/or quantitative data analyses and they have been used as guides to the design process. They offer a narrative of the user's experience with a product or system. In order to be effective, personas need to be goal orientated as the goal gives direction to the design. The use of personas as a design tool for product design can be transferred to the design of a user-centred built environment. Personas can be used to create accounts of a particular citizen experience within a given built environment, to describe how the user interacts with the physical environment of the city, and how this enables or prohibits their desired behaviour.

Goals

The goal of the persona method is to design user-friendly product/urban environment that meet the user needs.

Situation

All types of places, strategic planning, urban planning and design, regional planning

Tools

Interviews, focus groups, observations, field research and/or quantitative data analyses

Steps

Stages of persona development as:

1. the identification of representative users;

2. data collection;

3. persona creation;

4. persona development and validation of the personas.

Results

As a critical design tool, personas allow for greater understanding of users, their goals and behaviours within a specific environment. They provide a snapshot of user needs, are an engaging reference for professionals, and serve as a communication tool that keeps the user at the centre of the design process (Byrne et al., 2011).

References

Cooper, (1999). The Inmates Are Running the Asylum, Why High-Tech Products Drive Us Crazy and How to Restore the Sanity.

Byrne, A. et al. (2011) Personas as a user-centred design tool for the built environment, Proceedings of the Institution of Civil Engineers - Engineering Sustainability Vol. 164 Iss. 1, March 2011, pp. 59-69

III.2.6. Presentation and evaluation methods

III.3.6.a. Before & After diagram

Description

In architecture the diagram is historically understood in two ways: as an explanatory or analytical device and as a generative device (Eisenman, 2001). Before and after diagram is a type of explanatory tool, and a form of representation, showing the beginning and final phase of a concept/place. It enables students to briefly present the idea, possible change of the site and the effects of the interventions.

Goals

The goal of before and after diagrams is to show the transformation of a place.

Situation

All types of places, strategic planning, urban planning and design, regional planning

Tools

Photography, photomontages, renderings, statistics etc.

Steps

Depends on a type of a place and the intervention.

1. presentation of the current state (graphics, data, drawings, rendering and/or photos)

2. presentation of the planed/realised state (graphics, data, drawings, rendering, photos and/or photomontages)

Results

Visual representation of the place transformation, which shows the possibilities and enables effective comparison of the current and planned state.

References

Eisenman, P. (2001). Diagram Diaries. Thames & Hudson. London

Spatial accessibility model_Before, Spatial accessibility model_After. Source: https://spacesyntax.com/project/trafalgar-square/

III.3.6.b. Exhibition with round table

Description

Exhibitions of student projects are the usual phase after finalisation of the tasks. They present the selection of successful projects and are a sort of dissemination activities. Accompanying the exhibition with a round table discussion enables deeper exploration of the proposals and drawing of common conclusions.

Roundtable, as a technique, is not a public meeting but a focus event to closely explore specific issues identified during the project or to identify new issues not addressed before. Each person is given equal right to participate and can speak freely on the subject. There is no 'leader' as such but there will be a facilitator to ease the work process and to maintain focus and scribes to record the process, decisions & actions (Riggas et al, 2011).

Goals

Round tables can be used to explore solutions, define actions, develop strategies etc.

Situation

All types of places, strategic planning, urban planning and design, regional planning

Tools

Discussion

Steps

1. Organisation of the exhibition

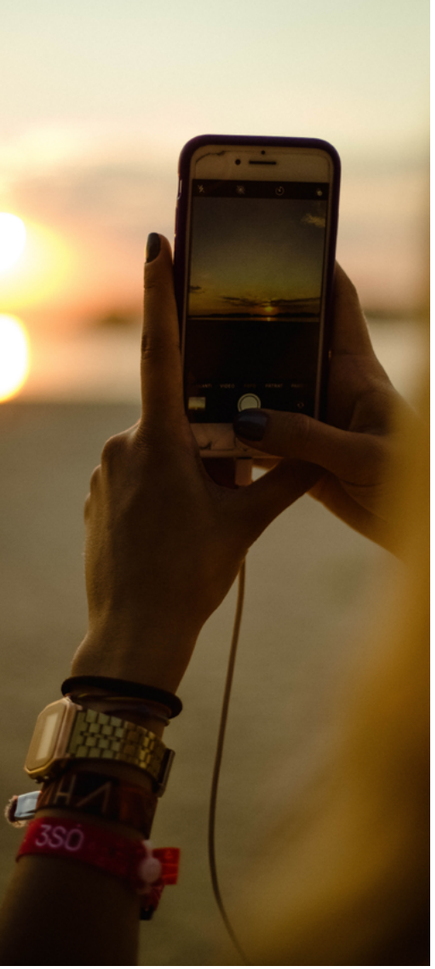
2. Organisation of a round table discussion (arranging the venue, inviting participants, managing the discussion, evaluation)

Results

Exhibition with round table is an improved version of the exhibition which enables joint evaluation of the project results and drawing of common conclusions.

References

Riggas, D. et al, (2011). How to plan, organize, perform, evaluate and document roundtables. https://cocoate.com/files/places2b/guide.pdf



III.3.6.c. Co-evaluation

Description

Co-evaluation method aims at the use of new and creative tools, many of them in electronic format, to obtain greater interactivity in the teaching-learning environment and to achieve an evaluation that is not only objective, but also relevant from all the participants' points of view. Co-evaluation method align to a teaching and learning environment that facilitates intellectual risk-taking, and that does not automatically penalise failure, thus fostering creativity.

Goals

- design and apply a planning evaluation methodology in assessing the DSMCs which is suitable from both the point of view of experts and of stakeholders, emphasising on the living urban form.

Situation

Part of the teaching-learning process, in the final stages

Tools

https://www.betterevaluation.org/en/choose-methods-and-processes

The Rainbow Framework

Steps

General criteria: Rationality, Interpretation, Relevance

Specific criteria. Confidence, Internal coherence, External coherence, Participation (plan making), Conformance Effectiveness, Commitment of resources, Performance Leadership, Utilisation, Participation (implementation) (Oliveira, 2008)

Results

- enhancing the quality of the urban plans, the local planning processes and the built environments taking in consideration the DSMCs specific

References

Oliveira, V., Pinho, P. (2008). Evaluation in urban planning: from theory to practise Conference: Evaluation in planning

Reynolds, M (2007). "Evaluation based on critical systems heuristics." In Using Systems Concepts in Evaluation: An Expert Anthology, edited by Bob Williams and Iraj Imam, 101-122. Point Reyes, CA: EdgePress. Available online at: http://oro.open.ac.uk/3464/

Choose methods and processes https://www.betterevaluation.org/en/choose-methods-and-processes

III.3.6.d. Panel discussion

Description

A panel discussion is a form of discussion about a specific topic amongst a selected group of experts who share differing perspectives in front of an (in-person or virtual) audience. The panel discussion is especially useful in participatory projects that involves stakeholders in the audiences, giving them opportunity to ask questions. A discussion is typically facilitated by a moderator who guides the panel and the audience through a conversation about a specific topic. The panellists are a group of people typically 3-4 experts or practitioners in the field, who share facts, offer opinions, and responds to audience questions either through questions curated by the moderator or taken from the audience directly (Arnold).

