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## INNOVATIVE REGIONS IN CREATIVE AND CLUSTERED SPACE

### Abstract

Progressing processes of globalization, internationalization and the turbulences caused by world financial crisis result the growth of interest of regional problems. Some regions are becoming more reliant on interregional flows of trade, labour and resources. Interactions among regions are experiencing rapid changes as a result of dramatic shifts in production and consumption patterns, advances in information and communication technologies and creation of clustered structures. These changes pose many challenges for the analysis and management of regions. New spatial interactions at new scales demand new approaches for consultation and coordination.

The purpose of the research is an attempt to identify and pinpoint cores of complexity of functioning's process of innovative region in creative and clustered space which is a consequence of paradigms' evolution of social and economic development and increasing role of holistic and network paradigm. Multitude of problems related to these issues constitutes assumption for systematic studies and analyses devoted development of territorial units level NUTS 2. Additionally, the changes taking place in the structure of modern economic region are determined by dynamic development of networks and growth of innovativeness.

Authors present results of analysis related to innovative capacity of 310 regions (level NUTS 2) in Europe. There are 268 UE regions, 1 Icelandic region, 7 Norwegian regions, 7 Swiss regions, 1 Macedonian region and 26 Turkish regions examined in the paper. Analysis includes 8 variables in 2008-2012. Afterwards, using benchmarking method, a few regions are chosen and taken into consideration within diversity approach. Chosen benchmarks, which achieved high values of accepted variables are analyzed in terms of creativity and clustering processes. Authors would like to show if there are connections among high innovative capacity of European regions and development of creative industries and clusters (especially eco-innovative clusters) in these regions. As a consequence of the undertaken considerations stimulants of functioning modern territories as resilient communities will be described. Diverse social and economic structure of region favours less sensitivity to external shocks. Building resilient regions is seen as particularly important in the wake of the global economic crisis as a new source of economic growth. On the other hand it is important to indicate these factors and/or tendencies which create competitive structure of region in the contemporary multidimensional space.

Description of the role of innovations, creativity and clusters in modern regional economy is one of the key assumptions of the paper. Current mechanisms of social and economic development of space which determinants are technological progress, evolution of informative society and globalization of economy make new conditions of operation for territorial units, particularly for regions. Spatial concentration follows related to benefits of creative industries and clustered milieus but on the other hand connected with expansion of innovative networks in world-wide. These connections usually are based on knowledge, information and new technologies. Nonetheless, in the face of contemporary challenges, regional development is based not only on human and/or creative capital but also on social capital where trust is one of the most important elements. That's why in the end of elaboration, taking into consideration all results of conducted analyzes, authors suggest possible directions of operations in management of innovative regions in Europe.

Authors hope, that by concentration on the essence of new problems, dynamically changing challenges of functioning of regional structures in creative and clustered space, will propose interesting reading of cognitive and theoretical character with empirical examples of effective creation and implementation of actions as regards new situation of economic region on the threshold of the second decade of the 21st century.

## **Introduction**

At the turn of 20<sup>th</sup> and 21<sup>st</sup> century the interest of many researches was aroused by the thesis about the new tendency observed in regional development and consisting in reversing the existing regularity of higher human resources desirability over economic resources. This trend refers, in particular, to high value human resources. Due to the economic structure transformations occurring in highly-developed countries, towards the service sector domination and the increasing importance of creativity, innovation and the sphere of advanced, expert specialized services, it was assumed that currently 'capital' follows 'work'. It means locating economic activities in the environment supporting these individuals who represent the so-called 'creative class'.

Both creative environment and creative space are the synonyms of locations which attract creative individuals as well as creative industries. Such approach assumes the simultaneous decreasing significance of social ties, so far considered as the crucial ones (especially in sociological perspective). The characteristic feature of creative economy trends is supposed to be the coincidence of three conditions, i.e. 3T (talent, technology and tolerance). Talent understood as creative individuals and innovative economic entities, technology representing high-tech working conditions accompanied by everyday existence and tolerance in the form of social acceptance for cultural differences and its manifestations such as the functioning of representatives coming from different environments and social groups within one territory without any conflicts stimulated by such difference.

Such traditional determinants as e.g. the concentration of economic activities (agglomeration effects), the entire spectrum of factors related to life quality and sustainable development principles are contested by the proponents of this theory as the factors facilitating the location of human capital. In particular, such theses are presented as: traditional business ties weakening for the benefit of initiatives consisting in solving current problems, cooperating within the framework of loose business relationships or consortiums appointed temporarily for the purposes of one project implementation. These structures are supposed to characterize the contemporary network economy in which loose ties substitute permanent relationships.

The dispute among researchers is mainly based on arguments, whereas empirical studies cover specific economies and functional areas (especially metropolitan ones). Since such discussing have, so far, taken place mainly in USA, Canada and in some highly-developed European countries, therefore doubts are raised regarding the universality of the resulting conclusions. The authors' intention is to fill the existing gap, at least partly, by means of performing observations in territorial and social cross-sections, different from the ones analysed so far.

Thus, the research problem comes down to the following issue: is it true that the traditional socio-economic relations are actually becoming weaker, whereas the highly-developed regions are characterized by the occurrence of looser economic ties than the less developed regions.

The intellectual background of the above-mentioned dilemma is discussed in the next part of the article. The authors also present their input to research in this matter by comparing values of the Composite Creativity Index (CCI) covering European regions against cluster specialization measures. The reason for confronting these particular measures is the

perception of clusters as the emanation of economic relations influenced by the traditional, in this perspective, factors, i.e. relatively strong social ties.

