



MAPPING METHODOLOGY



in the framework of the cross-border territorial cooperation project
Bavaria – Czech Republic

No. 336

Creative Borderland / Grenzland creative

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1 Introduction

The creative economy as an increasingly frequently mentioned concept is coming to the fore precisely because creativity will form the basis for economic growth in developed economies in the years to come. Developed countries such as the USA, the UK and New Zealand are aware of this, as shown in various studies mapping the creative industries. The European Union is also aware of this potential. The importance of the cultural and creative industries in the economy is now growing dynamically thanks to economic and social changes linked to the growing importance of information and telecommunications services and media production, but also due to the global growth of the entertainment and tourism industries. The creative economy is based on the creative industries, which include, for example, the media industry, film, music and computer games, but also the cultural industries. Knowledge of the different industries and their support is a key element for further development and cooperation across countries (Návrát, P., Dubová, M. 2014. Cultural and creative industries of Pardubice. Prague: Institute of Arts – Theater Institute).

The concept of cultural and creative industry (CCI), sometimes referred to as cultural and creative industries (CCI), is still relatively speaking considered new in the context of the Czech Republic, even at the level of the professional community. However, it is now a period when regions, cities and municipalities are beginning to realise the important role played by entities operating in the CCIs, which is why various studies and analyses of mapping these entities are being produced. CCIs cover a range of activities from the artistic, cultural and creative to performing and visual arts, literature, books, print, film, video, music, architecture, design, advertising, video games and more. All these sectors are strongly interrelated and need each other (Návrát, P., Dubová, M. 2014. Prague: Institute of Arts – Theater Institute).

By mapping we mean the identification of companies belonging to pre-defined areas, their verification and the description of basic data about companies. In the framework of the mapping of the cultural and creative sector seed industries (hereafter referred to as CCI or CCIs), the following mapping methodology has been proposed to establish a procedure to identify the potential of CCIs and regional level in two areas along the Czech-German border, namely in the South Bohemia region and Lower Bavaria. Subsequently, on the basis of a comparative activity (benchmarking), to compare the regional strengths and weaknesses of the sector, the specialisation of CCIs that know their needs and requirements, so that after the implementation of the mapping activity the identified entities can be linked regionally and interact in a newly created CCI cross-border network. Finally, a catalogue of measures can be proposed.



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The sub-objectives are the definition of the CCIs in the South Bohemia region and Lower Bavaria, or the determination of their structure, the identification of key modules (sectors) for the development of the regions and trends in the development of basic indicators and economic performance.

In the design of the draft measures, the project's requirement to take into account the link between the creative industries and tourism was accepted with the aim of making both regions more attractive and establishing a cross-border creative ecosystem that not only supports the cooperation of creatives, but also mutual attractiveness in the field of tourism.

On the basis of this methodology, a unified methodological tool will be created for mapping the potential of the environment (territory) for the development of CCIs and the regional and transboundary level in order to monitor the development in the long term and to compare the measurement results over a certain period of time (e.g. once every three years).

Following the elaboration of the methodologies for mapping the CCI, the "Measuring the creative potential" methodology has been elaborated with the aim to define the procedure for calculating the creative index, i.e., it defines individual indicators that would reflect the characteristics of both territories and the objectives of the project.

In developing this methodology, it is necessary to take into account the fact that the procedure for calculating the creative index is being tested for the first time in the framework of this project and should be subsequently reflected in the regional strategies in both defined border regions. The analysed data will be based on the consecutive years 2019 and 2020. The evolution of the index will be monitored over time in order to track the specific dependencies between variables to better understand the dynamics of the CCI development, and to develop measures that would contribute to the social and economic development and competitiveness of the two regions and their mutual cooperation. The index will be based on open source data. Therefore, replication will be secured.

2 Methodology procedure / Project methodology

1. Quantitative analysis

a) Selection of cultural and creative industries

through CZ-NACE codes, describing individual economic activities.

For the implementation of the project it is necessary make an advance selection of the sectors that are relevant to the regions and reflect the link to the development of tourism (see Definition of modules).

b) Securing data sources – access to databases

purchase of databases, according to a predefined data structure.



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c) Board research mapping

obtaining available data from accessible databases of their interconnection,

d) Verification of data obtained from databases

verification of the existence and activity of entities (e.g. collection of documents in the Commercial Register, websites, etc.), possible supplementation of the list on the basis of Internet searches.