Goals

The main purpose of a panel discussion is for the panellists to share their wisdom and provide insights to create real value and takeaways for the audience.

Situation

All types of places, strategic planning, urban planning and design, regional planning

Tools

Discussion

Steps

1. Welcome

2. Panellist introductions

3. Panel presentation and/or initial remarks

4. Moderator-curated questions directed to the panellists

5. Questions from the audience directed to a panellist(s)

6. Summary (Arnold)

Results

Meaningful discussion for better decisions.

References

Arnold, K. Panel Discussion Definition. https://www.powerful-panels.com/definition-panel-discussion/

Arnold, K. How To Structure a Panel Discussion. https://www.powerfulpanels.com/how-to-structure-a-panel-discussion/

Results of tested Methods

Results of the IP01 as the teaching method, available until 2027 under following link: https://danubians-mcs.project.tuwien.ac.at/

Story map of Danube cities by size and countries as a result of the teaching method for O1

https://storymaps.arcgis.com/stories/47ff5d319a0b4e0cbcd1b-45333c2f15e

Data collection of good practices and teaching/ learning cross border cooperation as a result for O2 online map

https://www.google.com/maps/d/viewer?mid=1MyBvOBKwNCt_aL-YKKel8jxcFVAc61K_2&usp=sharing

https://bit.ly/3J7rTn8

Interdisciplinarity as Environment, Innovation As Trigger

Methodological guidelines and new theoretical and practical methods of interdisciplinary teaching for assessing small and medium sized cities on Danube

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IV. INTERDISCIPLINARITY AS ENVIRONMENT, INNOVATION AS TRIGGER

In the increasingly computerised environment in which we live today, interdisciplinarity is no longer presented as a goal in itself, but rather it is an environment that forces us not only to look beyond the borders of the domains of our profession, but also to step beyond them, blurring the dogmatic limitations and hybridising the territories of knowledge, thus ensuring a more fertile soil for creative and innovative thinking. However, interdisciplinarity is not without risks, especially when it is not properly understood. There is a risk, already noted by researchers and especially remarked in universities, that based on interdisciplinary programmes, the "heart" of the profession may lose its power, basic principles may be violated, or in the worst cases, the products of interdisciplinary may be lacking of creativity, standardised and worthless. "Schools have more barriers than most of the companies that I've worked for." says Chis Hosmer (international consultant at Continuum, cited by Elnahas, 2010) and there is a need to consider that "the stronger the disciplines are, the better the interdisciplinary experience is" (Elnahas, 2010).

Mark Breitenberg from the Art Center College of Design in Dublin affirms that there is a dialectic of disciplinarity and interdisciplinarity affirm the researchers; he speaks about the mutual dependence of disciplinarity and interdisciplinarity, which manage to succeed only "when it's comprised of very strong discipline-based programmes. Both are improved and enhanced through the experience of the other" (Breitenberg, M. cited in Elnahas, 2010)

"Despite the imperative for training an innovative workforce, there remains a lack of clarity about how to best prepare students for tackling the complex design problems of the future. The first step is to identify the best opportunities for interdisciplinary design to occur and establish unified goals and outcomes, which can prepare students for the unique multidisciplinary challenges that they will face". Elnahas, M. 2010. Interdisciplinarity for Innovation: A Case Study in Architecture. Conference: Curiouser: The 2010 Joint Meeting of SECAC and MACAA, Virginia Commonwealth University, VA

Interdisciplinarity as a teaching-learning environment in the architecture and urban planning programmes must be carefully managed, it having a paradoxical character at first glance: on the one hand, the disciplinary rigours must be respected, on the other hand, it is necessary to step over the disciplines boundaries. Lee Fleming (2004) suggests that when a creative team is made up of people from very similar "aligned" disciplines, the average value of its innovations will be high, but it will be unlikely to achieve a breakthrough. On the other hand, a group of people from very diverse "misaligned" disciplines is more likely to achieve breakthroughs – but will also produce many low-value innovations.

Therefore, an interdisciplinary approach in learning and teaching activities is there to prepare the students for their future work and already during the course of studies give them the experience of interacting with experts from other fields. Interdisciplinarity in learning and teaching aim at simulating and giving an opportunity to practice real working conditions of architects, engineers, and urban planners in terms of regular communication and cooperation with their contractors, related sub-contractors, experts, as well as local authorities. This will not only introduce and teach the students how to cooperate with representatives of different related fields but will also enable them to shift their perspective and improve the understanding of their future work on multiple levels, learn how to apply a holistic approach in research and design projects, and deal with economic, social, architectural issues during their work. Additionally, the students will learn how to understand and build argumentation in the cooperation across different disciplines for the accomplishment of a concrete task, convey the complexity and interrelations between conceptual design drafts and the definition of urban planning tasks, learn to tackle technical, economic, and functional aspects that are interlinked with the local cultural and social needs. This way, the output of the students' work should represent a holistic proposal with a concrete contribution for a real case ready to be implemented.

Moreover, in order for innovation to become a natural response following interdisciplinary approaches, it is necessary that each time the disciplines and experts brought in the project must be carefully chosen, to logically complete and enlarge the field of knowledge. Continuous evaluation of the work environment is also essential, ensuring a collaborative character of all the methods and tools used. As Mark Breitenberg says (2006) *"The interdisciplinary experience is like a living organism, which means you cannot always anticipate what form it will take"* .

IV.1. Re-defining interdisciplinarity in the context of new digital technologies and the (post) pandemic world referring to DSMCs

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» Interdisciplinarity

The context of the extensive digitization of the entire academic environment, especially after the experience of COVID19 pandemic, puts in the first place, the problem of the balance between advantages and disadvantages, taking into account the need for human interaction and the student's commitment to the activities. Or, precisely in this chapter a problem arises, although the new digital technologies score maximum advantages regarding many aspects- as the rapid access to resources, interactivity, simultaneity, synchronicity and so on. But besides all this, interdisciplinarity needs something more: a close collaboration between the participants in a project and the ability to build commitment, enthusiasm and trust. The trust among students is especially a fragile trait, and the environment of interdisciplinarity can weaken it even more, if insecurity appears in handling knowledge from related fields. Also, the ability to maintain concentration and commitment for longer periods of time are increasingly rare qualities among students, and teaching methods and tools must reinforce them.

In classical, pre-computer architecture education, hand drawing was considered a total tool in the design process: the hand was the one that transmitted the architect's thinking, through an always intensely particular, inimitable science and art; from concept to project, the hand of a single man could generate a world. Nowadays, along with the computer and the new ICT technologies for representing and modelling the architectural and urban space, there is also a relativization of this tool of drawing which is no longer necessarily linked to the intrinsic intelligence of the human hand. It happened first as a contamination in the process of transmission of architectural thinking in other ways and through other media; but also, there is an opening of the field itself to the disciplines of computer science and programming. Today, we are discussing parametric design, GIS and BIM, AI, knowledge environments and modelling of the built space that require a high-level knowledge of the IT field.

