

## HOW SMALL CITIES ARE STIMULATING CREATIVITY AND INNOVATION: CASE STUDY OF LJUBLJANA AND SELECT EUROPEAN CITIES

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### Abstract

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*This paper examines creative city incentives of Ljubljana and small to medium-sized European cities (Bratislava, Tallinn, and Edinburgh) according to the type of creative city (technological-innovative, cultural-intellectual, cultural-technological, and technological-organizational) they are. The paper utilizes a case study approach, because it allows in-depth research of the particular object, taking into account multiple dimensions. Based on secondary data of the Cultural and Creative Cities Monitor from the European Commission and European Smart Cities, we provide evidence that Ljubljana and Bratislava belong to the cultural-intellectual type, Tallinn is technological-innovative, and Edinburgh is a cultural-technological type of creative city.*

**Keywords:** *creative city, creativity, smart city, policymaking*

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### 1. INTRODUCTION

Creativity is the first step in the innovation process (Amabile, 1996), and therefore creative ideas can provide and maintain a competitive organizational advantage (e.g., Shalley, Zhou & Oldham, 2004; Grant & Ashford, 2008). Therefore, it is not surprising that creativity has gained considerable attention in academic research, especially by organizational psychologists and management scholars (Zhou & Hoever, 2014). Traditionally, creativity was researched mostly as an individual personality and intellectual trait (Findlay, & Lumsden, 1988) that can occur only in creative industries, such as design, publishing, or the arts, (Bakshi and McVittie, 2009; Miles and Green, 2008; Müller, Rammer, & Trüby, 2009). However, according to the interactionist perspective of organizational creativity (Woodman, Sawyer, & Griffin, 1993), creativity can occur at multiple levels and is not limited to particular industries (Lee & Rodríguez-Pose, 2014).

Creative cities can influence organizational and individual creativity through a top-down approach (Kozlowski, & Klein, 2000) from the upper ground (e.g., formal institutions) and through underground (e.g., creative individuals such as artists or other knowledge workers) local innovative initiatives (Caves, 2000; Hartley, 2005; Aage and Belussi, 2008, Cohendet, Grandadam, & Simon, 2010). Moreover, cities can enhance creativity by providing a diversity of urban environments, human capital, financial resources, and other tangible and intangible resources that may provide a range of stimulations for creative ideas (Lee & Rodríguez-Pose, 2014, Borseková, Petříková, & Pevcin, 2013). However, there is a lack of a clear understanding of how the connections, relationships, and interrelations between creative city incentives can stimulate creative individual and organizational innovations. Therefore, several scholars have called for more-detailed investigation of the specific circumstances of how creative cities can stimulate organizational innovation and

creative individuals (Lee & Rodríguez-Pose, 2014; Lee and Drever, 2013; Sunley, Pinch, Reimer, & Macmillen, 2008) from the upper ground and from the underground level, and how local innovative initiatives create different types of creativity cities (Hospers & Pen, 2008).

This paper examines the creative city incentives by exploring how different levels of creativity (e.g., upper ground and underground) can stimulate creativity in small cities. We provide empirical evidence based on a case study analysis which highlights the importance of the different levels (i.e., upper ground and underground) of a creative city and the development of individual creativity and organizational innovation. Ljubljana is a part of the Creative Cities Network and was designated a permanent City of Literature by UNESCO in December 2015, and thus provides a detailed view of how creative initiatives can stimulate individual creativity. Ljubljana was selected to show that creativity can be found in small urban areas (Waitt and Gibson 2009). First, we provide evidence through the Cultural and Creative Cities Monitor from European Commission (2017) that Ljubljana indeed is enhancing different levels (i.e., upper ground and underground) of the creative city. Second, we provide empirical evidence of how different levels of creativity (e.g., upper ground and underground) are stimulating creativity in Bratislava, Tallinn, and Edinburgh compared to Ljubljana. We compare Ljubljana to Bratislava and Tallinn, because they are three capitals of Central and Eastern European (CEE) countries and have approximately the same size; Edinburgh was used as benchmark because it is also to some extent a capital and has approximately the same population as the other three cities, but it is the best-ranked city according to some creative cities measures. Third, based on our empirical evidence, Ljubljana, Bratislava, Tallinn, and Edinburgh, due to different upper ground and underground initiatives, can be labeled as different types of creative cities (i.e., technological-innovative, cultural-intellectual, cultural-technological, and technological-organizational).

## 2. THEORETICAL BACKGROUND

### 2.1 Concept of Creative Cities and Its Layers

A creative city is defined as a place with a high percentage of creative and arts professions, creative individuals, and a stimulating environment for inno-

vativeness and innovations (Fischer, Diez, Snickars, & Varga, 2001; Florida, 2002; Van Oort, 2003). Moreover, the creative city phenomena is fueled by the work of urban scholar Richard Florida that defines a creative city as a city in which knowledge, creativity, and innovation are highly stimulated (Landry, 2000; Florida, 2002, 2005, 2008), and that has gained much of attention in the last two decades. Different types of creative cities have emerge throughout history and have been recognized by scholars, such as technological-innovative, cultural-intellectual, cultural-technological, and technological-organizational cities (Hospers & Pen, 2008).