In this phase, we will involve students to verify the data.

e) Mapping of regional cultural and creative events in order to supplement the database with other creative entities

2. Qualitative analysis – finding out the current state and needs in the individual branches of cultural and creative industries

a) Supplementing the databases with entities not included in the databases

identification of regional leaders according to TCO submodules,

interviews with leaders, with the aim of further identifying CCI entities suitable for network involvement.

b) Questionnaire survey

Three types of questionnaires were compiled in relation to the target groups in the given region. The first questionnaire was compiled for the public, the second questionnaire for businesses and CCI actors, and the third questionnaire was compiled for municipalities and cities. Data collection took place in the form of an electronic survey in GoogleForm (or another online survey tool) application. Detailed results (e.g. the size of the examined sample, the number of answers obtained, statistical evaluation of respondents' answers, etc.) of individual questionnaire surveys are given in the appendices of this document.

Questionnaire survey – public:

The method of selecting respondents was through contact by random selection. The aim of the presented analysis is a quantitative-qualitative mapping of the public's attitudes towards the CCI area and its problematic points in selected regions.

The questionnaire survey primarily focused on the following areas:

1. Awareness of the CCI.
2. Active participation, availability and offer of leisure and interest cultural activities, variety of offer.
3. Public participation in CCI sectors.
4. Community life, tolerance and accessibility.
5. Importance of values and traditions for the individuals.
6. Population mobility, willingness to move for work.





7. Knowledge of foreign languages.
8. Openness to new architecture.

In the conclusion, the most important findings are summarised in relation to the catalogue of measurement and creative index calculation.

Questionnaire survey – businesses and CCI actors:

The aim is to get answers to questions that cannot be obtained during a group round table discussion.

The forms of questioning will be chosen according to the current situation with subsequent processing of outputs.

The questionnaires are distributed among all CCI subjects in the monitored regions, for which it is possible to find the e-mail address of the subject for sending the online questionnaire (more detailed information on the distribution of questionnaires is given in Appendix XXX). The questionnaire survey mainly concerns the following areas:

- Awareness of CCI
- Distribution of companies and companies in individual components of the CCI
- Perception of institutional support of subjects in CCI (strategic documents)
- Openness to new futuristic non-traditional buildings
- Values and traditions
- Public involvement
- Areas and networking
- Foreign cooperation in CCI
- Transparency of management and financing
- The impact of the pandemic on the development of CCI in the region
- Investment in science and development
- Technological innovations, patents and utility models
- Subsidy

Questionnaire survey – municipalities and cities:

The method of selecting respondents is to contact municipalities and cities with a population of more than 2,000 inhabitants. The aim of the presented analysis is a quantitative-qualitative mapping of the attitudes of municipality representatives on the issue of CCI in the selected regions.

The questionnaire survey mainly focused on the following areas:

1. Identification of the respondent municipality.
2. Availability of cultural offer and infrastructure, also for different target groups.
3. Foreign cooperation in the field of CCI.
4. Building capacity.
5. Possibilities of receiving support, subsidy titles.
6. Role of the selected regions.





7. Strategic management of the municipality's (city's) capacity in culture and heritage care.
 8. Specific provision of cultural services.
 9. Culture and tourism.
 10. Values, problems, opportunities and threats.
 11. Key cultural events, actors in the CCI.
 12. Responsiveness towards new architecture, creation of public space.
- In the conclusion, the most important findings are summarised in relation to the catalogue of measurement and creative index calculation.

c) Group discussion – regional round table (small round table)

in the form of round tables, the aim of which is to ensure shared mutual information on the existence of entities, their activities, possibilities of interconnection within the cross-border region, their problems, requirements for possible support instruments. Discussions can in themselves be an important tool for raising awareness of CCI, mutual information and the platform for creating specific collaborations, platforms, sub-projects, etc.

Participants are divided into 5 thematic group:

- Music, performing arts
- Books, printing
- Visual arts, design, architecture
- Film, broadcasting (radio, TV), advertising, SW and games industries
- Actors and institutions in the South Bohemian region

The discussion at each round table takes place in three phases:

1. Discussion on the topic of communication and cooperation (communication with focus groups, communication with other actors in the same specialisation, communication with donators, cross-border communication)
2. Discussion on the topic of resources (used financial resources, plans for future, public x private resources, regional x national x international resources)
3. Discussion on the topic of existing barriers of further development and suggestions for their removal (what can help to further development of each specialisation, what are the current barriers, what can help to overcome existing barriers).