The particularities of small and medium-sized cities do not necessarily require a change in technical means compared to other research and design themes and directions. But, sometimes, it appears essential to directly appeal to these means precisely because, regarding them, the spatial data is poorer, the topographical information is not very accurate, or the access to the statistical databases related to some aspects of urban life is not an easy one.

» Lifelong learning. Terminology, origin and benefits

According to Kil, Motschilnig, Thöne-Geyer (2013), the idea and *concept of lifelong learning* essentially came from supranational and international organisations, such as the Council of Europe, UNESCO (United Nations Educational, Scientific and Cultural Organization), OECD (Organisation for Economic Co-operation and Development) and the EU (European Union). In general terms, different activities

can be considered as lifelong learning, such as learning a new skill, craft, sport, activity or how to use a new technology. It the context of professional training and education, the *terminology* of lifelong learning still embraces many concepts including initial education for disadvantaged groups, continuing education and training for well-qualified graduates, and post-retirement opportunities for cultural enrichment – (European University Association, 2008). The latter is also known as the University of the Third Age (U3A), its target group being senior people and people in retirement. Depending on the regulations of a particular university and its study programs, the age of admission to a U3A course can vary from 50 y.o. up to retirement age in the given country. The goal of the programs of continuing education is to provide adults and seniors with the opportunity to gain the most relevant knowledge and skills in the fields of science, history, politics, culture, etc. at a university level. Participation of adults in educational activities supports active lifestyle, mediates the latest findings, knowledge and skills in a suitable form, foster their mental and physical strength and independence, stimulate their interest in current events, practical use of gained knowledge and active life attitudes (https://u3v.muni.cz/).

The *demand* for the continuing education, as described by the European Universities' Charter on Lifelong Learning (2008), has been in the recent years dictated by social, and economic challenges particularly generated by:

- the increasing speed of globalisation;
- the demographic transformation of Europe into ageing societies;
- the rapid pace of technological change.

These developments impact on, and require adaptation in, society and from labour markets everywhere.

According to Kil, Motschilnig and Thöne-Geyer (2013), adult education represents a value by itself, "*it provides an insight into world knowledge and enables own experiences to be confronted with acquisition processes*". In their article "What Can Adult Education Accomplish? The Benefits of Adult Learning – The Approach, Measurement and Prospects", the wider, non-economic benefits, and a long-term return from the lifelong learning are being analysed, which describe the benefits beyond the scope of acquiring skills and qualifications and the contribution of lifelong learning to society on different dimensions.

> *"In order to systematise the return gained from learning, the concept of 'capital' is used (Schuller et al., 2004). It is assumed that through learning and (continuing) education, people acquire – consciously or unconsciously – forms of capital from which both the individual and the society as a whole can profit.*
>
> - *'Human capital' is based on know-how and qualifications that enable an individual to participate in the economy and in society.*
> - *'Social capital' results from networks in which people actively participate, so that when they face a challenge they can fall back upon their social relations.*
> - *'Identity capital' comprises individual features such as self-confidence and internal control to support personal development, whereby it is also assumed, however, that there is a social influence on this form of capital (Schuller et al., 2004, p. 20).*" (Kil, Motschilnig, Thöne-Geyer, 2013)

In addition to that, various studies have discovered long-term benefits of lifelong learning on different levels, such as:

- Strengthening social bonds, relationships and networks within the community and a reduced risk of social exclusion (Field, 2005).
- Improvement of personal well-being and developing a higher tendency for healthier lifestyle choices, e.g., reduction in consumption of alcohol and cigarettes (Feinstein et al. 2003).
- Improved mental health and developing a generally positive attitude to life (Tuijnman, 1990).
- Reduced risk of adopting extremist attitudes and development of a more tolerant behaviour (Preston & Feinstein, 2004).
- Contribution to the development of politically active democratic societies (Preston, 2003; Feinstein and Hammond, 2004).

In UAUIM, the interdisciplinarity is provoking and sustaining a permanent interaction which can range from the simple communication of ideas to a mutual integration of concepts,

methodology, procedures, epistemology, terminology, data, and the organisation of research and education in a broad field of studies. Interdisciplinary is seen as a process of answering a complex question, solving in an integrated way a problem, or addressing a topic that is too broad or complex to be dealt with adequately by a single discipline. Through interdisciplinarity applied at licence/ master/ doctoral level studies, there is the goal of integrating the ”extra-architectural” insights in order to construct a more comprehensive understanding of a city or a region. In UAUIM, interdisciplinarity is firstly correlated with a need to broaden the understanding of societal problems under the impact of new technologies and the need of adaptation to change.

UBGD already has teaching agreements with several other faculties within the University of Belgrade for the transfer of teaching staff at all levels of studies. The Department of Urbanism cooperates with the colleagues from sociology (urban/spatial sociology), economics (urban/spatial economics), civil engineering, electronic engineering and security studies.

With the respect to improve, UBGD prospective education module the following disciplines should be involved:

- Information and communication technologies: Faculty of Electronic Engineering – Department for Software Engineering;

- Territorial and regional planning: Faculty of Geography – Department of Spatial Planning;

- Geoinformatics: Faculty of Electronic Engineering – Department for Software Engineering;

- Cartography: Faculty of Geography – Department of Cartography;

- Cognitive and behavioural sociology: Faculty of Philosophy – Department of Spatial Sociology;

- Geodesy: Faculty of Civil Engineering – Department of Geodesy;

- Landscape Architecture: Faculty of Forestry – Department of Landscape Architecture;

- Security studies: Faculty of Security Studies;

- Environmental science: Faculty of Geography – Department of Environmental Science.

The focus of the prospective studies regarding the aforementioned interdisciplinarity and trans-disciplinarity is planned to be on the application of ICT tools in urban planning and design. This should be implemented at all stages of learning/teaching process:

(1) As ICT tools for the analysis, data systematisation and valorisation of the current state of urban sites for student research;

(2) As ICT support for the conceptualisation and programming of the future urban design and planning solution; and

(3) As the ICT-driven element of urban plan, urban design project or urban feasibility study. This particularly pertains to space-related ICT elements, such as virtual or augmented reality.

Teaching activities of the Simlab TU Wien are characterised by a strong methodological approach and the usage of novel technologies in analysis and design., especially in spatial planning with the next objectives: synthesised handling of spatial data (acquisition, handling, visualisation); data visualisation for exchange on knowledge and insights; strategic spatial planning and handling complex problems.