A technological-innovative creative city is a place where new technological developments or theological revolution occur; the classic example of this type of city is Detroit, where Henry Ford and his Model T laid the foundations of the American automobile industry around 1900, or America's Silicon Valley cities, such as San Francisco and Palo Alto. We also found technological-innovative creative cities in Europe that are imitating the Silicon Valley technopole, such as Silicon Glen (Scotland), Silicon Saxony (Dresden), and Bavaria Valley (Bayern) (Hospers & Pen, 2008). Cultural-intellectual creative cities are the opposite of the technological-innovative city and are related more to culture and arts (e.g., Florence during the Renaissance, or Paris in terms of painting). The cultural-intellectual creative city provides so-called "soft" creative city initiatives that enhance creative reactions on the part of artists, philosophers, and intellectuals. The cities Dublin and Amsterdam are examples of contemporary cultural-intellectual creative cities.

Cultural-technological creative cities combine both cultural and technological aspects of creativity and innovation (e.g., the film industry in Indian variant Bollywood, or the haute couture industry in Paris and Milan). It is expected that most of the cities in this century will become cultural-technological creative cities (Hall, 1998) due to the use of "internet and other multimedia (e.g., technological part) in an intelligent manner with culture" (Hospers & Pen, 2008, p. 262), for example, through virtual museum visits. Technological organizational creative cities emerge when local actors provide original solutions to problems (e.g., government collaboration with the local business community in case of a public-private partnership or running the city of Tilburg as a

company). Moreover, technological-organizational creative cities deal more with the supply of water, and creative solutions for good infrastructure, transport, and housing. Therefore, although the creative city phenomenon has a long history and can be found in every era of history, in the last decade some scholars have tried to replace the creative city construct with the smart city initiative.

A smart city can emerge only if there are some innovative technological solutions (Shapiro, 2006; Giffinger et al., 2007; Chourabi et al., 2012) or high concentrations of learning and innovation (Richter et al., 2015, p. 216). However, based on previous examples of different creative cities, we can conclude that a creative city encompasses not only innovative technological solutions, but also cultural and organizational creative dimensions. Therefore, we follow Landry (2014), Carta (2015), and O'Connor and Andrejevic (2017), in which the smart city concept is an upgraded version of the creative city (it also can be labeled Creative City 3.0). This means that not just cultural reimagining but also complete retooling of the social and governmental infrastructure of the city should be done and is important for the creative city analyses. Therefore, our analyses also included smart city results in order to provide empirical evidence of different types of creative cities (i.e., technological-innovative, cultural-intellectual, cultural-technological, and technological-organizational).

The creative city is constituted by an upperground and by an underground level, through which we can understand how cities stimulate innovation. The upper ground of the creative city represents innovative firms that can be found in the city and institutions that can be innovative, such as research labs, universities, or cultural and artistic centers. This level of creative city contributes to creative and innovative processes by dispersing different types of knowledge and bringing creative ideas to the market (Caves, 2000; Howkins, 2001; Hartley, 2005). On the other hand, the underground “brings together the creative, artistic and cultural activities taking place outside any formal organization or institution based on production, exploitation or diffusion” (Cohendet et al., 2010, p. 96). Moreover, the underground relates individuals that share a common deep interest in their art and culture (e.g., graffiti artists, extreme sports aficionados, and gamers). According to Cohendet et al.

(2010), the underground culture is focused mainly on exploration, to the extent that it has now become common in industries related to different artistic and cultural domains. Some authors (e.g., Richards and Wilson, 2007; Eglins-Eglitis and Lusena-Ezera, 2016) even stress that the creative possibilities of a particular city are based on three elements: creative hardware (infrastructure for possible creative industries), creative software (ambience and vibrancy enabling creative industries), and creative orgware (policies and governance on creative industries).

This paper extends the work of Cohendet et al. (2010) and provides empirical evidence for the upper ground to the underground levels of small creative cities. We provide evidence from the Cultural and Creative Cities Monitor of the European Commission (2017). We chose Ljubljana because it is a capital city in the CEE region, but with less than 300,000 residents, it belongs to the group of small cities, or, according to some classifications, to smaller medium-sized cities. Second, we compare Ljubljana to Bratislava and Tallinn (both of which are capitals in the CEE region, with approximately 450,000 residents) and Edinburgh (with approximately 490,000 residents but ranked the first according to the aforementioned monitor). Third, we provide empirical evidence about the type of creative city (i.e., technological-innovative, cultural-intellectual, cultural-technological, and technological organizational cities) to which each analyzed city (i.e., Ljubljana, Bratislava, Tallinn, and Edinburgh) belongs. First, we present results of the Cultural and Creative Cities Monitor from the European Commission (2017) and European Smart Cities (2014, 2015) classification for the chosen cities (i.e., Ljubljana, Bratislava, Tallinn, and Edinburgh). Then, with the discussion and via given examples, we provide evidence of the upper ground to the underground levels of the small creative city and different types of creative cities.