Each phase of the discussion is documented in the form of a table; on one side there is a list of problems/topics to be solved, and on the other side recommendations for their solution. This will be as input for the upcoming development of the catalogue of measures.

d) Group discussion – joint cross-border roundtable (big round table)



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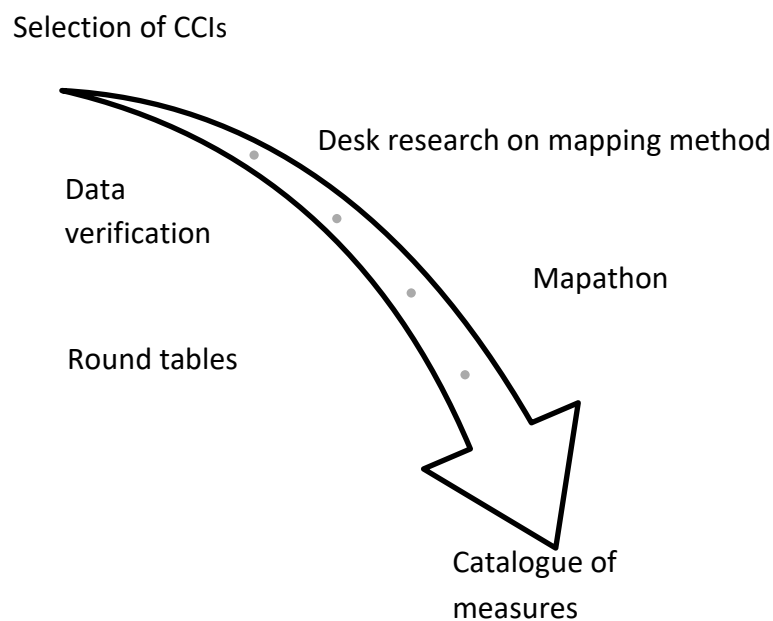
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The big round table follows up previous small round tables that took place in the South Bohemian region and Lower Bavaria. The results determined during the two regional round tables are discussed here, with a focus on the international cooperation of these two regions. These negotiations are the basis for compiling a catalogue of measures.

e) Mapathon – one-day event according to the design of the TH Deggendorf concept

The objectives of this project are set out in the following sub-phases, see Figure 2.

Figure 2: Sub-project mapping phases



Elaborated by: Štemberková, 2021

The first project phase was finding national approaches on how to define the CCI. The second phase was comparing those 2 approaches, the German one and the Czech one. The third phase was agreeing on a common, bilateral approach that will be used to reach the project goals. This approach allows a high degree of comparability on an international level. However, national specific steps regarding the data collection remain.

The first project phase involved defining CCIs and other related activities and breaking them down into sub-modules (13) according to the NACE categorisation of activities. In a sub-phase, the sheets of entities were identified according to the CZSO register of economic entities. In the Czech Republic, these entities were subsequently broken down into the individual modules, inactive entities and

entities in liquidation were removed, and missing entities were added on the basis of discussions with the leaders of the selected sectors.

The database of selected entities was supplemented with basic data on individual CCI entities and their economic data if this data is available. The data is summarised in the following table:

Table 1: Surveyed data on entities operating in CCI

Basic data	Economic data
Subject ID* ¹	Registered capital
Subject name*	Annual turnover
He sat down on me of subject	
Website entity	
Contact details* (phone number, email address, contact person, Facebook ²)	
Residence*	
District	
NACE Code*	
Categories of activities*	
Date of establishment*	
Legal forms*	
No. of employees*	
Patent	
Verification of active collection of documents about company	
Patent, protection	

Source: Vlčková, Maříková (2021)

The data presented in Table 1 was obtained from the CSU register of economic entities, the Albertina Gold Edition database and the BizMachine database available at the South Bohemian Science and Technology Park.

Verification of the data obtained in this way was carried out in the next phase by searching for information about the subjects using the boards research method, in particular via the Internet,

¹Categories marked with * are mandatory.

²Contact details are mandatory. However, not all contact details need to be obtained.



questionnaire surveys and direct e-mail or telephone contact. As part of the data verification, it was necessary to identify a regional leader or group of leaders in each CCI sector. The data on active and inactive subjects was further consulted in meetings with leaders from the sectors. Inactive entities and entities performing activities other than those under which they were classified were removed from the list. Conversely, the list has been supplemented with entities identified by the leaders as relevant to the sector but not included in the existing list. In this way, the final list of entities that are actually active in the sector in the South Bohemia region was obtained. The identified active entities have been offered cooperation within the expanding network of cooperating entities and are involved in the next phase of the mapping.

The process of data collection is slightly different for the region of Lower Bavaria. As data is not openly available, the Mapathon will be the main source of data collection (see below). The collected data will then be identified for expanding the network after following the necessary steps of GDPR. Mapped entities will be contacted and invited to join the network and offered cooperation.

According to the bilateral approach of defining the CCI, the Mapathon will be held, during which the participants will map as many entities of the CCI as possible during the event.