### **The dispute essence about the contemporary location factors: creative capital vs. social capital**

The quality of human resources, understood as people and the entire social groups, their skills, predispositions and ability to generate added value, i.e. in other words, the quality of broadly understood social and human capital<sup>1</sup> represent, apart from the above described, the fundamental factors in thinking about the future of regions and simultaneously one of the key determinants of their new situation formation. The subject literature is abundant in alternative definitions of capital. The vast majority of terms, however, include two common components. Firstly, capital is referred to as some kind of a resource, secondly it facilitates generating the stream of certain benefits, and such understanding of capital was adopted for the purposes of further discussion.

Both, traditional and innovative concepts, assumptions and ideas referring to the three fundamental types of capital have been functioning within the framework of a lively debate which has been going on for many years regarding regions and their role in the construction of development potential in particular countries, i.e.: social, human<sup>2</sup> and creative potential. Regional resources of knowledge, skills and creativity, which are responsible for the local capacity, persist inextricably linked to human capital and social capital. In the circumstances of both, demographic and financial crisis the basic question is: which regions stand the chance of becoming the “absorbing locations” for educated, entrepreneurial and creative young individuals, i.e. which regions will be capable of attracting and keeping the deficit, mobile human capital?

Initially the problems of social capital appeared in the subject literature and in the spectrum of research discussions, with high intensity, already in the 60s of the 20<sup>th</sup> century. It was then that the possible understanding of the above-mentioned term was specified, as well as many attributes of this capital. G.C. Homans pointed to the issue of norms supporting the establishment of trust between people<sup>3</sup>, which was used in later attempts to define social capital. G. Loury<sup>4</sup> was the first researcher who, at the beginning of the 70s of the previous century, initiated advanced studies analysing this particular term. Later J. Coleman<sup>5</sup> was inspired by the idea of social capital research. He defined social capital by means of its function and stated that: it is made up of certain social structure aspects and enhances certain activities performed by the individuals who function within such structures. Just like other forms of capital it is characterized by productivity, since it enables the achievement of certain goals, otherwise unachievable<sup>6</sup>. J. Coleman also pointed to the fact that: “social capital should

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<sup>1</sup>K. Miszczak: *Dylematy rozwoju regionu ekonomicznego w świetle wyzwań XXI wieku [The dilemmas of economic region development in the light of 21<sup>st</sup> century challenges]*. Pub. Wrocław University of Economics, Wrocław 2012, pp. 108-122.

<sup>2</sup> For more see A. Mempel-Śnieżyk: *Kapitał ludzki i kapitał społeczny w gospodarce opartej na wiedzy [Human capital and social capital in knowledge-based economy]*. In: *Nowe paradygmaty gospodarki przestrzennej [New paradigms of spatial economy]*. Ed. K. Miszczak, Z. Przybyła. Pub. Polish Academy of Science Committee of the National Spatial Development, Warsaw 2008, pp. 108 - 116.

<sup>3</sup> G.C. Homans: *Social Behavior: Its Elementary Forms, Harcourt, Brace and World*. New York 1961, p. 386, op. cit. *Spółeczna gospodarka rynkowa w Polsce. Model a rzeczywistość [Social market economy in Poland. Model vs. reality]*. Ed. S. Partycki. Pub. Maria Curie-Skłodowska University, Lublin 2000, p. 486.

<sup>4</sup> G. Loury: *A dynamic theory of racial income differences*. In: *Women, Minorities and Employment Discrimination*. Ed. P.A. Wallace, A. Le Mund. Lexington Books, Lexington, Mass 1977.

<sup>5</sup> J.S. Coleman: *A rational choice perspective on economic sociology*. W: *The Handbook of Economic Sociology*. Ed. N.J. Smelser, R. Swedberg, Princeton University Press, Princeton 1994.

<sup>6</sup> J.S. Coleman: *Foundations of Social Theory*. Belknap Press of Harvard University Press, Cambridge Mass 1994,

be perceived as any aspect of an informal social organization, which constructs productive resources for either one or larger number of entities”<sup>7</sup>, suggesting that informal rather than formal organizations are responsible for social capital establishment.

The dissemination of social capital problem in regional development was also stimulated by R. Putnam<sup>8</sup> who characterized the relationship between social capital and the efficiency of political institutions. Having developed J. Coleman's approach, R. Putnam concluded that social capital presents such social qualities as trust, but also standards and relations which can extend the social capacity by facilitating coordinated actions, where horizontal, rather than vertical ones, are of utmost importance as part of the civic involvement. The networks of mutual relationships, presenting informal, horizontal and personal nature, have beneficial influence on regional economy. In an individual scale strong community relations can result in economic benefits, since it is much easier to establish trust between the individuals who are “deeply rooted” in a particular community, which can have great impact on the costs of mutual transactions.

Social capital can be divided into two main types<sup>9</sup>: bonding-exclusive capital and bridging-inclusive capital. It is assigned to particular locations (regions, countries, cities) and it cannot be easily moved or installed. It represents the consequence of historical development which has been accumulated over a long period of time. R. Putnam analysed the history of southern and northern Italian regions, which allowed him for the positive verification of social capital theory and for concluding that the quality of governing and the modernization efficiency of regional authorities is positively correlated with either the presence or absence of social capital. Governments in the north, presenting communal government traditions originating from the 12<sup>th</sup> century turned out to be most effective in economic development policy and thus constituting the basis of currently experienced trust, cooperation and reciprocity culture. The situation is different in less developed southern regions, where for centuries feudal relations, authoritarianism and bureaucracy of foreign government were dominating and therefore an abnormal familism was experienced there, consisting in having confidence only in the closest family members. While the conclusions referring to the importance of social capital in the Italian regional development seem correct, the research covering USA, in which R. Putnam indicates the decreasing level of social confidence and the dropping number of associations, do not fully account for the fast development of many regions. The basic values, such as trust and honesty as fundamental for social capital, can be substituted by formal and informal institutions (legal system, internal rules of conduct followed by occupational associations, the desire to maintain good reputation)<sup>10</sup>. This exchange, however, is expensive and only prosperous economies can afford it (such as e.g. USA). This argument is confirmed by T.N. Clark, whose ideas are fully convergent with R. Putnam's assumptions. While developing the concept of New Political Culture he observes that one cannot concentrate exclusively on traditional social life organization, with regard to societies of highly-developed countries, since informal movements have to be analysed as well<sup>11</sup>.

