Analysis of Creative City Indicators in Isfahan City, Iran

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Abstract—This paper investigates the indices of a creative city in Isfahan. Its main aim is to evaluate quantitative status of the creative city indices in Isfahan city, analyze the dispersion and distribution of these indices in Isfahan city. Concerning these, this study tries to analyze the creative city indices in fifteen area of Isfahan through secondary data, questionnaire, TOPSIS model, Shannon entropy and SPSS. Based on this, the fifteen areas of Isfahan city have been ranked with 12 factors of creative city indices. The results of studies show that fifteen areas of Isfahan city are not equally benefiting from creative indices and there is much difference between the areas of Isfahan city.

Keywords—Grading, creative city, creative city evaluation indicators, regional planning model.

I. INTRODUCTION

A. Statement of the Problem

TEWENTY first century is the world urbanization century. The world cities are extremely in competition in the framework of global economy as network nodes and each tries to promote itself in hierarchical structure and attract more opportunities. Due to this, the cities are new players in global cities network and compete with each other besides collaborating for transfer of urban development experiences. Moreover, they try to supersede in enhancement of their role-playing from their parallel urban places in global cities network by relying on urban diplomacy. In this regard, moving toward creative economy and finally getting the place of creative city can provide important opportunities in urban interactions especially in supranational areas for every urban place. Creative city as a strategic method in thinking, planning and implementation of urban Designs have been mentioned. Concerning deep changes happening in the cities, the creativity of authorities, entrepreneurship and cities inhabitants is a critical factor in solving the problems of cities. Furthermore, this approach investigates the creative entering of citizens to various realms of confrontation with city problems. Isfahan, as a metropolis, should provide new grounds to become a creative city to be effective in global economy and compete with other metropolises of the world. If Isfahan city continues this classic trend and doesn't conform

itself with the indices of creative city, it will face with serious problems against global process. Hoping by analysis and assessment of this process in Isfahan and strategies of creative city, urban managers and planners are able to lead Isfahan to this direction concerning the present capacities and competitive advantages. This study seeks to answer this question that how are fifteen areas of Isfahan city in terms of creative city indices and to what extend has it confronted itself with the indices of creative city.

B. The Significance of the Study

In knowledge-based economic revolutions, the cities and urban management have played a key role especially in two last decades. Isfahan is a dynamic, live and people centered city with economic, social and cultural diversity and is a historical and scientific city, thus, it has the potential to move toward a creative city however it has far distance from creative city. Generally, for achieving an optimum development, the assessment, analysis and classification of areas are required. Thus, this study aims to identify how the fifteen areas of Isfahan benefit from creative city indices and lead Isfahan toward a creative city by evaluation, analysis and classification of areas based on indices of creative city and providing integrated urban management. These measures intend to make it a place for growth and development of creativities and fulfill all its creative potentials and are the leader of developmental and cultural activities.

C. Research Objectives

A. Classification and ranking of Isfahan fifteen areas based on creative city indices using regional planning models

B. Investigation of current status of Isfahan fifteen areas in terms of creative city indices.

D. Literature Review

Allen G. Scot provides a wide and contradicting through concerning the nature and the significance of creative cities and searches for replacement of the concept creative city within recent changes in technology, manufacturing structures, labor market and dynamic communities. Furthermore, he seeks to show how it is possible to make modern economic structures, certain types of economic and cultural innovation in creative cities [1].

Kasta et al. introduces creative city. The authors believe that implementation of projects related to creative cities has been turned into an urban government. In this research, the move from contemporary discussions about creative city to discussions about the diversity of mechanisms and regulated governance has been taken into account. At the end, this study

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investigates several experiments from case studies and governance mechanism for understanding of dynamisms for developing knowledge in competent creative cities and their conformity with their case study, i.e. the citizens of Portugal.

McGrahan and John inspired from Florida work, emphasized on the fact that people from creative category are drawn to areas where the quality of life is high. In this investigation, the authors according to their findings believe that the re-investigation of Florida creative jobs is more compatible with regional development using their new measurement [2].

Moazeni introduces the creative and innovative cities and their main aspect which is the presence of creative human capitals (creative category). Moreover, he studies some social and cultural grounds influencing the creation and survival of these cities and areas. The method he used for data analysis of creative cities is regression model and path analysis model. He concludes that in Iran, social equality from creative city variables has positive relation with urban creativity and innovation [3].