The core procedure of the Mapathon will be described in this section. The mappers will be given all the necessary information, as well as the technical infrastructure, before they start. Within a limited period, the mappers map as many entities belonging to CCI according to its definition, but also according to their own evaluation as possible. The mappers not only the collect georeferenced data (coordinates) of the entities, but also additional information such as contact information, legal form of the entity, etc. (see table of mandatory and optional information). A certain entity will be mapped in the PUBInPLAN platform by setting a location pin on the map and entering the additional information to a given table. There is no strategy or methodology on how mappers collect the information of the entities. Mappers are free in their research methods. However, an exchange of successful strategies is desired (successful research strategies may also become a minor outcome of the Mapathon). Every pin that was set during the Mapathon will be evaluated by a committee composed of the project members regarding its accuracy, correctness but also appropriateness. Pins including violent or inappropriate language will not be accepted and the mappers will be asked for a correction. Experts will additionally also control the pins set by the mappers as definitions are sometimes understood in different ways. By doing so, space for discussion is provided and the quality of the output will be ensured.

The outcome of the Mapathon can be transferred into ArcGIS and the map will be edited and designed in a way that properly attracts CCI entities and other interested people.

During the mapping process, three questionnaires were conducted, followed by “round tables”. The aim of the questionnaire was to obtain answers to questions that could not be obtained from publicly available sources. The sub-questionnaire forms are provided in the annexes to this methodology. During the round tables, individual members of the network (project partners, organisations and companies from the CCIs, tourism and public administration) were introduced. The aim of the moderated discussions was to bring creative ideas, skills and practical experience together and to get

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feedback from individual representatives. The results of the mapping of the creative potential of the two border regions were presented, as well as opportunities for mutual cooperation. In total, 3 round tables were organised in accordance with the project application and the plan:

- 2 regional round tables in South Bohemia and Lower Bavaria,
- 1 joint cross-border roundtable.

Output catalogue of measures

The results of the mapping and rounding tables were compiled into a “Catalogue of Measures”. This catalogue includes suggestions for strategies for the possible future development of support programmes and grants. The catalogue is presented to public administration representatives in the South Bohemia region as well as in Lower Bavaria (e.g. see Lol South Bohemia).

The second equally important part of the catalogue is the proposals and measures for organisations and companies in the field of culture and tourism affected by the COVID pandemic. Emphasis will be placed on using the cross-border potential for establishing cooperation between the creative industries and the pandemic-affected entities.

3 Definition of CCIs and other related activities

CCIs have become increasingly important in recent years. This is due to the economic and social changes associated with the growing importance of information and telecommunication services and media creation. The ever-increasing influence of the entertainment and tourism industries has also made a significant contribution.

3.1 Definition of modules

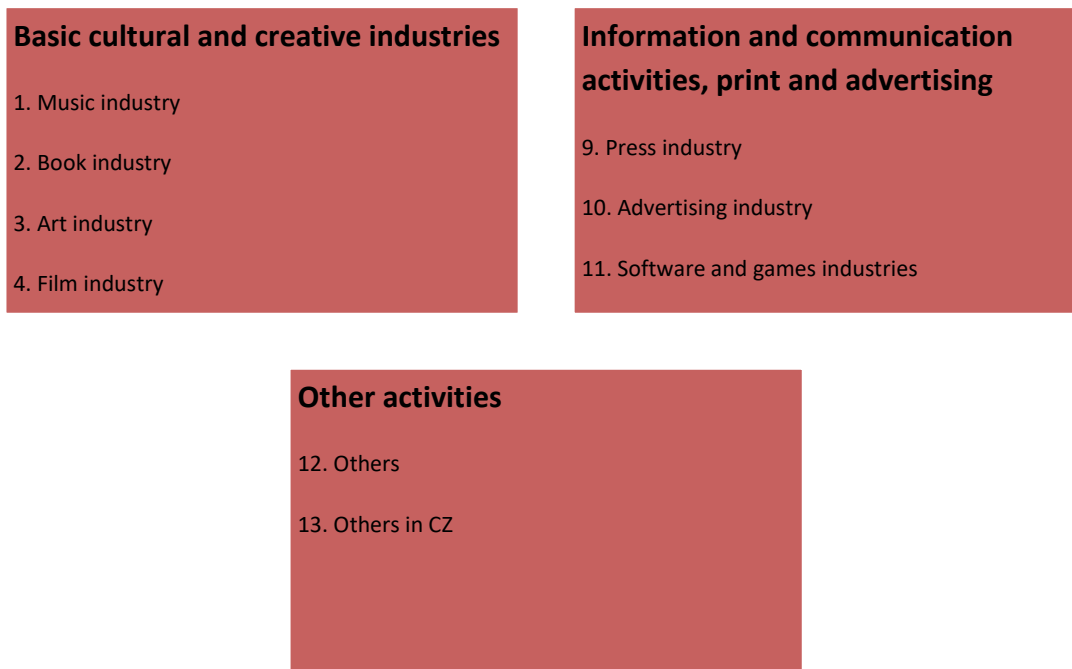
For the purposes of the methodologies presented here, the IDU Mapping project of CCIs in the Czech Republic was used as a source for our research project, which also includes a modular system of defining CCIs for the Czech Republic according to economic activities and can therefore be modified for mapping at the local and regional level (Žáková et al., 2015). Adherence to the proposed system for mapping at the local and regional level will allow for comparison of the structure of CCIs in different geographical areas. Within this framework, the project partners have researched and discussed the different sub-areas many times and, after many of these discussions, the possibilities of data availability on both sides of the border have been verified. The methodologies agreed by both partners is based on the following breakdown:

After evaluating national approaches on both sides, e.g. the Czech Republic and Germany, the two project partners agreed on two national approaches which were compared and discussed. In a further step, the approaches were merged and adjustments were conducted according to the data availability on both sides of the border. A bilateral approach resulted that focuses on the comparability of both



investigation areas. Finally, 3 modules were compiled for the purpose of this methodology, which were further divided into 13 sub-modules based on the breakdown of CCI in different regions of the Czech Republic. The breakdown of these modules and sub-modules is shown in the following Figure 1.

Figure 1: Definition of CCI and other related activities



Source: Vlčková, Maříková (2021)

3.2 Definition of submodules

The following tables list the sub-modules that are based on Figure 1 and are broken down in more detail by NACE categories, including a category description.

1. Music industry

NACE categories	General description
32.20, 32.20.0	Manufacture of musical instruments
47.59.3, 47.59, 47.59.0	Retail sale of musical instruments and scores in specialised stores
47.63	Retail sale of music and video recordings in specialised stores

59.20.1, 59.20, 59.20.0	Activities of sound-recording studios and production of taped radio programming
59.20.2	Publishing of sound recordings
59.20.3	Publishing of printed music
90.01.2, 90.01.0	Activities of ballet companies, orchestras, bands and choirs
90.02	Support activities for performing arts
90.03.1, 90.03., 90.03.0	Activities of own-account composers, arranging of music
90.04.1	Organisation of theatre performances and concerts
90.04.2	Operation of opera houses, theatres and concert halls and similar facilities

2. Book industry

NACE categories	General description
18.14	Binding and related services
47.61, 47.61.0	Retail sale of books in specialised stores
47.79.2, 47.79, 47.79.0	Retail sale in second-hand bookstores and stores
58.11, 58.11.0	Book publishing
74.30.1, 74.30, 74.30.0	Translation activities
90.03.2, 90.03, 90.03.0	Activities of own-account writers

3. Art industry

NACE categories	General description
47.78.3, 47.78., 47.78.1, 47.78.2, 47.78.4, 47.78.9	Retail sale of art, pictures, craftwork, stamps, coins and gifts in specialised stores
47.79.1	Retail sale of antiques and antiques rugs in stores
90.03.3	Activities of own-account visual artists
91.02, 91.02.0	Museums activities

4. Film industry

NACE categories	General description
47.63	Retail sale of music and video recordings in specialised stores
59.11, 59.11.0	Motion picture, video and television programme production activities
59.12	Motion picture, video and television programme post-production activities
59.13, 59.13.0	Motion picture, video and television programme distribution activities
59.14, 59.14.0	Motion picture projection activities
77.22	Renting of video tapes and discs
90.01.4	Activities of own-account stage, motion picture, radio and television artists and other performing arts activities

5. Broadcasting industry

NACE categories	General description
60.10	Radio broadcasting
60.20	Television programming and broadcasting activities
90.03.5	Activities of own-account journalists and press photographers

6. Performing arts industry

NACE categories	General description
85.52, 85.52.0	Cultural education
90.01.1	Activities of theatre ensembles
90.01.3	Activities of own-account performers and circus groups
90.01.4	Activities of own-account stage, motion picture, radio and television artists and others performing arts activities
90.02, 90.02.0	Support activities to perform arts
90.04.1, 90.04, 90.04.0	Organisation of theatre performances and concerts
90.04.2	Operation of opera houses, theatres and concert halls and similar facilities
90.04.3	Operation of variety theatres and cabarets

7. Design industry

NACE categories	General description
32.12, 32.12.0	Manufacture of jewellery and related articles
71.11.2, 71.11, 71.11.0	Consulting architectural activities in interior design
73.11, 73.11.0	Advertising agencies
74.10.1, 74.10, 74.10.0	Activities of industrial, product and fashion designers
74.10.2	Activities of graphics and communications designers
74.20.1, 74.20	Activities of photographers
74.10.3	Activities of interior decorators

8. Architecture industry

NACE categories	General description
71.11.1, 71.11, 71.11.0	Consulting architectural activities in building construction
71.11.2	Consulting architectural activities in interior design
71.11.3	Consulting architectural activities in town, city and regional planning
71.11.4	Consulting architectural activities in landscape architecture
90.03.4, 90.03.0, 90.03	Activities of own-account restorers