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p. 302.

<sup>7</sup> J. S. Coleman: *A rational...*, op. cit., p. 170.

<sup>8</sup> For more see R. D. Putnam: *Demokracja w działaniu: Tradycje obywatelskie we współczesnych Włoszech [Democracy in action: Civic traditions in contemporary Italy]*. Pub. Znak, Cracow 1995, p. 258.

<sup>9</sup> R. D. Putnam: *E pluribus unum: diversity and community in the twenty-first century*. "Scandinavian Political Studies" vol. 30, no. 2, 2007.

<sup>10</sup> S. Korenik: *Region ekonomiczny w nowych realiach społeczno-gospodarczych [Economic region in new socio-economic reality]*. Pub. CeDeWu, Warsaw 2011, p. 46.

<sup>11</sup> P. Swianiewicz: *Nowe interpretacje teoretyczne polityki miejskiej [New theoretical interpretations of urban policy]*. In: *Studia regionalne i lokalne [Regional and local studies]*. No. 2, Pub. Wydawnictwo Naukowe Scholar, Warsaw 2005, p. 16.

B. Jordan also presents a different analysis of the model for social capital functioning in spatial units' development. Social capital can play the role of a negative factor, not always stimulating development, but sometimes even posing an obstacle for it. According to his concept based, among others, on the studies by M. Olson and J.M. Buchanan, market economy does enhance its interests maximization by means of diverse "redistribution coalitions" at the expense of disorganized units, which disturbs the process of market allocation of goods and serves their interception in order to divide them between the "coalition"<sup>12</sup> members on preferential terms. Those who are not among such privileged members are much more prone to failure.

Such approach does not reduce the role of social capital in economy and allows to perceive the fact that there are different forms of social capital accumulation and application – more or less favourable from the perspective of social welfare. It is also confirmed by F. Fukuyama's concept, who claims that one of the irregularities experienced in economic operations is the increasing distrust of particular entities based on the assumption that the other members in a group are fully trustworthy and act in cooperation following mutually recognized norms which encourage for the generally accepted behaviours. In his opinion it is this trust which is historically and culturally conditioned by social capital and which has positive impact on economic growth and social welfare<sup>13</sup>. F. Fukuyama gives an example of the Chinese society, where the level of social confidence and solidarity is relatively high, however, not in relation to individuals outside the group, which can influence their economic results.

Negative social capital is the consequence of many factors. One of them is the fact that not all groups work for common good, many of them try to maximize the implementation of their own interests at the expense of "outsiders"<sup>14</sup>. The example of such behaviour is the functioning of criminal groups, mafia and clans. A. Matysiak, on the other hand, is of the opinion that we actually deal with mixed social capital, since negative social capital "is not an independent item" and "its existence is derived, to an extent, from positive social capital"<sup>15</sup>.

Concluding, it can be stated that the subject literature offers various approaches in explaining and assessing the role of social capital in the development of contemporary economy. The operationalization of social capital is also different: trust and social norms (e.g. the reciprocity norm); social networks, e.g. the number of friends, the accuracy of networks; the membership in organizations (e.g. Putnam's instrument). Beyond any doubt, however, social capital, regardless of its dimension, represents a very important component of the determinants influencing successful collective actions performed in a region.

It has to be emphasized that social capital enhances both, establishing stronger ties within a social network and entering into new contacts outside it. Weak internal bonding of a social group is not always considered a negative phenomenon. M. Granovetter indicated the advantages resulting from weak social ties, facilitating higher mobility of population (in line

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<sup>12</sup> Vide M. Olson: *The Logic of Collective Actions: Public Goods and the Theory of Groups*. Harvard University Press 1965, J.M. Buchanan: *An Economic Theory of Clubs*. *Economica* no. 32, 1965, pp. 1-14, B. Jordan: *A Theory of Poverty and Social Exclusion*. Polity Press 1996, cit. K.W. Frieske: *Marginalność społeczna – normalność i patologia [Social marginality – normality and pathology]*. In: *Marginalność i procesy marginalizacji [Marginality and marginalization processes]*. Ed. K.W. Frieske. Pub. IPISS, Warsaw 1999, p. 23.

<sup>13</sup> F. Fukuyama: *Zaufanie. Kapitał społeczny a droga do dobrobytu [Trust. Social capital vs. path to prosperity]*. Pub. PWN, Warsaw 1997, p. 38.

<sup>14</sup> A. Kiersztyn: *Kapitał społeczny - ideologiczne konteksty pojęcia [Social capital – ideological contexts of the concept]*. In: *Kapitał społeczny we wspólnotach [Social capital in communities]*. Ed. H. Januszek. Pub. Poznań University of Economics, Poznań 2005, p. 49, vide. A. Portes: *Social capital: Its origins and applications in modern sociology*. "Annual Review of Sociology" vol. 24, 1998.

<sup>15</sup> A. Matysiak: *Reprodukcja kapitału społecznego w gospodarce [Social capital reproduction in economy]*. In: *Kapitał społeczny we wspólnotach..., [Social capital in communities...]* op. cit., p. 217.

with an English proverb: “*Travelling broadens the mind*”). Too strong social ties can result in the tendency to reject new social trends or innovative ideas (isolation effect) and thus bring about stagnation or even socio-economic regression. It was already in the last decade of the 20<sup>th</sup> century when social capital presented certain erosion tendencies resulting from the development of civilization and the strengthening of individualistic attitudes. . The following potential problems, related to local social capital, can be listed<sup>16</sup>:

- significant disproportions between individuals/groups in social capital accessing (the problem of social exclusion);
- social capital concentration in a family and in small groups (the problem of abnormal familism);
- social capital concentration in exclusion or criminal groups (the problem of a clique and “power holding groups”).