Most courses are conducted in an interdisciplinary manner, as a collaboration of architects and spatial planners, and an involvement of insights from various other domains, such as cartography or computer science. From a methodological point of view, the Simlab team teaches among others the utilisation of methods and approaches such as coding (JavaScript), web mapping (Leaflet) and procedural modelling and planning (ESRI City Engine). Thus, the main relevant teaching topics are:

» Web-mapping (coding, layout, visuals)

» Volunteered Geographic Information (approaches, context, potentials, use cases)

» Data visualisation (visual analytics, coding, analogue and digital methods)

» Data analysis and handling techniques (formats, standards, alignment)

» Critical review of methodology and results (potentials, constraints)

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Spatial planning as a domain is already characterised by a large degree of interdisciplinary and a strong emphasis on the exchange of knowledge, information, opinions and insights. This aspect becomes especially important with an increasing degree of complexity in the problems to be addressed and in cross-cultural (international) exchange. The Danube region is one of the most complex macroregions in Europe, despite strong connections defined through the eponymous river, spatial challenges are highly different across its various subregions.

A major challenge lies in defining a common knowledge basis with the aim of facilitating information and knowledge exchange, overcoming domain boundaries and focussing on active discussion with external stakeholders. From the Simlab's perspective, these aims need to be achieved on two parallel running pillars, by an active facilitation of discussion and communication processes and the provision of adequate methods and toolsets that enable these.

The most recent activities of UNS are directed towards the investigation of the possible ways to integrate cultural heritage, urban design and public participation as well as developing open and adaptable strategies of heritage and urban design to meet the demands of users. Holistic and action-thinking of urbanism is imperative for the sustainability of the urban system in the 21st century. In this context, theory, research, and practical application in the treatment of the built environment imply a psycho-social, environmental, technological, and other dimension, which in an integrated relationship contribute to more complex development, improvement and control of sustainability and systems. Transdisciplinarity is an important driver for sustainable development and the intensive engagement of disciplinary domains through a new approach, which will put the problem in the focus of research and through the development of divergent thinking that is not a random but a thoughtful choice, so as not to remain at the level of cultural theory.

In this respect, the main questions of DSMCs space perception, spatial-temporal patterns of public spaces in cities along the Danube River, parameters of planning of modern cities, cities of the future help to introduce students to the basic principles of participative processes in urban and regional planning and developed their ability to successfully engage citizens into the process of decision-making in various types and phases of spatial planning – urban, as well as regional.

UWK has built its study programs for professionals in accordance with the European Universities' Charter on Lifelong Learning (2008), which is described by being committed to:

1. Embedding concepts of widening access and lifelong learning in their institutional strategies.

2. Providing education and learning to a diversified student population.

3. Adapting study programmes to ensure that they are designed to widen participation and attract returning adult learners.

4. Providing appropriate guidance and counselling services.

5. Recognising prior learning.

6. Embracing lifelong learning in quality culture.

7. Strengthening the relationship between research, teaching and innovation in a perspective of lifelong learning.

8. Consolidating reforms to promote a flexible and creative learning environment for all students.

9. Developing partnerships at local, regional, national, and international level to provide attractive and relevant programmes.

10. Acting as role model of lifelong learning institution.

The range of studies offered by the UWK is specially designed to meet the requirements of adult students. It gives students the opportunity to complete academic continuing education alongside their careers, thereby acquiring competencies for professional and personal ongoing development.

In order to meet the needs of the professional learners, the UWK pursues six pedagogical principles in teaching, in accordance with its statutory mandate that is based on scientific teaching and research in relation to continuing education.

» Scientific learning: Learning processes are aligned to the content and methods of international academic research findings. The teaching at the UWK thus contributes to the general trend of the scientific basis of social life and supports the professionalization of practices that are actuated by recent (scientific) research findings.

» Practice-based learning: UWK aligns its teaching with the professional challenges and experiences of the students (reflective practice) and supports the acquisition of new pro-

fessional skills. There is no contradiction between scientific and practical orientation, as “Nothing is more practical than a good theory” (Kurt Lewin).

» Activity-based learning: Genuine activities are essential for hands-on knowledge. Only through these genuine activities, the “inert knowledge” can be transferred into experiences and implemented practically as a skill in real situations. It is important to note that thinking is also a form of action, a (mental) activity, that must be tested, practiced, and promoted like all the other acts. Moreover, establishment and maintenance of social relationships (students and teachers learn with and from each other) is also part of the activity-based learning.

» Competence-based learning: Teaching at the UWK primarily aims to develop skills and abilities to cope with complex situations in professional contexts. Competencies are integrated behavioural dispositions, i.e. skills or abilities to behave in a certain way. The UWK adopts a holistic approach that integrates technical, methodological, social and personal competencies.

» Outcome-based learning: A key measure of the quality of teaching at the UWK is the learning outcomes of students. Applied teaching methods and teaching strategies are therefore not the goal, but tools to reach the structured and measurable learning goals.

» Individualized learning: Students’ different learning backgrounds and competences are taken into consideration in teaching and the individualization of learning is promoted through organization of appropriate teaching and learning arrangements. To meet the individual conditions and needs of working students, especially concerning time, the UWK employs integrated blended learning arrangements. The structure and format of blended learning (timing and extent of classroom teaching, supervised e-learning and self-study, and ratios between different methods) can be determined according to the intended learning outcomes for specific courses or modules.

IV.2. Intensive Programmes as tools to quickly understand the complexity of cities

The 3 packages of intensive programmes (IPs) carried out within this project highlighted the fact that to understand these cities in the Danube region, a wide range of tools is needed, their complexity being quite high in many cases. The main educational stake of the activities - both the theoretical inputs (online lectures of invited experts), and (especially) the practical activities - was to mirror the general level of knowledge about cities with the particularities of DSMCs and see if the students’ answer is sufficiently adapted and professional.

The IPs held in different formats each time and with different themes, relying on the teaching input of all the universities involved in the project and some external experts, proved - even during the difficult period of the pandemic - a strong involvement on the part of the students and a remarkable ability to respond adequately, with innovative solutions to the problems discovered on the ground.

Another goal of these activities was to make the local actors to newly “see” the city through the eyes of the students involved in these workshops, thus regaining awareness of local values and resources. The public presentations of students’ work succeeded in this, arousing the interest of the residents and the authorities on the possible future cooperation projects.