### 3. METHODOLOGY

The empirical part of the paper predominantly uses a case study approach (Simons, 2009) which involves in-depth research of a particular object, taking into account multiple dimensions and using various qualitative and quantitative research methods. The fundamentals of this approach are based on research

object, and not on the methodology, and the context is an important factor in this research (Flyvbjerg 2011). Accordingly, this research positions Ljubljana as a small (or medium-sized) city as a research object, and we describe the case and discuss how the city became a creative city, taking into the account multiple dimensions of this definition. Moreover, we compare Ljubljana with other similar size cities in EU (e.g., Tallinn, Bratislava, and Edinburgh) via multiple creative dimensions in order to provide an in-depth evaluation of the main strengths and weaknesses. We present opportunities and address threats challenging the position of Ljubljana as a promoter of the creative city concept and use international comparisons with similar cities from the region as a benchmark.

As noted in the literature review, there sometimes is some discrepancy and overlapping of the terms creative, smart, or knowledge city. This paper follows Landry (2014), Carta (2015), and O'Connor and Andrejevic (2017), in which the smart city concept is an upgraded version of the creative city (it also can be labelled Creative City 3.0). This means that not just cultural reimagining but also complete retooling of the social and governmental infrastructure of the city should be done and is important. If the creative city (version 2.0) indicates greater awareness of the power of creative economy sectors and the link between the arts and their role in the economy, the smart city, that is, version 3.0, goes one step further and also focuses on a collective imagination and intelligence of citizens in making, shaping, and co-creating their city. Thus, we also compare Ljubljana with similar-sized cities in the EU (e.g., Tallinn, Bratislava, and Edinburgh) in terms of the smart city concept. Consequently, this enables us to utilize various data sources and benchmark sources to explain in-depth the factors that shape the creativity of Ljubljana. Thus, we use the relevant data on creative city as well as smart city status, because we consider the later to be an upgraded and updated formulation the type of modern creative city concept.

#### 4. RESULTS

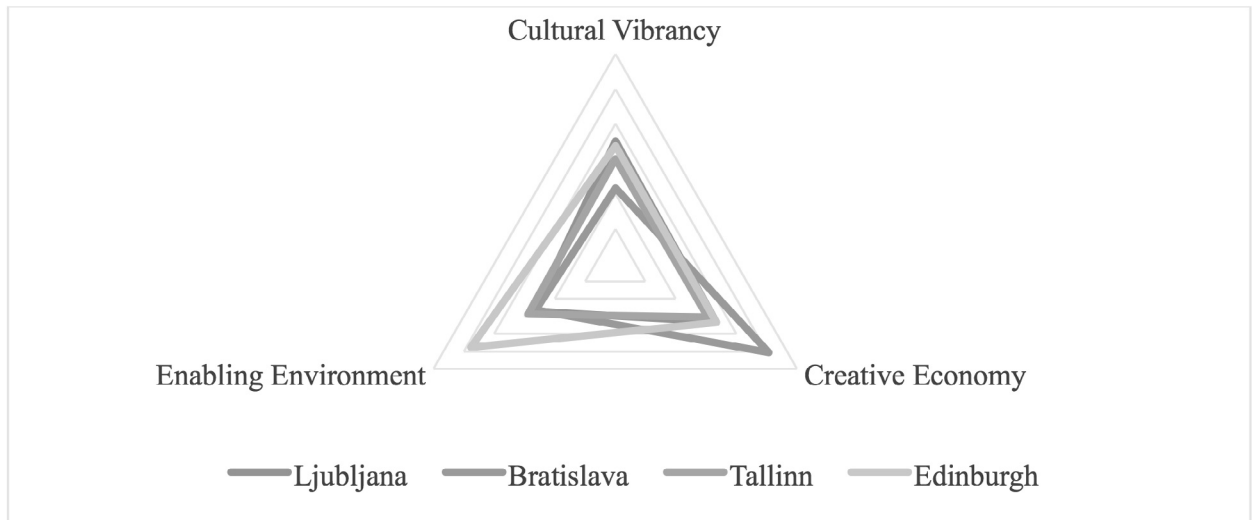
The European Commission (2017) publishes The Cultural and Creative Cities Monitor, which examines 168 European cities from 30 countries (including all capital cities) according to 29 indicators

in eight dimensions, which are grouped into three major sub-indices of the cultural and socioeconomic vitality of a city: cultural vibrancy, creative economy, and enabling environment. Cultural vibrancy represents the cultural “pulse” of a city in terms of cultural infrastructure and participation in culture and was measured by two items: cultural venues/facilities, and cultural participation and attractiveness of the city. The creative economy encompasses how the cultural and creative sectors contribute to a city’s employment, job creation, and innovative capacity. It was measured by the number of creative and knowledge-based workers, intellectual property and innovations, as well as by the new jobs in the creative fields. Enabling environment identifies the tangible and intangible assets that help cities attract creative talent and stimulate cultural engagement, and was measured by different items (e.g., human capital and education, openness, tolerance, trust, governance, and regulation).