Rabani Khorasgani et al. have investigated the place of social diversity in creation of creative and innovative cities. Moreover, he has studied the situation and potential of Isfahan in terms of the presence of social variation through secondary data analysis, conceptual and analytical discussion using country and province statistics [4].

The present study tries to investigate and study the formation indices of creative city and identification of these indices in Isfahan city and ranking of Isfahan fifteen areas using creative city indices. For conducting this study, secondary data analysis and questionnaire will be used. Its difference with previous studies is that this study will investigate the creative city indices using a quantitative model. Furthermore, it is more comprehensive than previous works.

E. Research Questions

Concerning the research objectives which are the classification of fifteen areas of Isfahan city in terms of creative city indices, the following questions have been proposed:

A. How do fifteen areas of Isfahan city benefit from creative city indices?

B. How is the status of areas located in south and north of Zayande Rood River in terms of the indices of creative city?

F. Research Methodology

The methodology of this study is descriptive-analytical and field study. The required data for carrying out the study will be gathered through books, documents, papers and organizations' data. Furthermore, some of the creativity indices of Isfahan will be investigated through questionnaire and analyzed by SPSS. Then, using the regional planning models the areas will be classified and the significance coefficient of every criterion will be determined. Then, the map of Isfahan fifteen areas in terms of creative city will be design in GIS according to the ranking.

II. ZONE UNDER INVESTIGATION

Based on the municipal zoning, since 2009 the city has been divided into 15 regions (Fig. 1). In the segmentation of urban areas, Zayandeh River divides the city into northern and southern halves. The southern half contains three regions of 5, 6 and 13. The other twelve areas are located in the northern half of the city. Chaharbagh artificial axis creates western and eastern halves.
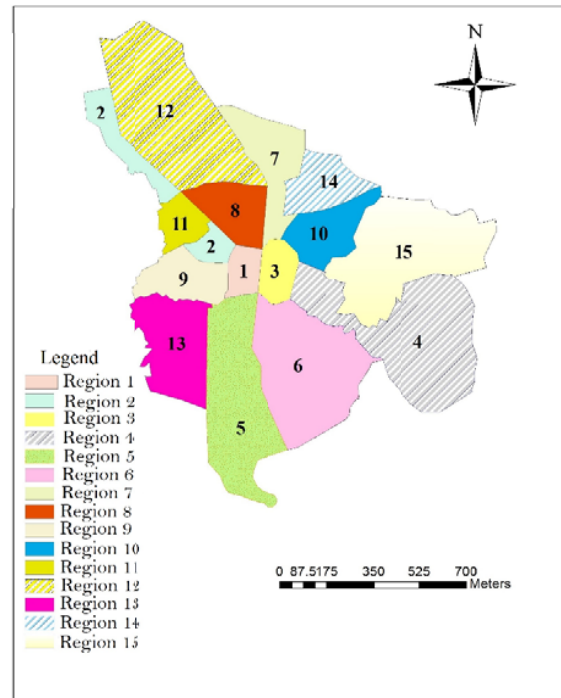

Fig. 1 The map of 15 zones of Isfahan

III. DEFINITIONS, CONCEPTS AND THEORETICAL PRINCIPLES

The city is an extraordinarily complex system. Even if we can't fully grasp it, even if we are bound to simplify, we must hold on to that complexity, for it is complexity that gives cities richness, vitality, and, significantly, health. In the same way that ecological variety and complexity give health to natural system, so variety and complexity give health to social and cultural systems [5]. Masayuki Sasaki through interchange with Lander and Florida, creative cities are defined as: Cities that cultivate new trends of arts & culture and promote innovative & creative industries through the energetic creative activities of artists, creators and ordinary citizens, contain many diverse "creative milieus" and "innovative milieus", and have a regional, grass-roots capability to find solutions to global environmental problems such as global warming [6]. Creative cities have a strong sense of their identity, their uniqueness and their defining strength's. They have a clear sense of the strengths and attributes that make them unique on the word stage. And they are able to tell these stories in clear and compelling ways. A creative city demonstrates the characteristics essential to nurture human creativity. It is an