IV.2.1. Spatial and Geo-spatial thinking as tools in teaching planning and design applied to Danubian SMCs

Creative Danube: towards new methods of assessing the spatial urban complexity of Danubian SMCs

IP01 Simlab TU Wien – „Sensing and mapping the city"

IP01 info	learning & teaching activities, **online 19.10 - 23.10.2020**		
	planned: Wien, Austria		
Learning structure			
Preparatory	12-18.10.2020		
Implementation	**19-23.10.2020**		
Post processing	24-14.11.2020		
		Places	**7 River cities**
3 experts' inputs		six different cities along the Danube:	
4 discussions		Vienna (Austria), Bratislava (Slovakia),	
4 work groups		Budapest (Hungary), Novi Sad (Serbia),	
2 recap group		Belgrade-Zemun (Serbia); Călărași	
4 common meetings		(Romania)	
1 guided urban walk		& Łódź (Poland)	
1 individual urban tour			
2 project consultations			
Participants	**61**	**Methods used**	
Partners & professionals		Introductory lectures	
		Expert lectures	
24 tutors (local) professors		Debate	
37 students		Story+web (GIS) map	
		Storytelling maps	
5 guests/ associated partner		Walking tours	
1 coordinator		SWOT analysis	
2 IP tutors		Co-evaluation	
		Panel discussion	

The intensive program "*Sensing and mapping the city*" was originally planned as a one-week summer course in Vienna. Theoretical inputs on complex planning problems as well as potentials and practical application of ICT-based data preparation and visualisation techniques were planned as introductory lectures. A joint bike trip from Vienna to Bratislava (or shorter alternative routes) would have been planned to try out different sensing methods and tools (such as 360°-cameras, GPS-trackers, etc.) and to test their suitability for practical application. Subsequently, after the trip, the focus would have been placed within a hands-on workshop on the processing and analysis of the collected data and their suitability for use in concrete planning processes would have been verified. The most important outcomes for the participants of the summer school would have been not only the introduction to new methods and their testing from the perspective of both a researcher and a research participant. It would also have provided an opportunity to learn about both the potentials and challenges of using the technologies, allowing participants to apply the acquired skills specifically to various complex planning issues in their future careers. Due to travel restrictions caused by the covid pandemic, the programme was completely redesigned while maintaining the fundamental outcomes:

The *Sensing and mapping the city*-lab was held in September 2020 as a preparatory phase with online courses, implementation week and post processing period. Instead of the city of Vienna, a pan-European study area was chosen - the hometowns or places of study of the participants. The thematic focus was on addressing contemporary challenges of sustainable urban and regional planning that are highly relevant throughout the Danube region – „bikability" and „walkability". With regard to cycling as a healthy, sustainable mode of transport, many cities along the Danube would be well suited, as they are generally small in their geographic extent, flat and some of them are connected to large (European) cycling routes (e.g. Eurovelo 6). Despite their size, many cities along the Danube favour car-friendly street design in their cityscapes. However, potential for improvement needs to be identified and concrete measures formulated and implemented. Especially in the lower parts of the Danube, the biking infrastructure is in a poor condition, bikeways or -lanes are missing. To increase the bikeability of these cities, principles of VGI can be used to map and understand problematic situations in order to provide a valuable basis for efficient planning. Sustainable planning is inclusive and enables the participation of as many population groups as possible in everyday life. Due to previous planning decisions, the public space is not always accessible to all citizens and inhabitants. The lack of ramps, elevators, high curb sides along pavements pose challenges to people with reduced mobility in their everyday lives. Especially in historic cities and along existing structures it is hard to come up with architectural solutions that make public spaces open to all its users. For this reason, the second focus in the workshop week was laid on inclusive design and highlighting problematic situations in Danubian cities, utilising the same approach as with the bikeability.

Along with these two topics, participants received a theoretical introduction to the topics of *Volunteered Geographic Information* (Goodchild, 2007) VGI and web mapping. In order to smoothen the learning curve, the IPs coordinators prepared templates and code – snippets, which did not require any advanced programming skills. Students only needed Excel or a similar spreadsheet software, a smartphone (with the possibility to install apps collecting GPS tracks), mobile internet, as well as internet connection for conducting the tasks and sharing their results. With this approach, problematic features could be mapped in six different cities along the Danube (Vienna, Bratislava, Budapest, Novi Sad, Belgrade-Zemun and Călărași), as well as in Łódź in Poland. The results were summarized by the students in the workshop in a self-designed blog, which can be found until 2027 at the following link:

https://danubiansmcs.project.tuwien.ac.at/

IV.2.2. Participative and informal methods used in assessing the Danubian SMCs cross-border cooperation

IP02- Novi Sad University, Serbia – „Urban acupuncture - micro location-level activities aimed at improving Danube cities collaboration"

The Intensive Programme Urban acupuncture #SremskiKarlovci (IP02 – Novi Sad) developed the idea of treating cities as living organisms, making small-scale interventions on a hyperlocal level. The main purpose of the IP02 was to provide students as well as teachers with new competences, knowledge and skills that can be used for resolving problems of small and medium size cities and regions along the Danube River. The activities run in Novi Sad (Serbia), in November 2021. It summed up the provided knowledge from the previous activities especially IPs01. New methods and tools were developed by mixed groups of teachers and students from the project consortium, taking into consideration interdisciplinarity and interculturality. The urban acupuncture approach was interdisciplinary and involved intensive participation of citizens. As this method could be defined as a short-term action for long-term change, it was very effective for development of IP and making interventions in urban spaces for developing proposals on improving urban conditions and living environment. Use of public participation that signifies the paradigm of a democratic society is a step forward to better interdisciplinary cooperation and dealing with contemporary challenges as citizen participation in the planning processes plays the role of building sustainable communities, which promote common values and good living conditions for all social groups involved.

The *Urban Acupuncture* methodology was based on the idea of urban acupuncture and participative practice and connected with the mapping and includes method for achieving the activity goals within this activity, by following several steps in local site analyses:

1. History of the city – research based on inputs given by the organising team.

2. Analyses of potential local site points for interventions and their mapping.

3. Application of participative techniques and methods – fictional characters, questionnaires, interviews.

4. Final design proposal and recommendations.

The activities proposed as part of this IP are defined to accomplish the following learning outcomes related to cities treated as living organisms, targeting the approach to "heal" the malady of urban decay. At the same time public participation should lead to sustainable communities which promote common values and good living conditions for all social groups involved with dynamic interaction between citizens and the urban environment through methodology that includes participative and informal methods used in assessing the Danubian SMCs cross-border cooperation, formal vs. informal participative planning educational methods as well as micro-strategies, gamification and tactics developed by students to activate local stakeholders. Various elements of urban structure are imprinted on the entire space, both in physical sense and through socio-spatial communication. Careful assessments of the extensive interaction between the river and the urban environment is therefore necessary for an optimal human-centred management and the design of urban space.