The existing international databases and comparative methodologies of the status of creative city (e.g., European Commission, 2017; European Smart Cities, 2014) indicate that Ljubljana is placed relatively high, particularly compared with cities of a similar size in the region of Central and Eastern Europe. According to European Commission (2017), Ljubljana is ranked eighth in the group of medium-sized European cities with a population between 250,000 and 500,000 residents. Bratislava is ranked sixth, Tallinn is ranked 13<sup>th</sup>, and Edinburgh is ranked first, and therefore serves as a benchmark. Figure 1 presents the three major sub-indices of the cultural and socioeconomic vitality of each city: cultural vibrancy, creative economy, and enabling the environment.

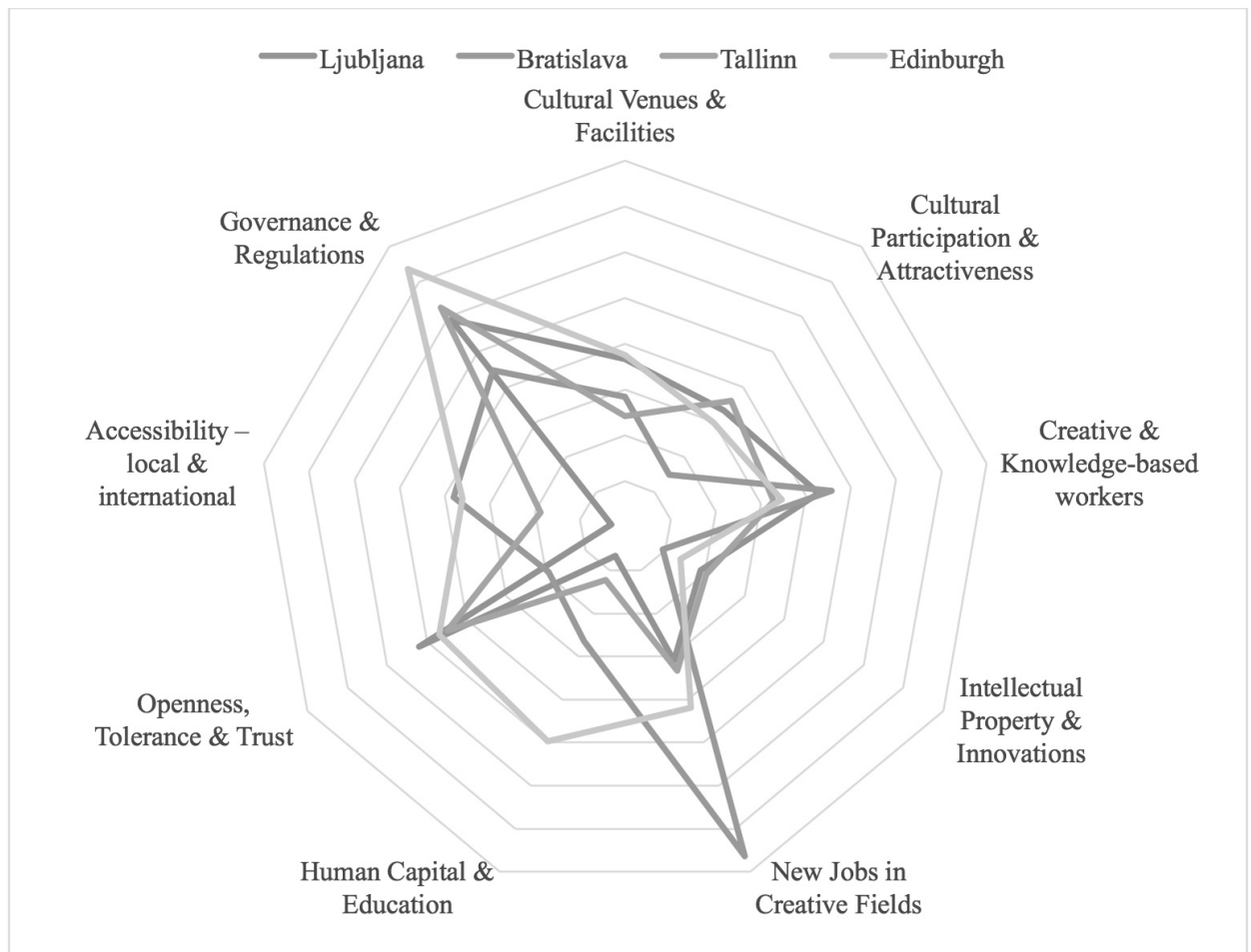
Edinburgh ranks high in enabling a creative environment, and Bratislava has the highest creative economy (Figure 1). On the other hand, Ljubljana has the highest cultural vibrancy and the same results of enabling the environment and creative economy as Tallinn. However, these results cannot be interpreted without understanding the dimension of three major sub-indices (i.e., cultural vibrancy, creative economy, and enabling environment). Therefore, we provide more-detailed result of three major sub-indices in Figure 2 and Table 1.