open, networked and fluid society that welcomes new people and adjusts easily to new ideas and new immigrant groups; it celebrates diversity, enterprise and responsible risk-taking [7]. Landry asserts that creative city is simply new way of performing actions which are related with urban managers. The bureaucratic approaches and those out of planning and economic development are the barriers on the way of creativity and innovation. Most is related to individuals who encourage creativity and realize that considering holy the local culture of a place is the key for making cultural distinction in coordination of cultural masses. Creative city is one where these events and phenomena occur [8]. Furthermore, Landry believes that being creative is relatively easy individually or organizationally. The creativity of a city is a different assumption which is a combination of culture and requires utilization [9]. The idea of a creative city is a completely positivist theory and emphasize on this issue that any relation of citizens with organization and etc. should be completely mutual and based on removing urban problems and position of quality of life. The theory of creative city tries to enhance and reinforce the mental image of a city better for citizens [10]. Creative city is a phenomenon which might be present in any era; however, no urban environment constantly acts creatively [11]. The creative city idea captures two elements: creative creatures shape a creative city, and an enchantment of imaginative cities will create and attract innovative people aligned to an open and global society [12]. In order to foster creativity we need curiosity about life in all its aspects, imagination to picture what we desire, and will to bring it into being and understanding of desire, emotion and knowledge as the wellsprings of all human behavior to encourage its widespread adoption [5]. The creative city thesis states that creativity - a creative milieu - is an important precondition for innovation to flourish. This thesis includes a variety of ideas and perspectives [13]. Culture and creativity try to motivate the creative cultural industries and promote the city to an international level and focus on attraction of capital and creative class [14].

IV. EVALUATION INDICES OF A CREATIVE CITY

Creativity index can show whether the community actively encourages individuals to express themselves in creative and innovative way and participate in community or not. Creativity can be defined as "the emergence of something proper and excellent from a person, group or community point of view" [15].

European creativity index (EURO): this was an advanced analysis of the progress analysis of creative category and its comparison in 14 European country including Scandinavia, Norway and United States. In this index, the key issue of country's competition in the ability to attract, preserve and develop creative individuals [16].

TABLE I
EUROPEAN CREATIVITY INDICES

Criteria	Index
The sum of the ranking of potential individuals, technology and tolerance divided by maximum likely rank	European creativity index
Creative class: evaluation of creative employed entities (taken from World labor organization about European countries),	Euro talent index
Human capital index: measuring the percentage of 24-64 years old individuals with BA degree and higher	
Scientific talent index: measuring the number of sciences and engineering researches between 10000 workers	
Innovation index: measuring of the number of registered inventions in terms of one million people	Euro technology index
High technology index: the measuring of the number of registered inventions to in terms of one million people	
R&D index: measuring of R&D expenses as part of GDP	
Attitude index: the measuring of attitude towards minority	Euro technology index
Value index: measuring of values and attitudes covering various value system in the country (like religion, nationalism, power, family, women right, divorce and abortion	
Existence instruments: measuring the attitude toward existence instruments, life quality, democracy, devotion, pleasure, entertainment and culture	

Furthermore, Richard Florida has used some indices for formation of creative city in his studies and America which are as follow:

- High technology index: measuring higher technologies or industries
- Innovation index: measuring the number of overt innovations per capita
- Talent index: based on the number of individuals with BA degree or higher
- Cultural melting index: measuring the number of individuals living in the area but born abroad
- Creativity index: combined measurement of innovation, high technology and creative class index

The main argumentation of Florida is that some levels of creativity and innovation are related to open space of environment where creative individuals live. Thus, the combination of population diversity with measurements from creative results including registered inventions has provided a general ranking of creative city [17].

V. CREATIVE CITY INDICES IN ISFAHAN

Art and culture, urban outlook, collective spaces, scientific centers and high institutions, scale, variation, vitality and dynamism of urban spaces, efficiency and efficacy, cooperation, urban identity and communicative technology are indices which were investigated in Isfahan city using secondary data and questionnaire.

Isfahan is considered as the art and cultural capital of Iran, which Isfahan deserves it. Thus, this city is culturally, artistically and historically unique in Iran and some parts of the world. Music has been common in this city from years ago such that even the name of one of the musical instruments is "Isfahan". Nowadays many music artists have risen from Isfahan. The artists of this city are the founders of theatre in Iran and there are many creative artists in film and their in this

city. In terms of literature, this city owns a literal school called "Isfahan school" which is along with poem writing and literary fantasy. The local and traditional foods are one of the most important attractions of communities and are now turned to tourism attraction. A diversity of these foods are prepared in Isfahan, the most known is Biryani. The cultural and artistic activities of this city in the last decade have ascending trend (Table II).