IP02 info	learning & teaching activities
	Novi Sad & Sremski Karlovci, Serbia, 08.11 – 12.11. 2021

Learning structure	
Preparatory	
Implementation	**08-12.11.2021**
Post processing	

	Places	**in the city**
4 lectures' inputs		Sremski Karlovci
4 discussions		
3 work groups		
2 common meetings		
1 guided urban walk		
1 individual urban tour		
2 project consultation		

Participants	**59**	**Methods used**
Partners & professionals		Introductory lectures
		Expert lectures
21 professors (2 online)		Debate
38 students		Walking tours
		Urban acupuncture
20 Danurb+ associated partners		Persona's method
1 coordinator		Participatory Decision Making
3 local tutors		SWOT analysis
		Co-evaluation
		Panel discussion

IV.2.3. City liveability within the shrinking condition engaging the inclusive development in Danubian SMCs

IP03 – "Ion Mincu" University of Architecture and Urbanism form Bucharest - The "Liveable Co-City #Călărași"

The Intensive Programme *"Liveable Co-City # Călărași"* (IP03) has emphasised the aspects related to daily urban life, accessibility and sustainable micro-mobility, the attractiveness of urban green spaces, the resilience based on the use of local resources and heritage values, and the socially inclusive character of peripheral residential neighbourhoods in a shrinking city. The activities run in Călărași, in June 2022, and sum up the provided knowledge from the previous activities within the D_SMCs, testing new methods and tools developed along with the interdisciplinary and intercultural mixed groups of teachers and students from the project consortium. The main purpose of the IP03 was to equip students and teachers with new competences, knowledge and skills referring to the peculiar issue of small and medium size cities situated in the peripheral area of lower Danube, through an interdisciplinary interaction, in order to better cope with contemporary challenges of inclusive and sustainable urban development.

The Liveable Co-City methodology was based on the idea of sustainable co-shared projects. From the general methodological framework of Co-City developed and applied in many cities around the world (Shifting from the co-governance of urban commons to the City as a Commons https://co-city-template.designforcommons.org/co-city-approach/), we proposed a necessary simplified method for achieving the activity goals within this activity, by following several steps:

1. EXPLORING AND TALKING
2. ANALYSE AND MAPPING
3. DEVELOPING SCENARIOS (PRACTISING)
4. DEVELOPING DESIGN SOLUTIONS (PROTOTYPING)
5. PRESENTING AND DISCUSSING (TESTING)

As a programme, the Liveable Co-City Lab proposed 5 main thematic clusters of study and intervention, correlated to the concept of Liveable Co-City Lab and having also correspondents in significant places in Călărași on which students developed the projects**.**

1. *accessibility and sustainable micro-mobility*
2. *socially inclusive character of peripheral residential neighbourhoods*
3. *resilience based on the use of local cultural resources and heritage values*
4. *attractiveness of public urban green spaces*
5. *productive landscapes and local economy*

By encourage the cooperation between various disciplines (architecture, urban planning, landscape design), and a comprehensive interaction besides the cultural differences among partici-

pants, the Liveable Co-City Lab has led to an "infusion – diffusion" process type, meaning that all ideas/ visions/ proposals/ scenarios have been put together, debated, criticised and selected, and then re-sprawled among participants in order to be tested and theorised. In the same time, bringing together in the same conceptual framework the local community, professional partners and experts, the activity get to a collaborative interactive planning process, making the city's potential visible to its residents.

IP03 info	learning & teaching activities
	Călărași, Romania, 30.05-03.06 2022

Learning structure	
Preparatory	
Implementation	**30.05-03.06 2022**
Post processing	

Places	**in the city**
	Călărași, Romania

5 lectures' inputs
2 discussions
3 work groups
2 common meetings
2 guided urban walks
1 individual urban tour
2 project consultation

Participants	**51**
Partners & professionals	
19 professors	
32 students	
6 guests	
40 Danurb+ associated partners	
1 coordinator	
2 local tutors	

Methods used

Introductory lectures
Expert lectures
Critical Thinking Session
Debate
Mapping Resources through Exploration
Living Lab
Walking tours
SWOT analysis
Problem-solving based project
Scenario planning based project
Co-evaluation
Panel discussion

Methodological guidelines and new theoretical and practical methods of interdisciplinary teaching for assessing small and medium sized cities on Danube

01

An Integrated Methodological Framework for an Innovative Assessing of Danubian Smcs

V. AN INTEGRATED METHODOLOGICAL FRAMEWORK FOR AN INNOVATIVE ASSESSING OF DANUBIAN SMCs

Methodological guidelines and new theoretical and practical methods of interdisciplinary teaching for assessing small and medium sized cities on Danube

01

The Danube is one of the main rivers which create urban civilization relevant at international level, an important belt which connects Europe - more than 81 million people living in the region - and its potential for educational purposes is both as wide and extensive as the river itself. This is reason enough to think about common interests and ties and open dialog on developing a common dedicated complex program for higher education level, to get young professionals closer to appreciate this European river in all its facets and with all its challenges.

Through its valence oriented towards inclusiveness and sustainability, this educational program will attract young professionals eager for practical application of their knowledge, being able to generate projects and local development in these cities, being able to find viable solutions to cut off these cities from the negative slope of decline and shrinking in which most of them are. The lesson of the Danube as an active crucible of civilization and Europeanness has not been explored enough in the higher educational context, especially with the focus on social and community development, including topics like identity, common history, old arts & crafts, tourist potentials, and sustainable solutions for shrinking towns from the perspective of young generations.

V.1. Main scope and impact of the future interdisciplinary higher educational program dedicated to Danubian small and medium sized cities

This program aims to enhance the attractiveness and excellence of European higher education domain and to add positive specific value in the global knowledge of this emblematic river of Europe. Also, it targets to harness the uniqueness of the river Danube, its history, and its meaning to the people living next to it, inspiring the future generations of professionals in how to better connect people and civilizations and encourage communication and debate.

The expected impact of the future interdisciplinary higher educational program dedicated to DSMCs can be envisioned both at the system level of European higher education and at the institutional level of each university/ faculty part of it:

» At system level

- Fostering academic cooperation within Danube space, and beyond by supporting joint teaching and qualifications quality improvements, and promotion of academic excellence;

- Enhancing the international dimension of higher education through cooperation between the consortium institutions.

- Increasing the synergies between higher education goals in the topic of DSMCs and the innovation and research field;

- Making the Danube a link of knowledge by enhance interdisciplinarity and by removing barriers to learning;

- Responding to societal and labour market needs existing in Danube territories

- Contribute to the development of innovative education policies.

» At institutional and local level

- Improve the employability of participating students, increasing the possibility to come/ return to small and medium-sized Danube cities;

- Improve key competences and skills of students in a more complex urban environment, requiring interdisciplinary knowledge and capacity to act of different roles;

- Forging new mind-sets and approaches to academic studies through international, interdisciplinary, intersectoral and intercultural experience;

- Enhance networking and communication capacities of the students and local stakeholders;

- Increase the individual contribution to the knowledge-based economy and society.

V.2. The interdisciplinary attribute of the DSMCs higher educational program

One of the distinctive features of this program is interdisciplinarity, assumed as a necessity for the future of small and medium-sized cities. In order for it to be taught correctly, a clarification of the measures and methods by which interdisciplinarity is achieved here. Interdisciplinarity is a good study environment, but if it is not carefully explained and monitored, it can become a trap for students. If it is approached superficially, only as a sub-refuge for research in the basic field, it can weaken the educational process, inevitably causing insecurity and lack of capacity in handling knowledge from related fields.