The above-mentioned characteristics of social capital, the assessment ambiguity of its impact on regional development, difficulties in such impact quantification and the occurrence of new cultural and migration tendencies gave impetus to search for new explanations of socio-economic relations. The concept of human capital and mainly its specific presentation in the form of creative capital started playing the more important role in regional discussions. Human capital refers to the following: tertiary education population, students, academic teachers, research workers. These individuals determine (apart from other factors such as: health care, job market situation, access to devices produced based on new technologies and R&D achievements) the quality of human capital which, as a result, determines, to a great extent, the regional development capacity. Owing to exceptional skills and the acquired knowledge, outstanding individuals are capable of undertaking challenges, solving problems in the region and creating its innovative spatial structure, adjusted to the challenges brought about by new regionalism. However, the crucial issue is establishing adequate regional conditions encouraging such human resources to settle or function within its territory. It can be achieved through the development of competitive infrastructure, indispensable in the process aimed at educating, supporting and extending advantages featuring the regional community.

Human capital measurement requires defining empirical indicators which refer to its above-mentioned components. The subject literature offers many measures and methods useful in their analysis. There are three basic methods used in human capital measuring. The first of them consists in determining costs resulting from obtaining the particular education or qualifications level (such costs are measured by the time spent in educational institutions). The second method is checking human skills and knowledge by means of e.g. tests. The third one is based on an individual indirect “productivity” estimate based on such indicators as income earned from work, job security, status in the prestige hierarchy<sup>17</sup>.

It is worth noticing that human capital influences economic growth in a region by upgrading work productivity or extending regional economy capacity for producing and absorbing innovations. In other words, the increase of productivity and thus also competitiveness, is possible only when the development of infrastructure and education systems is accompanied by an ongoing improvement of human capital quality. High level of education is the key challenge in the context of establishing the permanent regional development potential. Today's peripheries will not cease to remain as such if human capital is

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<sup>16</sup> M. Theiss: *Kapitał społeczny środowiska lokalnego - pojęcie i wskaźniki [Social capital of local community – the concept and indicators]*. The summary of the presentation from a scientific seminar entitled: “Social capital vs. local environment: needs and possibilities”, held on 3<sup>rd</sup> March 2004 at Pedagogical Department of Warsaw University, p. 3.

<sup>17</sup> *Measuring what people know. Human capital accounting for the knowledge economy*. OECD, Paris 1996, p. 21.

deprived of consistent and continuous investments. Moreover, human capital accumulation can also result in higher generated income<sup>18</sup>.

Human capital results in, or rather its irregular spatial distribution represents the source of uneven development and in consequence the increasing disproportions. This phenomenon is explained by the new theory of growth based on the model of endogenous growth which assumes the possibility of regional income diversification occurrence. More prosperous regions present higher accumulation of the broadly understood capital and can employ more workers in research and development (R&D) sectors. Poorer regions, on the other hand, will not record income growth until they upgrade their technological level. It opens the path for the advancing income divergence between regions. One should, however, bear in mind that the model of endogenous growth also assumes certain external flows which can result in convergence<sup>19</sup>. The most important role in this matter is played by: free trade and the mobility of both material and human capital. At this point, yet again, a question is raised regarding the capacity of some locations to attract larger flows than it is true for other, less competitive places.

Currently it is assumed that regions, by implementing new regional development tools, have to stimulate the development of the third type of capital, i.e. creative capital, especially in their large urban centres. The new factor of growth, an intangible asset taking the form of creativity, finds itself in the centre of interest in the development of knowledge-based economy.

It was G. Törnqvist<sup>20</sup> who first paid attention to creativity as the factor responsible for regional development. He introduced the term of creative milieu in which knowledge accumulation is a result of the availability of abundant information resources, easily transferrable by the competent decision makers. Ch. Landry, another author of the creative capital theory, adds that through spill-over effects this environment activates creativity in other spheres of socio-economic life covering a given area, which results in creativity accumulation<sup>21</sup>.

It was already Albert Einstein who said that “imagination is more important than knowledge”. A. Kukliński describes creativity as a complex phenomenon made up of two integrated elements, i.e. knowledge and imagination. He also emphasizes that creativity cannot develop if deprived of the third pillar, i.e. freedom: “the climate of freedom develops knowledge and enriches the spirit of imagination”<sup>22</sup>. The new creative economy is perceived by A. Kukliński as the challenge for the 21<sup>st</sup> century Europe, where the vision of creative European economy promotion presents a much greater scale and imagination challenge than

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<sup>18</sup> Vide G. Tondl: *Convergence after divergence?: Regional Growth in Europe*. Pub. Verlag. Wien-New York 2001 and P. Romer: *Endogenous technological change*. “Journal of Political Economy” vol. 98, no.5, part II, 1990, pp. 71-102.

<sup>19</sup> For more see P. Churski: *Rozwój regionalny w warunkach transformacji gospodarczej i integracji europejskiej [Regional development in the conditions of economic transformation and European integration]*. In: *Przekształcenia regionalnych struktur funkcjonalno-przestrzennych. Regionalny wymiar integracji europejskiej [Transformations of regional functional and spatial structures. Regional dimension of the European integration]*. Ed. S. Ciok, D. Ilnicki, vol. VIII/1. Pub. The Institute of Geography and Regional Development of Wrocław University, Wrocław 2004, pp. 31-45.

<sup>20</sup> G. Törnqvist: *Creativity and the Renewal of Region Life*. In: *Creativity and context*. Ed. A. Buttner. Lund Studies in Geography 1983, Series B, 50, pp. 91-112.