9. Press industry

NACE categories	General description
47.62, 47.62.0	Retail sale of newspapers and stationery in specialized stores
58.12	Publishing of directories and mailing lists
58.13	Publishing of newspapers
58.14	Publishing of journals and periodicals
58.19, 58.19.0	Other publishing activities
63.91, 63.91.0	News agencies activities
90.03.5	Activities of own-account journalists and press photographers

10. Advertising industry

NACE categories	General description
73.11, 73.11.0	Advertising agencies
73.12, 73.12.0	Media representation

11. Software and games Industries

NACE categories	General description
58.21, 58.2	Publishing of computer games
58.29	Other software publishing
62.01.1, 62.01.0	Web page design and programming
62.01.9	Other software development
63.12	Web portals

12. Others

NACE categories	General description
32.11	Striking of coins
32.13, 32.13.0	Manufacture of imitation jewellery and related articles
74.20.2, 74.20	Activities of photography laboratories
74.30.2, 74.30, 74.30.0	Interpretation activities
91.01, 91.01.0	Library and archives activities
91.03	Operation of historical sites and buildings and similar visitor attractions
91.04	Botanical and zoological gardens and nature reserves activities

13. Others in CZ

NACE categories	General description
94.99.2	Activities of organisations in support of cultural activities
94.99.3	Activities of organisations to support recreational and leisure activities
58.2	Software publishing
93.21, 93.21.0	Activities of amusement parks and themes parks



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93.29, 93.29.0	Other amusement and recreation activities
62.02, 62.02.0	IT consulting

4 Methodologies for calculating the creative index

In the context of the growing importance of the creative economy, there is a growing need for statistical coverage of the output of the creative sector, which is then linked to efforts to quantify the impact of this sector on the economy of individual countries and regions. However, this is an area that is not uniform and where there are no well-defined and used definitions of terms. Different definitions on different levels are available. However, definitions sometimes allow some room for interpretations.

The American economist Solow (1957) published a study on the impact of technology on economy growth. The impact of human capital on the economy is also discussed by Lucas (1988), as well as by Gleaser (1995, 1998, 1999, 2000) and Simon (1998). The link between population education and economy growth is addressed by Barro (2001).

Florida, Tinagli (2004) identified three types of creativity: technological/innovative, economic and artistic. These three types of creativity are interrelated and interdependent and complementary. They are key to the generation and development of economy creativity. Florida himself stated, "Creativity, whether cultural, scientific, civic, technological, social, etc., is the driving force of the modern global economy". Urban regions are key laboratories where this progresses, where all types intersect.

Existing tools used to capture and evaluate the economic performance of different sectors of the economy are not suitable for our bilateral approach, but they are fundamentally based on them. The current statistical tools do not allow to evaluate the creative industries and the creative economy. At the European and national level, the statistical categories are often too broad, making the data collected incomparable. According to Hartley (2004), the problem with defining the creative sector, the creative economy, the creative industry, etc., and the subsequent statistical surveys, can be seen in the ways in which creative industries differ from traditional industries. These are primarily the impossibilities of classifying creative industries within the chain of traditional definitions, primary, secondary and tertiary sectors. The products of the creative economy can be found in each of these sectors. It is problems identifying creative industries on the basis of product output, as in traditional industries such as the automotive industry, steel industry, etc., because creativity is an input and not an output.

The Creativity Index is an indicator that can be used to calculate and measure creativity and its development in different geographical areas. The Creativity Index is based on research by Richard Florida, who uses the 3Ts of creativity, which stands for talent, technology and tolerance. He explains this theory by saying that a creative has preference for places that are different, tolerant and open to

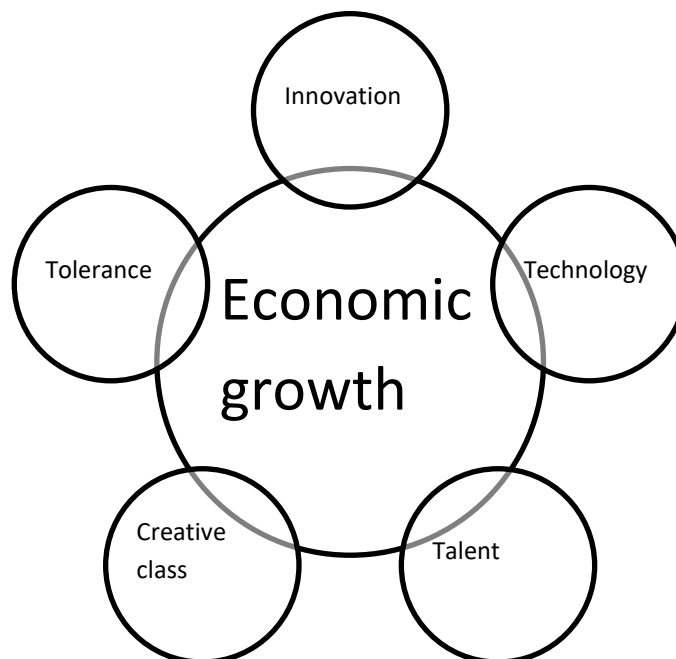


new things and ideas. Each of the 3T indices consists of yet other sub-indices and have different measurement parameters.