In order to produce beneficial effects, interdisciplinarity needs:

» the need to preserve the specificity of the fields in which the core-competences are distinctly delimited (architecture/urban planning);

» the need to strengthen the theoretical disciplinary rigor, in-depth study of the relevant scientific literature;

» the need to address current topics, relevant to the life of the communities in DSMCs, in agreement with the new thematic and research directions at the European level;

» the need to enhance the team spirit, of both helping and exchanging knowledge aross and along the participants within the program;

» the need to use the digital environment and the capacities of architecture-urban planning graduates for the leap towards innovation and added value;

Thus, it is important both the core disciplines of a such a program to be well defined (i.e. architecture and urban planning domain), and the related disciplines to be developed by joining the programme according to each university proposed curricula (i.e. sociology, anthropology, geography, geodesy, topography, cultural studies, etc).

The main characteristic of the program will be the high degree of integration among the

i) participating institutions;

ii) students' backgrounds and professional interest;

iii) academic content and knowledge.

V.3. Learning objectives

(1) The focus on the creative process in urban planning and design through innovative collaborative techniques, based on ICT and digitally-driven tools;

(2) The step-by-step active learning through the several phases that alternate individual and group work;

(3) The use of innovative and alternative methods and techniques that can initiate, motivate, and facilitate the processes to link urban design and planning with other disciplines;

(4) The better involvement of the re-evaluation as a precondition for a successful urban design and planning in the challenging and complex urban future;

(5) The qualitative presentation of studio work that can trigger both local experts and the population to collaborate in urban development.

V.4. The main concept structure of the DSMCs higher educational program

The integrated study (both theoretical and applied) of this subject asks for a structuring that will lead to useful results both in the academic environment and in the wider professional fields and on a local level, in the decision-making and governance segments of the Danubian small and medium-sized cities. Therefore, a gradual and articulated path is necessary, passing from:

1) RESEARCH (on the field and in the library/ data collection and analysis), to

2) STRATEGIES OF INTERVENTION, in response to the observations made within the research and to

3) DESIGN process: the development from the conceptual level to the technical level of the possibilities to solve or to improve certain aspects of the detected problems - spatial, functional, ecological, social etc

V.5. Achieved competences

» Professional competencies:

(1) The acquiring of novel methods in urban planning and design operating with complex correlations between space-related concepts and theories from various fields;

(2) The identification of the different development policies (social, economic, environmental, cultural) that shape the future of settlements and communities of DSMCs;

(3) The development of comprehensive project, using different mediums and tools within a scientific ethic and proper use of literatures

(4) The better comprehension of the meaning of context in its wide interpretation: economic, social, political, organisation, physical, paying attention to social inclusion of disadvantaged communities of DSMCs;

(5) The development of an adaptive approach in dealing with urban regeneration and redevelopment in plans and projects.

» Transversal competencies:

- Achieving complex activities as member or coordinator of multidisciplinary teams by promotion of new concepts, techniques and creative methods of evaluation, decision making, coordination, and mediation.

- Application and use of acquired knowledge and skills by engaging in processes for implementation of plans and projects, strategies and programmes in the field of territorial planning and regional development within public or private organisations.

- Permanent self-evaluation and assessment of professional competence through efficient use of continuous learning and training forms through active involvement in research and development activities and processes.

- Inter/transdisciplinary and multilevel approach of small and medium cities within the regional context and the goals of sustainable development and resilience strategies during the post-Covid period.

V.6. Main difficulties in creating and implementing a future interdisciplinary higher educational program dedicated to DSMCs

The creation and implementation of such a program at the regional level, with an international coverage and relevance, with the participation of a significant number of European universities and higher education programs from the Danube countries, seems to be a difficult task, considering several aspects already discussed and debated between the partners of this project:

1) the legislative differences in the accreditation of educational programs in higher education between the countries of the Danube region;

2) the multiple differences regarding the way of integration in the current curricula of topics related to the development of small and medium-sized cities;

3) the differences in the way students perceive the relevance of this topic in relation to the labour market and the possibilities of further development of the skills acquired;

4) the differences regarding the organisational configurations, the existence or not of master's/postmaster's programs/continuing education etc of the universities included in this program.

V.7. Three possibilities in creating and implementing a future DSMCs interdisciplinary higher educational program

Trying to overcome these differences, 3 possible visions/scenarios were outlined for the development and implementation of such an interdisciplinary educational program with an integrated, sustainable, and inclusive approach to the small towns and villages of the Danube. These visions differ according to the speed and ease with which they can be implemented at the partnership level and the way in which they can be replicated in other configurations of partner universities. At the same time, the duration of the educational program can be varied, depending on the expected local impact.

A) **Short term vision (micro-credential program). 2-6 ECTS, depending on the existing curricula**

This is a flexible program based on the inserted topics into the existing curricula of the universities at the level of the departments. This modality allows that, once an extensive range of topics related to the inclusive and sustainable development of DSMCs has been disseminated, students can be taught at both theoretical and applied level, within the disciplines already existing in the curricula. The interdisciplinary profile can be easily achieved by inviting experts, researchers and professors from other universities, within the framework of short Erasmus-type mobility internships.

This type of program is related with the most recent recommendation of the Council of the European Union (*Recommendation on a European approach to micro-credentials for lifelong learning and employability*), which seeks to support the development, implementation and recognition of micro-credentials across institutions, businesses, sectors and borders:

"This system of micro-credentials offers an effective culture of lifelong learning as key to ensuring that everyone has the knowledge, skills and competences they need to thrive in their personal and professional lives. Micro-credentials certify the learning outcomes of short-term learning experiences, for example a short course or training. They offer a flexible, targeted way to help people develop the knowledge, skills and competences they need for their personal and professional development. Shorter forms of learning opportunities than traditional qualifications, such as micro-credentials, are being developed rapidly across Europe and around the world. These opportunities are made available by a wide variety of public and private providers in response to the demand for more flexible, learner-centred forms of education and training. They also have the potential to offer education and training opportunities to a wider range of learners, including disadvantaged and vulnerable groups". (EU, 2022)

A list of measures that could be taken by the DSMCs partner universities in the context of lifelong learning could highly contribute to the positive development of the small and medium-sized cities and their communities in the long run. Offering the teaching module developed in the frame of this project to adult learners could serve as the first step to gradually expand their offer of study programs to a wider public, include returning learners in their target group of future students, and promote continuing education in the rural areas and in the small and medium-sized cities.

Possible long-term outcomes of supporting and promoting adult education in the target regions could include the following aspects:

- Support social inclusion.
- Positively contribute to strengthening of the local communities.
- Support of an active social position and participation, strengthening the democratic societies.

B) **Medium term vision (blended program). 6-15 ECTS, depending on the universities policies on extracurricular credits**

This is an option that uses innovative ways of learning, teaching and training for students and staff including the use of online cooperation. In the framework of Erasmus+ Program, this type of program can be developed and implemented by at least three higher education institutions (HEIs) coming from at least three EU Member States and third countries associated to the Programme.

In the medium term, the partners in this consortium are planning to apply for such a project, but there is a degree of uncertainty about when and how this will be done.