<sup>21</sup> Ch. Landry: *The Creative City*. A Toolkit Urban Innovators Earthscan 2000, pp. 112-125.

<sup>22</sup> A. Kukliński: *Ku kreatywnej Europie XXI wieku. Artykuł dyskusyjny [Towards the creative Europe of 21<sup>st</sup> century. A controversial article]*. In: *Unia Europejska w kontekście Strategii Lizbońskiej oraz gospodarki i społeczeństwa wiedzy w Polsce [The European Union in the context of Lisbon Strategy as well as knowledge-based economy and society in Poland]*. Ed. E. Okoń-Horodyńska, K. Piech. Pub. The Institute of Knowledge and Innovation, Warsaw 2006, p. 286.

the Lisbon strategy itself. I. Tomys observes that just as in an industrial society universities were teaching how to take advantage of knowledge, also in an information society they should teach how to create it and the position of a human being in a society is determined by personal creativity abilities<sup>23</sup>.

In the globalization conditions the decisive role in regional economic prosperity is played by innovation based on creativity and knowledge adjustment to its needs. The main regional innovation centres are cities attracting representatives of the so-called creative class<sup>24</sup>. The creative class represents a new type of society characterized by the establishment of economic value as a result of individual creativity. R. Florida includes two types of people in a creative class, i.e. those whose work consists in creative problems solving and innovation creation. The first group covers Super-Creative Individualists among which there are scientists, academic teachers, artists, writers, media representatives. The second group, consisting of professionals representing high-tech sector, financial or legal services, management and medicine, gathers Creative Professionals. It has to be emphasized, however, that R. Florida does not propagate artificial creation of elites and the division of society into the “creative” and “non-creative” ones. On the contrary – he claims that every human being is a creative individual in some way, but only a small percentage of people (in USA about 30%) are fortunate enough to be rewarded for the effects of their creativity<sup>25</sup>. Their basic task is independent thinking, applying non-standard approaches to diverse tasks, individual assessment of the situation and the implementation of new ideas in life.

R. Florida is critical about the ideas stating the disappearance of a “location” significance in knowledge-based economy, since in his opinion “economy is gaining more and more substance based on actual population concentrations in real locations”<sup>26</sup>. However, according to him creative individuals choose places characterized by 3T model<sup>27</sup>: Technologies, Talent and Tolerance. Technologies and innovation represent the key components which are responsible for the development capacity of locations and organizations.

In order to be successful places and organizations have to know the method for transforming research results, ideas and innovations into products which can be sold, following the principles of sustainable development. The role played by scientific units in this process is a supervisory one, by means of providing their innovative infrastructure necessary to transfer information. The second “T”, constituting the necessary condition for a city-region in encouraging creative people to settle in its territory, can be brought down to a statement that the leading force of economic effectiveness, in terms of locations, is represented by talented people. We exist in the world of very high mobility. People, especially the talented and creative ones, are on the continuous move. The ability of places to attract and keep the most talented and creative individuals is the most significant element of the “Creative Era”. Nowadays, when the global economy is becoming more and more competitive attracting the most outstanding talents is a great challenge for locations, but also offering them indispensable trainings and educational programs, to stimulate the level of

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<sup>23</sup> I. Tomys: *Istota wiedzy w gospodarce XXI wieku. Wybrane aspekty socjologiczne [The essence of knowledge in the 21st century economy]. Selected sociological aspects*. In: *Spółeczeństwo i gospodarka...*, [Society vs. economy ...] op. cit., p. 121.

<sup>24</sup> R. Florida: *The Rise of the Creative Class, and How it's Transforming Work, Leisure, Community and Everyday Life*. Basic Books, New York 2002.

<sup>25</sup> R. Florida: *Cities and the Creative Class*. Routledge, New York – London 2005, p. 22, see also *The Creative Compact: An Economic and Social Agenda for the Creative Age*. [www.creativeclass.org](http://www.creativeclass.org), 10.04.2011, pp. 3-4.

<sup>26</sup> R. Florida: *Cities and..*, op. cit., p. 29.

<sup>27</sup> *Ibidem*, p. 6, see also: R. Florida et al.: *The University and the Creative Economy*. [www.creativeclass.org](http://www.creativeclass.org), 10.04.2011, pp. 1-3.



competitiveness<sup>28</sup>. Therefore, cities-regions have to represent open locations, ready to accept new ideas, outstanding people of alternative life and work style, have to alter attitudes to social status and social structure. Creative individuals do not move to these places as a result of traditional incentives – shopping centres, sports facilities, tourist attractions – such factors are unimportant, insufficient and unattractive for many representatives of the creative class. Such people are searching for positive emotions, openness to diversity, but most of all – the possibility to be fulfilled in creative professions. The places which can be referred to as the most creative ones are highly ranked in terms of tolerance indices, e.g. Bohemian Index or Gay Index, and also offer various amenities i.e. attractions or facilities.

It is true to ascertain that the contemporary structure of an economic region should be soaked with 3T qualities to the maximum, however, if the determinants indicated by R. Florida are supposed to be capable of providing simultaneous incentives and support for spatial unit development, the networking processes should be heavily integrated with them. People pay high rents to live on Manhattan or in the centre of Chicago precisely in order to be close to other people.

In this way he pointed to the existence of a “binding force” which results in gathering people in one location, who owing to their high efficiency represent the driving forces behind high economic growth rate. Referring to the studies by J. Jacobs<sup>29</sup> it can be stated that the functioning of the discussed “binding force” consists in a multiplier effect occurring as a result of accumulating many talented people in one location. It is the concentration of such individuals which makes cities and regions the units deciding about the global progress, however, if they are to remain on the right position in the competitive game and function in accordance with the policy of “global mandate”, they have to create conditions facilitating optimal internalization of their dissipative structures, dominated by horizontal links between the creative entities.