The creativity index 3T has been modified for Europe in the forms of the Euro-creativity index, which is composed of three sub-indices: the Euro-Talent index, the Euro-technology index and the Euro-Tolerance index. Similarly, the creativity 3Ts – tolerance, technology, and talent index was constructed for each of the 14 regions of the Czech Republic (Kloudová, 2009).

In 2002, Florida unveiled a new framework for measuring the creative economy. Within this work, Florida describes the growth of the creative economy and the changing stratum within American society in the second half of the 20th century. It highlights the geographic concentration of creativity capital and relativises the concentration of creativity capital, economic growth and regional development, see Figure 3.

Figure 3: Economic growth

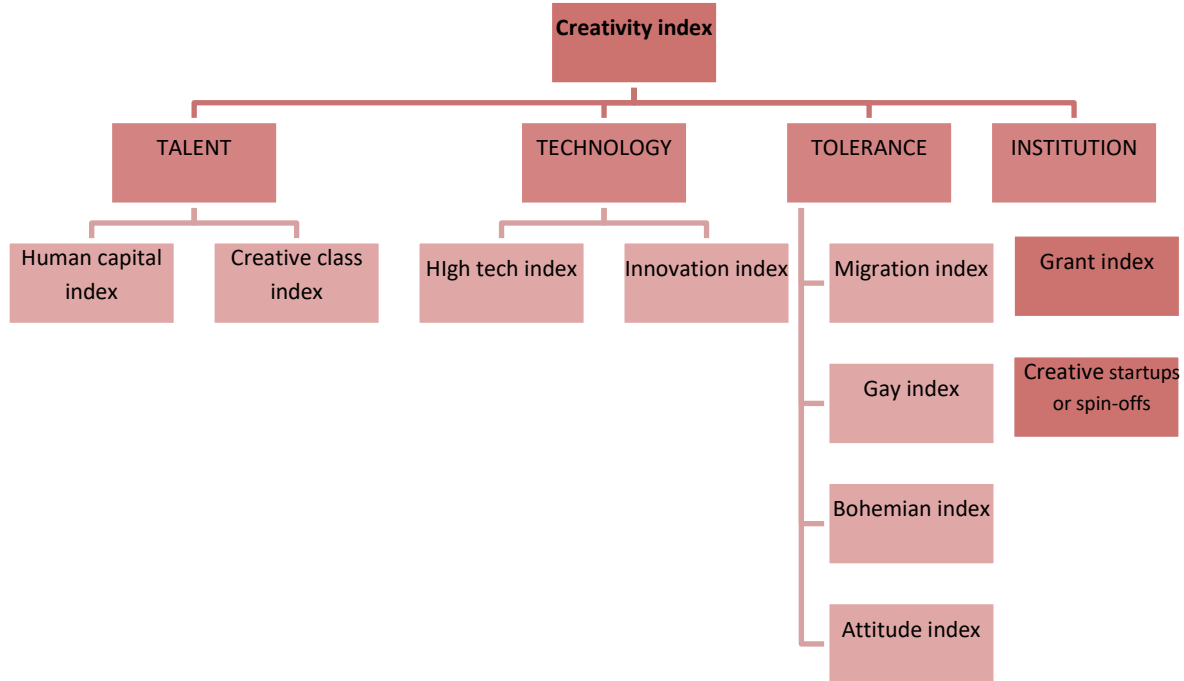


Elaborated by: Štemberková, 2021

4.1 Determination of indicators for measurement of cultural and creative index

Compiling this methodology was based on the above theoretical works and, at the same time after many consultations, compiled with the help of Assoc. Kloudová, which is presented in the following Figure 4.

Figure 4: Creativity index



Elaborated by: Štemberková, 2021

It measures the creativity index. This project took the Florida approach and chose a creativity index based on the so-called 3T model. It is talent, technology and tolerance that fell under the 3Ts. This theory of his is mainly justified by the fact that creative people choose cities for their lives and differs in that they are tolerant and open to new ideas, which leads to a concentration of creativity capital in the region. Each indicator of the 3T's consists of others sub-indices and has distributed measurement parameters.

In calculating our creative index, the sub-indices of talent, technology, tolerance and institution were determined, while economic performance indicators were also taken into account. This is mainly to capture the conditions, the environment, for the development of the creative industries. In the next section, the areas of indicator calculation are presented and, within each area, the individual indicators from which the creativity index is calculated.