Figure 1: Creativity sub-indices of Ljubljana and selected cities



Adapted from European Commission, 2017

Figure 2: Cultural and creative dimensions of Ljubljana and selected cities



Adapted from European Commission, 2017

Table 1: Cultural and creativity dimensions of Ljubljana, Bratislava, Tallinn, and Edinburgh<sup>1</sup>

	Ljubljana	Bratislava	Tallinn	Edinburgh
<b>Total score</b>	<b>32.7</b>	<b>34.2</b>	<b>30.0</b>	<b>36.4</b>
<b>Cultural Vibrancy</b>	<b>35.1</b>	<b>21.7</b>	<b>30.1</b>	<b>33.8</b>
Cultural venues and facilities	36.8	28.5	24.3	37.7
Cultural participation and attractiveness	33.4	15.0	36.0	29.8
<b>Creative Economy</b>	<b>33.3</b>	<b>50.7</b>	<b>30.6</b>	<b>33.4</b>
<b>Creative and knowledge-based workers</b>	<b>42.8</b>	<b>45.7</b>	<b>32.9</b>	<b>34.7</b>
Jobs in arts, culture, and entertainment	37.1	25.3	40.6	38.9
Jobs in media and communication	50.5	52.5	32.8	25.6
Jobs in other creative sectors	40.7	59.2	25.4	39.7
<b>Intellectual property and innovations</b>	<b>18.9</b>	<b>9.5</b>	<b>20.4</b>	<b>13.8</b>
ICT patent applications	6.2	3.5	8.2	13.1
Community design applications	31.7	15.4	32.5	14.4
<b>New jobs in creative fields</b>	<b>31.0</b>	<b>76.4</b>	<b>33.3</b>	<b>41.9</b>
Jobs in new arts, and entertainment enterprises	29.2	29.3	28.0	27.8
Jobs in new media and communication enterprises	34.4	100	30.5	47.8
Jobs in new enterprises in other creative sectors	29.5	100	41.4	50.0
<b>Enabling Environment</b>	<b>26.9</b>	<b>26.3</b>	<b>28.8</b>	<b>47.7</b>
Human capital and education	6.6	26.4	12.3	49.7
Openness, tolerance and trust	52.0	19.3	44.9	46.8
Governance and regulations	59.1	44.8	62.6	73.7

Adapted from European Commission, 2017

According to the sub-indices (Figure 2), Ljubljana is relatively well positioned regarding cultural vibrancy, but the inhibitor is, in general, an enabling environment. For the particular dimension, i.e. cultural vibrancy, cultural venues and facilities, creative and knowledge-based workers, openness, tolerance and trust, and quality of governance are dimensions that are particularly strong, in increasing order of strength. In contrast, intellectual property and innovation, human capital and education, and accessibility are the main weaknesses, in increasing order. To provide more in-depth information, Table 1 details all the dimensions of the creative cities monitor and compares Ljubljana to Tallinn, Bratislava, and Edinburgh. Specifically, we focus on the creative economy dimension by providing the number of creative

and knowledge-based workers in a particular sector, patent applications, and new jobs in creative fields.

Ljubljana, as previously mentioned, is the highest ranked in cultural vibrancy (35.1), followed by Edinburgh (33.8) and Tallinn (30.1) (Table 1). In terms of the dimensions of cultural vibrancy (i.e., cultural venues and facilities, and cultural participation and attractiveness), only Edinburgh (37.7) has a higher score for cultural venues and facilities than Ljubljana.

A creative economy encompasses creative and knowledge-based workers, intellectual property and innovations, and new jobs in creative fields. In terms of creative and knowledge-based workers, Ljubljana mostly has jobs in the media and communication sector (50.5), followed by other creative sectors (40.7)

<sup>1</sup> Edinburgh is presented as the benchmark, since it has the highest rank among analysed cities that have population in the range 250,000-500,000.