For the purposes of our discussion it is, however, crucial to follow R. Florida’s statement that the locations characterized by the functioning of strong ties and high level of the traditionally approached social capital offer a privileged position to people belonging to such community and enhance “stability” (but they can simultaneously exclude “outsiders”), whereas the places featuring weaker “networks” are more open for outside arrivals and thus promote new combinations of resources and ideas. Therefore, in his opinion, it is the creative capital which plays the role of a contemporary regional stimulant for the development processes, rather than social capital considered as such by R. Putnam, who claimed that regional economic growth is associated with communities in which people and businesses create and develop strong ties<sup>30</sup>. The ability of regional actors to become involved in the activities focused on creating the vision of the future and constructing regional strategies is related to the absorption potential of regional networks. Members of strongly tied regional networks indicate a much more significant inclination towards the exchange of opinions and attitudes about the future of a region in the situation of large social capital resources existence, coupled with the region<sup>31</sup>. The processes of collective learning are – apart from

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<sup>28</sup> [http://www.creativeclass.com/rfcgdb/articles/Brief\\_116\\_B4P.pdf](http://www.creativeclass.com/rfcgdb/articles/Brief_116_B4P.pdf), 05.08.2011, p. 4.

<sup>29</sup> J. Jacobs: *The Economy of Cities*. Pub. Random House, New York 1969.

<sup>30</sup> Vide M. Pięta-Kanurska: *Spółeczno-przestrzenne skutki rozwoju metropolii-wybrane problemy [Socio-spatial effects of a metropolis development – selected aspects]*. In: *Kreatywne miasta i aglomeracje. Studia przypadków [Creative cities and agglomerations. Case studies]*. Ed. A. Klasik. Pub. University of Economics memorial of Karol Adamiecki in Katowice, Katowice 2009, pp. 129-140.

<sup>31</sup> E.J. Malecki: *Kapitał społeczny w kontekście regionalnym [Social capital in regional context]*. In: *Problematyka przyszłości regionów..., [The problems of regions’ future...]*, The Ministry of Regional Development, Warsaw 2008, pp. 41-45 and see more: A. Mempel-Śnieżyk: *Kapitał społeczny kwestie interpretacyjne i możliwe powiązania z rozwojem regionalnym [Social capital, interpretation issues and possible relations with regional development]*. In: *Rozwój regionalny w Polsce w świetle wyzwań XXI w. [Regional development in Poland in the*

creative potential – the best guarantee of high efficiency of activities in creating the vision of regional future<sup>32</sup>.

Therefore, it has to be analysed if actually an alternative is necessary in this case and whether empirical studies, based on objectified measures, are capable of providing a solution to such dilemma. Is it, in fact, true that the regions leading in terms of creative economy are characterized by weaker traditional socio-economic ties, or whether the traditional ties and cluster structures are in the opposition to the idea of creative environment?

### Indicator analysis: regional comparison by CCI and SCI

An indicator analysis, conducted by the authors in 50 most and 50 least ‘creative’ European regions, is an attempt to provide answers to the above-mentioned issues. The measures of regional cluster specialization were used to supplement the analysis since clusters are perceived as an economic emanation of social capital in a region.

The values of Composite Creativity index (CCI), representing synthetic measures constructed based on OECD 2008 methodology<sup>33</sup>, are normalized in the range [0; 1] – closer to unity value means high regional creativity level, while closer to zero stands for a very low level. The following variables were applied to calculate the indicator (the first five variables represent stimulants and the last one is a destimulant):

- LLL - Participation of adults aged 25-64 in education and training by NUTS 2 regions (%),
- HRST - HRST groups by NUTS 2 regions (percentage of active population),
- KIS - Employment in knowledge-intensive services by NUTS 2 regions (percentage of total employment),
- KIS 2 - Employment in knowledge-intensive services by NUTS 2 regions (percentage of total employment in services),
- WORK\_EDUC - Employees with higher education as percentage of work force aged 25-64,
- YOUTH - Early leavers from education and training by NUTS 2 regions – percentage.

The analysis covers data collected for the period 2008-2012 covering 310 European regions at NUTS 2 level: 272 EU except 4 French overseas regions and Norway (7), and also Switzerland (7), Iceland (1), Macedonia (1), Turkey (26), while the extreme values and the most important statistical characteristics of the factor are presented in tab. 1.

**Table 1.** Basic statistics CCI

Statistics	CCI					
	2008	2009	2010	2011	2012	Average
Min	0,063	0,059	0,069	0,050	0,057	0,067
Max	0,924	0,949	0,945	0,909	0,896	0,924
Max-min	0,861	0,889	0,876	0,859	0,839	0,857
Average	0,512	0,505	0,484	0,474	0,476	0,490
Median	0,517	0,521	0,492	0,484	0,483	0,504
Standard deviation	0,155	0,162	0,160	0,156	0,153	0,156
Variation coefficient	30,31	31,97	33,06	32,84	32,19	31,82

Source: Author’s calculations

*light of 21<sup>st</sup> c. challenges*] Ed. T. Kudłacz, Pub. Polish Academy of Science Committee of the National Spatial Development, Warsaw 2010, pp. 180 - 190.

<sup>32</sup> V. Harmaakorpi, T. Uotila: *Building regional visionary capability. Futures research in resource-based regional development*. Technological Forecasting And Social Change nr 73, 2006, p. 787.

<sup>33</sup> *Handbook on Constructing Composite Indicators*, OECD, Paris 2008.

The lowest CCI value was included in the range from 0,005 (for the Turkish regions Agri, Kars, Igdir, Ardahan in 2010 up to 0,069 (for the same region in 2010), and the highest from 0,896 (in 2012) up to 0,949 (in 2009) – Inner London was each time ranked at the top of the list.