This can be done by an Erasmus+ cooperation by a strategic partnership KA2 or by a The Blended Intensive Programmes (BIP) in Higher Education projects (KA131-HED, https://wikis.ec.europa.eu/pages/viewpage.action?pageId=48759218).

C) **Long term vision (post master program/ specialization). 30-60 ECTS**

This is a program of at least 1 semester up to 1 year, starting from the joint experience within this project and taking in consideration the previous experiences within DANUrB and DANUrB+, building on the capacity of a real, integrated, cross-border cooperation of Danubian universities. This program will be jointly delivered and jointly recognised by the higher education institutions involved in, and it aims to foster excellence and internationalisation across and along the Danube, in rediscovering, re- affirm its values, but also in finding innovative solutions at spatial and social level.

It should be carried out through a consortium of higher education institutions located in the countries along the Danube, and by the cooperation with other educational and/or non-educational partners with specific expertise and interest in the topic of DSMCs (municipalities, NGOs, entrepreneurs form the case studied cities etc). It can be organized by Erasmus Mundus Program. https://erasmus-plus.ec.europa.eu/opportunities/opportunities-for-organisations/cooperation-among-organisations-and-institutions/erasmus-mundus-joint-masters

V.8. Prerequisites for accessing the program (at least one of the following fields and/or disciplines required to be studied previously by students)

Min. three (3) completed years of studies in architecture, urbanism, landscape design and planning, regional and territorial planning, geography or urban economics. This list is limited and each particular application will be considered. Prospective students must possess the analytical ability and competency to produce basic design skills in computer modelling programmes. The student should have the right skills and knowledge to successfully complete the module. Furthermore, because of the relevance of a broadly based education in this module, the students whose education includes a range of intellectual experience, analytical thinking and independent study are encouraged to apply.

V.9. Suggested topics to be approached within the DSMCs interdisciplinary higher educational program

- Urban-rural dynamics, central-peripheral spatial and functional causality system, urban magnetism
- Accessibility and smart inclusive urban mobility, soft urban mobility in DSMSc
- Rebuilding inclusive communities in DSMCs, interaction and co-participation, the specifics of small-scale communication
- Urban planning and urban design for crime prevention- case studies in small peripheral, scarcity zones, ghetto communities;
- Quality of life in small and medium-sized cities: tools and means to improve public space, smart equipment and endowment of cities
- Integration of urban agriculture as a factor to increase autonomy and inclusiveness
- Regaining respect and memory: resilience of SMS cities through natural and built heritage, tangible and intangible

- Digitalisation of urban space and the impact on the DSMCs life quality; inclusiveness through ITC tools
- Applied cognitive psychology in urban studies: collective memory and regaining of the local identity of DSMCs
- Mapping the DSMCs through the application of GIS: limits and expectations,
- Methods of environmental assessment in terms of universal design and social inclusion- application to DSMCs
- Public Space as a Tool for Building Inclusive Communities

V.10. Evaluation and feed-back

Depending on the program type adopted, the evaluation of students can take specific forms, but in general terms, it will follow several directions:

- to correctly and fairly appreciate the effort made by the students in completing the tasks;

- to evaluate the students' performance as accurately and objectively as possible; step-by-step evaluation;

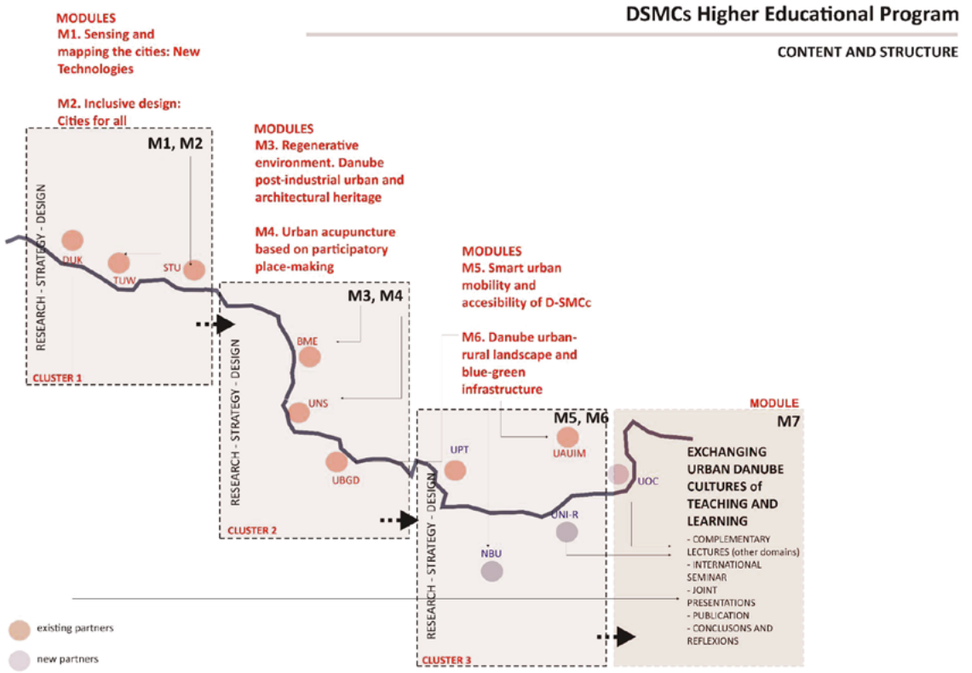
- to communicate directly and clearly to the students the evaluation and appreciation/scoring criteria, the method of credit distribution;

- to generate an interactive dialogue environment, encouraging debate and self-criticism/ self-evaluation; use of co-evaluation methods;

- to assure an active participant of students;

- to use ITC assessment tools to help with a more objective and transparent assessment;

- to encourage the detailed feedback given by the teacher to the student with the possibility of correcting mistakes (peer-to-peer discussion, debate and feed-back sessions).



Configuration of a future INTERDISCIPLINARY HIGHER EDUCATION PROGRAM dedicated to DANUBIAN SMALL AND MEDIUM-SIZED CITIES. Content topics and regional share.

V.11. Conclusion

The current educational experience of the universities involved in this project has been mapped, analysed, selected and interpreted, so that we discover the common points and the differentiating aspects regarding the teaching methods and tools suitable for a complex and modern approach of the Danubian small and medium sized cities, the way in which this specific topic can be integrated into the existing universities curricula, and the way of future development as a self- standing educational program. The common experience that took shape during the various activities packages within this partnership revealed a solid basis of know-how and professional knowledge able to be engaged in developing future programs and projects of education around this topic, get to the interdisciplinary feature of the sustainable and inclusive development in the Danube cities and towns.

This material summarises the comprehensive and useful information on the existing situation in architecture and urban planning education, pointing out the specific methods and tools used for the assessment of urban-rural territories, through research, scenario planning and design of solutions.

Resulting from the collaboration of the seven universities of the Danubian_SMCs consortium, this output highlights an integrated vision for the development of an interdisciplinary educational program, focusing on the main and actual problematic of DSMCs, possible to be built in various funding formulas.

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