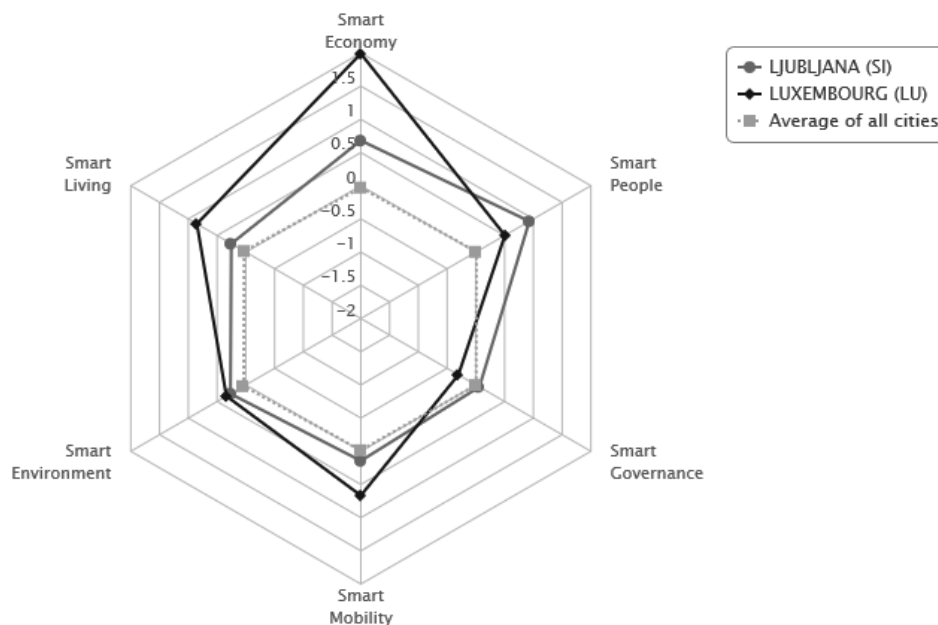
and arts, culture, and entertainment (37.1). Bratislava has almost the same number of creative and knowledge-based workers in different sectors, but a higher number of jobs in media and communication (52.5) and other creative sectors (59.2). On the other hand, Tallinn and Edinburgh have a lower number of creative and knowledge-based workers, and a number of jobs in media and communication and other creative sectors. Moreover, comparing Ljubljana to similarly sized capital cities of Central and Eastern European countries, such as Bratislava and Tallinn, all cities have a small number of ICT patent applications (Bratislava has the lowest number, followed by Ljubljana). On the other hand, Ljubljana has a high number of community design applications (31.7), almost twice the number of the community design applications in Bratislava (15.4) and Edinburgh (14.4).

New jobs in creative fields in Ljubljana mostly are available in the media and communication sector (34.4), followed by other creative sectors (29.5) and arts, culture, and entertainment (29.2). Tallinn has almost the same number of new jobs in creative fields, but a higher

number of new jobs in other creative sectors (41.4). However, Bratislava has the highest number of new jobs in creative fields (76.4), followed by Edinburgh (41.9). In particular, Bratislava and Edinburgh are well ahead of Ljubljana with jobs in new media and communication enterprises and in other creative sectors. The main inhibitor to Ljubljana is the available human capital and education within the enabling environment sub-index. This suggests a rather limited contribution of the underground to the creativity of the city.

Similarly, the European Smart Cities (2014) classification positions Ljubljana relatively high in the group of smaller medium-sized cities, 15<sup>th</sup> among 77 included cities, which is the highest rank among the included Central and Eastern European cities. This classification measures the smartness of the city according to the six dimensions: smart economy, smart people, smart governance, smart mobility, smart environment, and smart living. The combination of these endowments and activities of citizens creates the level of city smartness. The results of European Smart Cities (2014, 2015) are presented in Figures 3 and 4.

Figure 3: Smart dimensions of Ljubljana<sup>2</sup>



Adapted from *European Smart Cities, 2014*

<sup>2</sup> Ljubljana is here compared to Luxembourg, which is ranked number 1 in this classification of 77 small European cities, and the averages of all cities are presented. Bratislava, Tallinn, and Edinburgh are listed in the group of larger European cities, so they are presented separately in Figure 4. Because of the different data and methodologies utilized between those two groups, we cannot make direct comparisons regarding the ranking.

Ljubljana ranks very well in smart economy and smart people dimensions but lags behind in smart management and smart mobility dimensions (Figure 3). In particular, within those two dimensions, indicators such as transparency of governance and participation in public life, and local accessibility and sustainability of transport systems, are major obstacles to the improvement in smartness.<sup>3</sup>

Ljubljana and Tallinn have the highest number of smart people, followed by Edinburgh, Luxemburg, and Bratislava (Figures 3 and 4). In addition, Ljubljana has the same score for smart economy as Edinburgh (Luxemburg has the highest score of a smart economy, and Tallinn has the lowest score). Only Edinburgh has a higher smart governance score than Ljubljana. Moreover, Ljubljana has average scores for dimensions of smart governance among all cities (European Smart Cities, 2015; European Smart Cities, 2014). Ljubljana has the same score for smart environment as Tallinn, but Edinburgh has the highest score for the smart environment dimension. The compared cities have almost the same scores for the smart mobility and smart living dimensions. Thus, we can conclude that Ljubljana has a higher score for smart city than Bratislava and is about average among all cities in the 2014 and 2015 research. Moreover, Ljubljana has on average almost the same score for the smart city dimension as Tallinn and Edinburgh (Figures 3 and 4).

Based on the results and additional examples, the next section discusses which levels of upper ground to underground of the small creative city can be found in Ljubljana and the other analyzed cities (Bratislava, Tallinn, and Edinburgh). Moreover, based on the Cultural and Creative Cities Monitor from the European Commission (2017) and the European Smart Cities (2014, 2015) classification interpretation, we discuss the type of creative cities (i.e., technological-innovative, cultural-intellectual, cultural-technological, and technological-organizational) that best describe the analyzed cities (i.e., Ljubljana, Bratislava, Tallinn, and Edinburgh).

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<sup>3</sup> Among other indicators, low scores for quality of housing (smart living dimension), sustainable resource management (smart environment dimension), and flexibility of the labor market (smart economy dimension) are major problems in advancing the smartness of the city.