There were 44 regions ranked among the first 50, in each analysed year, and represented the following countries:

- Denmark (Hovedstaden, Sjælland, Syddanmark, Midtjylland, Nordjylland – all regions),
  - Switzerland (Région lémanique, Espace Mittelland, Nordwestschweiz, Zürich, Ostschweiz, Zentralschweiz, Ticino – all regions),
  - The Netherlands (Groningen, Utrecht, Noord-Holland, Zuid-Holland – 4 out of 12 NUTS 2 regions),
  - Finland (Länsi-Suomi, Helsinki-Uusimaa, Pohjois- ja Itä-Suomi, Åland – 4 out of 5),
  - Sweden (Stockholm, Östra Mellansverige, Sydsverige, Västsverige, Mellersta Norrland, Övre Norrland – 6 out of 8),
  - Great Britain (Cheshire, North Yorkshire, Bedfordshire and Hertfordshire, Inner London, Outer London, Berkshire, Buckinghamshire and Oxfordshire, Surrey, East and West Sussex, Hampshire and Isle of Wight, Gloucestershire, Wiltshire and Bristol, East Wales, Eastern Scotland, South Western Scotland – 12 out of 37 NUTS 2 level regions),
  - Norway (Oslo og Akershus, Vestlandet, Trondelag, Nord-Norge 4 out of 7),
  - Belgium (Prov. Vlaams-Brabant, Prov. Brabant Wallon – 2 out of 11),
- and the capital regions including the Czech capital (Praha), the German capital (Berlin), French (Île de France) and countries – regions, such as Luxembourg, Iceland.

Similarly, a large group is made up of regions which, in each of five analyzed years, were ranked among the last 50 – 44 regions from:

- Romania (Nord-Vest, Centru, Nord-Est, Sud-Est, Sud-Muntenia, Sud-Vest Oltenia, Vest – 7 out of 8 NUTS 2 regions)
- Bulgaria (Severen tsentralen, Yugoiztochen, Yuzhen tsentralen – 3 out of 6),
- Greece (Ionia Nisia, Sterea Ellada, Peloponnisos, Notio Aigaio, Kriti, Illes Balears – 6 out of 13),
- Portugal (Norte, Algarve, Regiao Autónoma da Madeira – 3 out of 7),
- Turkey – 25 out of 26 NUTS 2 level regions in this country – apart from Ankara region.

In this way the ranking of the most and least ‘creative’ European regions was prepared and compared with the saturation of clusters in the areas covered by creative sectors according to Clusterobservatory<sup>34</sup> (see tab. 2).

**Table 2.** Creative sectors and activities

Sector	Activities
Creative and cultural industries	Advertising
	Artistic creation and literary creation
	Museums and preservation of historical sites and buildings
	Printing and publishing
	Radio and television
	Retail and distribution
	Software
Knowledge-intensive business services	Business services
	Education and knowledge creation
	Financial services

<sup>34</sup> <http://www.clusterobservatory.eu>

	IT
Life-science	Biotech
	Medical devices
	Pharmaceuticals

Source: <http://www.clusterobservatory.eu>

The Specialisation Cluster Indicator (SCI) was applied. If a region is more specialised in a specific cluster category than the overall economy across all regions it is likely to indicate that economic effects of the regional cluster have been strong enough to attract the related economic activity from the other regions to this particular location, and thus the spill-overs and linkages will be stronger. The specialisation measure compares the proportion of employment in a cluster category in a region over the total employment in the same region against the proportion of total European employment in that cluster category over total European employment. The measure needs to be at least 1 to receive an above average specialization point, and to be at least 2 to receive a strong specialization point.

**Table 3.** Creative European regions – Top 50

Position	Code	Region	Average CCI 2008-2012	Number of above average clusters by specialization	Number of strong clusters by specialization
1	UKI1	Inner London	0,924	12	8
2	DK01	Hovedstaden	0,856	11	4
3	SE11	Stockholm	0,817	9	5
4	NO01	Oslo og Akershus	0,797	9	7
5	CH04	Zürich	0,781	11	4
6	FI1B	Helsinki-Uusimaa	0,777	10	4
7	NL31	Utrecht	0,755	12	4
8	BE31	Prov. Brabant Wallon	0,755	9	2
9	UKI2	Outer London	0,738	10	0
10	UKJ1	Berkshire, Buckinghamshire and Oxfordshire	0,725	10	5
11	CH03	Nordwestschweiz	0,723	11	3
12	SE22	Sydsverige	0,721	8	3
13	UKJ2	Surrey, East and West Sussex	0,720	11	1
14	NL32	Noord-Holland	0,719	11	2
15	CH01	Région lémanique	0,717	8	2
16	SE23	Västsverige	0,715	7	2
17	BE24	Prov. Vlaams-Brabant	0,710	8	2
18	LU00	Luxembourg	0,709	9	2
19	SE33	Övre Norrland	0,703	7	0
20	FI20	Åland	0,702	10	4
21	SE12	Östra Mellansverige	0,697	7	0
22	DK04	Midtjylland	0,695	6	0
23	NL11	Groningen	0,689	8	2
24	UKM2	Eastern Scotland	0,688	7	5
25	SE32	Mellersta Norrland	0,687	7	0
26	CH02	Espace Mittelland	0,683	8	1
27	UKK1	Gloucestershire, Wiltshire and Bristol	0,682	10	0
28	CZ01	Praha	0,680	12	7
29	CH06	Zentralschweiz	0,679	8	3
30	DK05	Nordjylland	0,677	2	0
31	NO06	Trondelag	0,675	8	1
32	DK02	Sjælland	0,674	3	0
33	UKH2	Bedfordshire and Hertfordshire	0,673	10	1
34	IS00	Iceland	0,673	9	3
35	NO05	Vestlandet	0,671	5	0
36	UKJ3	Hampshire and Isle of Wight	0,671	11	2
37	DE30	Berlin	0,670	14	5
38	FR10	Île de France	0,669	11	4