However, the Florida approach was modified to suit the development of time and accuracy, as well as the data availability of the region of investigation. In addition to this, the approach was modified during the bilateral coordination of data availability.

4.2 Subindex talent

When measuring talent, we use two sub-indices by mutual agreement. The first is the human capital index, which examines the number of graduates with a college degree, the percentage of the population with a college degree, to identify the amount of human capital. The second index, the so-called creative class index, examines the number of art schools per population and the number of graduates. Furthermore, the number of scientific institutions and universities, innovation centres or technology parks and the number of R&D workers.

Topic	Sub-topic	Link for Czech data source	Link for German data source	Survey No. and question No.
Research topics related to science, research and innovation	Presence of scientific institutions and universities			
	Number of art schools per population			
	Number of art school students per total number of students			
	Number of elementary art schools in relation to other schools or per population			
	Number of science and research workers per population			
	Number of university-educated inhabitants			
	Number of graduates in the division Bc./MSc.- Ing./Ph.D.			
	Presence of innovation centres, technology parks, etc.			
	Support for science and research by the private and public sectors			

4.3 Tolerance subindex

The Tolerance Index is significant primarily because it affects a region's ability to attract the creative class. It can be concluded that it shows a strong correlation between and towards an open society, gays, bohemians and immigrants. Furthermore, it shows a correlation with the region's ability to innovate, produce in the high tech sector and has a significant impact on the added value of economy growth. The level of tolerance is given by a combination of the following sub-indices, and these are the Gay Index, the Bohemian Index, the Migration Index and the Attitudes Index, an index related to political-public issues and the adoption of these decisions within society, as well as topics related to communication, connectivity and background in terms of networks.

Topic	Sub-topic	Link for Czech data source	Link for German data source	Survey No. and question No.
Research topics related to the use of public space and public involvement	Attendance and importance of events related to CCI held in public space within a given period			
	Number, significance and conditions for placement of works of art in public space			
	Public involvement in decision-making about public space			
Research topics related to the policy framework	The existence of a strategy for the development of culture or creativity or a similar policy			
	New futuristic/non-traditional buildings (openness towards this architecture)			
Research topics related to community life, tolerance and accessibility	Important values and traditions of the city/region			
	Level of community life (number and importance of associations and other community leisure groups)			
	No of migrants			
	Number of gay marriages in the region			
	Number of heterosexual marriages in the region			
	Level of facilities (roads, highways, airport)			



Research topics related to communication, connectivity and networks	wider transport connection (accessibility of airport, railway and motorway connection)			
	Knowledge of world languages of the population and possibilities of their teaching			
	Existence and level of CCI clusters and related industries			
	Level of international cooperation of CCI entities			
	Mobility of the population and willingness to move within the region			

4.4 Technological subindex

The technology sub-index is measured by the Innovation index and the High-tech index. The Innovation index is calculated by the number of patents per person, which obviously indicates the innovative power of the population. The High-tech index is measured by the size and concentration of the high-tech sector in the region and the number of firms that generate technological innovation, as well as the number of firms with their own R&D centre. It is therefore based on the national share of GDP.

Topic	Sub-topic	Link for Czech data source	Link for German data source	Survey No. and question No.
Indicators for measuring the technological index	Number of patents per population			
	Number of patents of public research institutions x SMEs			
	Percentage of Research and Development costs on Gross Domestic Product			
	Number of companies with their own Research and Development centre			
	Number of companies generating technological innovations (P, UV, etc.)			

4.5 Institutional subindex

The Institutional index consists of two indices: the endowment index, which shows both the institutions preparing the conditions for obtaining additional financial resources for the development of this area in terms of their readiness and willingness, and an index that shows the number of startup or spin-off companies created in a given region.

Topic	Sub-topic	Link for Czech data source	Link for German data source	Survey No. and question No.
Research topics related	Number of European subsidies received per population			
	Number of institutions in charge of European subsidies in the region			
	Number of supported creative startups			

The final comparison and benchmarking of the Cultural and creative index will be based on a cross-referencing of the data obtained for the two defined territories depending, among other things, on the following indicators listed below .

Topic	Sub-topic	Link for Czech data source	Link for German data source	Survey No. and question No.
Research topics related to conditions and cooperation within and across sectors	Availability and offer of leisure and hobby cultural activities			
	Access to capital for CCI entities			
	Transparency of management and evaluation of long-term funded CCI organisations			

Topic	Sub-topic	Link for Czech data source	Link for German data source	Survey No. and question No.
Indicators for measuring the economic performance of CCI	Share of CCI in total employment of economically active population			
	Number of CCI entities per 10,000 economically active inhabitants			

	Share of SMEs and micro-companies in the total number of CCI entities			
	Share of entities from the public and non-profit sector in the total number of CCI entities			
	Share of subjects of sub-sectors of the CCI in the total number of subjects in the CCI			

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