## 5. DISCUSSION

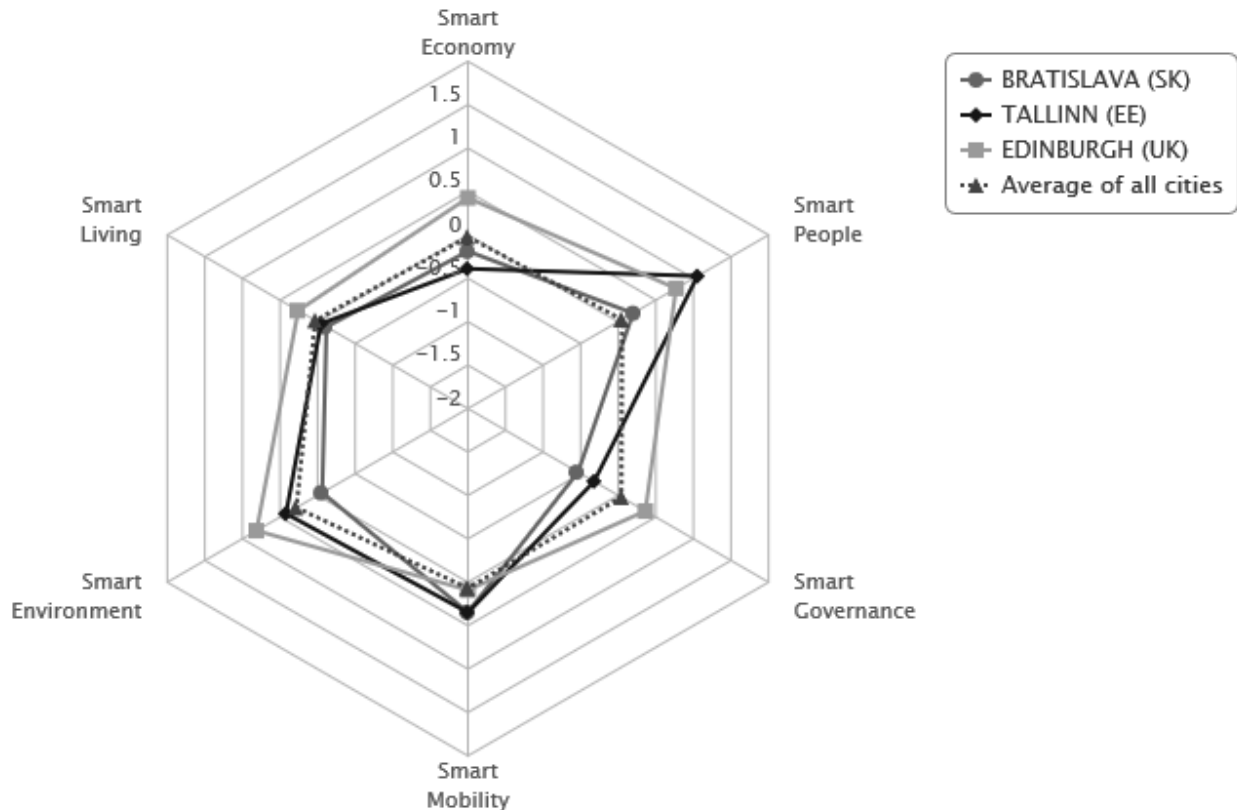
Ljubljana has been rather successful predominantly in the active promotion of culture and creative industries by giving the hardware, i.e. infrastructure, often labelled creative centres (e.g., Poligon, Kino Šiška, etc.), to the freelancers working in the creative sector, thus empowering them. Usually, an urban regeneration process also was involved, because the sites of abandoned factories were used for this purpose (e.g., Cerar, 2012; Gray, 2015). Similarly, creative software was provided, not just because Ljubljana was a UNESCO City of Literature or the European Green Capital in 2016, but also because of other events that are a backbone of creativity and vibrancy. Needless to say, the creativity stimulation mostly takes place at the municipal level, and the notion of Ljubljana as being a creative city also is addressed at the city level, where the so-called local implementation plans are created (Murovec, Kavaš and Cerar, 2012).

Addressing this issue from the perspective of Ljubljana's use of a top-down approach, it is evident that an upper ground and a middle ground focus are utilized, because creative individuals are supported, communities in various districts are supported and enabled to become creative centres, and formal institutions are well established. However, it seems that according to the monitors there is a slight lack of underground contribution to the city creativity, which can be observed indirectly through the lack of available human capital. Furthermore, it seems that top-down policies are rather narrow, because predominantly cultural aspects of creativity are targeted, whereas there is a lack of jobs to boost the creative economy development; and furthermore, there is a lack of human capital to enable creativity improvement. Thus, it can be argued that Ljubljana to some extent understands creativity and being a creative city as more of a cultural phenomenon, and less as an economic category.