39	NL33	Zuid-Holland	0,668	11	1
40	CH07	Ticino	0,666	8	5
41	NO07	Nord-Norge	0,663	4	0
42	UKL2	East Wales	0,663	7	1
43	BE10	Région de Bruxelles-Capitale	0,654	6	2
44	UKE2	North Yorkshire	0,649	6	2
45	FI19	Länsi-Suomi	0,647	3	1
46	UKM3	South Western Scotland	0,647	5	0
47	DK03	Syddanmark	0,643	0	0
48	UKD6	Cheshire	0,641	9	1
49	CH05	Ostschweiz	0,640	6	1
50	FIID	Pohjois-ja Itä-Suomi	0,638	3	2

Source: Author's calculations

**Table 4.** Creative European regions – Low 50

Position	Code	Region	Average CCI 2008-2012	Number of above average clusters by specialization	Number of strong clusters by specialization
261	BG33	Severoiztochen	0,361	1	0
262	PT18	Alentejo	0,358	3	0
263	HU22	Nyugat-Dunántúl	0,353	1	1
264	BG32	Severen tsentralen	0,353	2	2
265	MK00	Former Yugoslav Republic of Macedonia, the	0,349	0	0
266	ES53	Illes Balears	0,323	2	0
267	BG42	Yuzhen tsentralen	0,320	0	0
268	EL43	Kriti	0,316	1	0
269	PT30	Regiao Autónoma da Madeira	0,316	2	0
270	PT16	Centro	0,312	2	0
271	BG34	Yugoiztochen	0,304	0	0
272	RO42	Vest	0,303	0	0
273	PT15	Algarve	0,302	2	0
274	TR31	Izmir	0,301	2	0
275	EL24	Sterea Ellada	0,300	2	0
276	EL25	Peloponnisos	0,297	1	0
277	PT11	Norte	0,296	2	0
278	RO12	Centru	0,287	3	0
279	PT20	Regiao Autónoma dos Açores	0,285	1	0
280	RO11	Nord-Vest	0,281	4	0
281	RO41	Sud-Vest Oltenia	0,277	1	0
282	RO22	Sud-Est	0,273	0	0
283	EL42	Notio Aigaio	0,262	2	2
284	RO31	Sud - Muntenia	0,255	0	0
285	RO21	Nord-Est	0,253	2	0
286	EL22	Ionia Nisia	0,250	3	1
287	TR10	Istanbul	0,244	5	2
288	TR21	Tekirdag, Edirne, Kirklareli	0,198	2	1
289	TRA1	Erzurum, Erzincan, Bayburt	0,187	1	1
290	TR42	Kocaeli, Sakarya, Düzce, Bolu, Yalova	0,184	2	1
291	TR71	Kirikkale, Aksaray, Nigde, Nevsehir, Kirsehir	0,184	1	1
292	TR41	Bursa, Eskisehir, Bilecik	0,178	1	1
293	TR72	Kayseri, Sivas, Yozgat	0,174	1	1
294	TR61	Antalya, Isparta, Burdur	0,170	1	0
295	TRB1	Malatya, Elazig, Bingöl, Tunceli	0,161	1	1
296	TR52	Konya, Karaman	0,160	1	1
297	TR62	Adana, Mersin	0,160	1	1
298	TR32	Aydin, Denizli, Mugla	0,157	1	0
299	TR22	Balikesir, Çanakkale	0,155	1	1

300	TR82	Kastamonu, Çankiri, Sinop	0,146	1	1
301	TR83	Samsun, Tokat, Çorum, Amasya	0,140	1	1
302	TR90	Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane	0,135	1	1
303	TRC3	Mardin, Batman, Siirt, Siirt	0,126	1	1
304	TR81	Zonguldak, Karabük, Bartın	0,124	1	0
305	TRB2	Van, Mus, Bitlis, Hakkari	0,116	1	1
306	TR33	Manisa, Afyonkarahisar, Kütahya, Usak	0,104	1	0
307	TRC2	Sanliurfa, Diyarbakir	0,100	1	1
308	TR63	Hatay, Kahramanmaraş, Osmaniye	0,093	1	0
309	TRC1	Gaziantep, Adiyaman, Kilis	0,069	0	0
310	TRA2	Agri, Kars, Iğdir, Ardahan	0,067	1	1

Source: Author's calculations

The number of points achieved by a given region could, thus, take values from 0 to 14. As a result of conducted analyses it turned out that in case of 10 leading regions the average values of clustering specialization indicator are significantly higher than in case of the remaining regions, both regarding 'above average' values and the strong ones. In the first case this value was 10,3 and in the second 4,3. For all fifty most developed regions the average values were respectively: 8,14 and 2,28.

In accordance with CCI the situation characteristic for the least creative regions is quite contrary since average cluster saturation values are definitely lower and for the 'above average' values amounted to 1,36 and respectively 0,5 for the strong ones.

### Conclusions

While attempting to interpret the results of the analysis performed it should be observed that the regions presenting more qualities typical for the creative economy are also characterized by high level of cluster specialization. Having in mind all the limitations resulting from the static nature of the comparisons performed a thesis can, nevertheless, be put forward that the occurrence of strong social capital in the European regions is not contradictory to creative capital saturation.

The authors are fully aware of the need to support the initial observations by in-depth studies, however, there are certain reasons preventing the confrontation of creative and social capital and encouraging to focus rather on the holistic approach understood as parallel 'investment' made in social and creative capital by entities involved in regional development at both, strategic and operational level. In European conditions more advantages rather than threats should be recognized in strong social ties observed as the factors stimulating socio-economic growth experienced by regions.

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