Nevertheless, given the status of main the inhibitors to increasing the creativity and smartness of the city, it seems that there is a lack of orientation for improving the creative orgware of the city, which include policies regarding creative industries and governance issues. This also was evident from the cross-dimensional analysis, which indicated the lack



Figure 4: Smart dimensions of selected cities<sup>4</sup>



Adapted from *European Smart Cities, 2015*

of jobs in those industries and lack of human capital and education. Furthermore, there is a lack of sustainability policies regarding transportation, and public participation is missing in governance, thus reducing the “smartness” of the city’s management. Ljubljana did a great amount of work to boost the culture and creativity of the city, and it often is referred to as a benchmark city for the Art Nouveau, mostly for other Central and Eastern European cities (e.g., Eglins-Eglitis and Lusena-Ezera, 2016). In this context, Ljubljana can be classified more as a cultural-intellectual type of creative city (although more stress should be put on the first word), because culture and the arts contribute more to the city level of creativity. Nevertheless, it can be argued that the main advancement was done in boosting

culture and creativity, thus becoming a Level 2.0 city, but the managerial, sustainability policy, and participation issues have yet to be improved. As it was mentioned previously, a smart city requires large innovative technological solutions, which, according to the aforementioned comparisons, are missing. To summarize, additional efforts should be made to improve creative and smart management of the city in order for Ljubljana to advance closer to a Level 3.0 city.

Bratislava has the highest creative economy score, especially in creating new jobs in creative fields and providing creative and knowledge-based workers. It has a longstanding tradition in music (e.g., major musicians including Mozart, Haydn, Liszt, and Beethoven visited or lived in the town)

<sup>4</sup> Ljubljana is not included in this comparison because it is listed in the group of smaller European cities, i.e., those below 300,000 residents, whereas the three other selected capitals are listed in the group of larger cities.

and therefore, like Ljubljana, it can be classified more like as cultural-intellectual type of the creative city. Moreover, Bratislava stimulates creativity through the underground by having creative individuals such as artists or other knowledge workers. Edinburgh, on the other hand, mostly stimulates creativity through the upper-ground level of creativity, and it has the highest results for enabling environment, especially in dimensions related to governance and regulations. In addition, it has the highest results in the smart environment, smart governance, and smart economy dimensions. Thus, we suspect that traditionally Edinburgh was more of a cultural-intellectual creative city; it was the world's first UNESCO City of Literature, and it has the world's largest literary International Book Festival (European Commission, 2017). However, although the city stimulated creativity through the upper-ground (e.g., formal institutions) level of creativity, we suspect that Edinburgh is becoming more of a cultural-technological creative city.

Tallinn also stimulates creativity through the upper-ground level of creativity—it has the highest results for enabling environment, especially governance and regulations, —and through the underground, because it scored the highest in the smart people classification. However, it also has the highest results for intellectual property and innovations (i.e., ICT patent applications and community design applications). The results are not surprising, because Tallinn Creative Incubator in 2010 ranked second among more than 50 competitors in combining

technological entrepreneurship with creativity and culture at the worldwide Best Science Based Incubator Awards (European Commission, 2017). Taken together, based on the results we predicted that Tallinn is on its way to becoming a technological-innovative creative city.

## 6. CONCLUSION

This paper examined the creative city incentives by exploring how different levels of creativity (e.g., upper ground and underground) can stimulate creativity in Ljubljana. Moreover, we clarified the type of creative city (i.e., technological-innovative, cultural-intellectual, cultural-technological, and technological-organizational cities) to which Ljubljana belongs. To better interpret the results, we compared Ljubljana to other small to medium-sized cities: Bratislava, Tallinn, and Edinburgh. Our results, based on the Cultural and Creative Cities Monitor from the European Commission (2017) and European Smart Cities (2014, 2015) data sets, show that Ljubljana and Bratislava are quite similar creative cities, because they both belong to the cultural-intellectual type and stimulate through both levels of creativity (underground and upper ground). On the other hand, the results show that Edinburgh and Tallinn stimulate creativity in the city mostly through the upper-ground levels. Moreover, the results indicate that Tallinn is more of a technological-innovative creative city, whereas Edinburgh is becoming more of a cultural-technological creative city.

### EXTENDED SUMMARY/IZVLEČEK

Raziskava preučuje pobude ustvarjalnega mesta Ljubljane in drugih majhnih do srednje velikih evropskih mest (Bratislava, Talin, Edinburgh), glede na kategorijo ustvarjalnega mesta (tehnološko-inovativno, kulturno-intelektualno, kulturno-tehnološko in tehnološko-organizacijsko), kateri omenjene prestolnice pripadajo. Avtorji so raziskavo izvedli na podlagi raziskovalne metode študije primera, saj slednja dovoljuje globinsko raziskovanje omenjene teme in upošteva različne dimenzije. Na podlagi sekundarnih podatkov Poročila o kulturnih in ustvarjalnih mestih Evropske Unije in organizacije Evropskih pametnih mest raziskava potrjuje, da Ljubljana in Bratislava pripadata kulturno-intelektualnemu tipu, Talin tehnološko-inovativnemu in Edinburgh kulturno-tehnološkemu.

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