TABLE II
ARTISTIC CULTURAL ACTIVITIES OF ISFAHAN IN LAST DECADES

Artistic and cultural activities	1386	1387	1388	1389	1390	1391
Number of music	22	68	52	151	84	83
Number of film	172	93	66	36	45	61
Number of theatre	38	76	72	91	122	75
Number of written books	-	-	1214	1423	1498	1275
Number of published journals	-	-	59	115	128	146
Number of festivals	-	2	2	2	2	2
Number of exhibitions	44	44	44	44	46	46

Isfahan has been one of the big cultural centers of Iran. In the historical and geographical resource studies, we face with big educational centers that have not been much different from the universities and scientific centers. This city is still considered as one of the most important scientific poles of Iran, furthermore, due to its long history and historical significant in different periods and eras, this city has always benefited from high identity.

This city has many symbols made this city distinct from other cities of the world and it is known all over the worlds by its valuable symbols. On the other hand, art which is the considered as the symbol of Iranian identity throughout the history can be seen abundantly in Isfahan. Cooperation, vitality and dynamism of urban spaces, communicative technology, efficiency and effectiveness were other indices investigated through questionnaire in Isfahan. The results are as follow: concerning cooperation, the highest mean is related to area 6 of Isfahan with value (2.88); the lowest mean is related to area 11 that is (2.21). Concerning vitality and dynamism of urban spaces, the highest mean is related to area 6 with mean value (3.48) and the lowest is related to area 14 with mean value (2.47). Concerning efficiency and effectiveness, the highest mean is related to area 6 with mean value (3.16) and the lowest is related to area 14 with mean value (2.48). Concerning communicative technology the highest mean is related to area 6 with mean value (3.51) and the lowest is related to area 14 with mean value (2.71).

In overall, the highest mean in Isfahan is related to communicative technology which is 30.04 and then vitality and dynamism of urban space which is 2.90, effectiveness and efficiency with mean value 2.81 and finally cooperation with mean value 2.43. Concerning the statistics, if we consider 3 as the average limit, the communicative technology with average value 3.04 and cooperation with average value 2.43 are average to low. Cooperation which is one of the main grounds of creative city is lower than average (Table III).

TABLE III
AVERAGE RESPONDING TO RESEARCH VARIABLES

Areas of Isfahan city	Participants	Vitality and dynamism of urban spa	Effectiveness and efficiency	Communicative technology
	Average	Average	Average	Average
1	2.81	3.37	2.98	3.45
2	2.56	2.76	2.87	3.16
3	2.50	3.37	2.93	3.25
4	2.45	3.31	3.02	3.23
5	2.50	3.29	3.01	3.30
6	2.88	3.48	3.16	3.51
7	2.38	2.38	2.76	2.82
8	2.25	2.82	2.79	2.91
9	2.32	2.71	2.71	2.85
10	2.37	2.72	2.76	2.95
11	2.21	2.70	2.67	3.15
12	2.39	2.68	2.80	3.13
13	2.38	2.81	2.78	3
14	2.38	2.47	2.48	2.71
15	2.44	2.71	2.57	2.73
City	2.43	2.90	2.81	3.04

VI. DATA ANALYSIS

In the present study, TOPSIS model has been used for classification of fifteen areas of Isfahan. This model was proposed in 1992 by Chen and Huang. It is one of the common and most applicable methods among MADM which is based on the calculation of options distance from the positive and negative ideal solutions [18]. In this study, 23 indices were investigated for classification of fifteen areas including: X1- the ratio of music institutions in every 10,000 individuals, X2- the ratio of shops and music manufacture producer in every 10,000 individuals, X3- the ratio of cinema institutions in every 10,000 individuals, X4- the ratio of cinema salon in every 10,000 individuals, X5- the ratio of publications in every 10,000 individuals, X6- the ratio of media in every 10,000 individuals, X7- the ratio of book selling store in every 10,000 individuals, X8- the ratio of libraries in every 10,000 individuals, X9- the ratio of literary associations in every 10,000 individuals, X10- the ratio of restaurants in every 10,000 individuals, X11- the ratio of coffee shops in every 10,000 individuals, X12- the ratio of museums in every 10,000 individuals, X13- the ratio of collective spaces in every 10,000 individuals, X14- the ratio of educational centers in every 10,000 individuals, X15- the percent of each area, X16- the population of each area, X17- the ratio of identity making symbols in every 10,000 individuals, X18- the ratio of urban perspectives (symbols and statute) in every 10,000 individuals, X-19, the percentage of entering immigrants in each area, X-20- the average participation of people in city affairs of each area, X21- the average revival of urban spaces in each area, X22- the average efficiency and efficacy of spaces in each area, X23- the average communicative technology in each area.

TABLE IV
BENEFITIG LEVEL AND AREAS' CLASSIFICATION

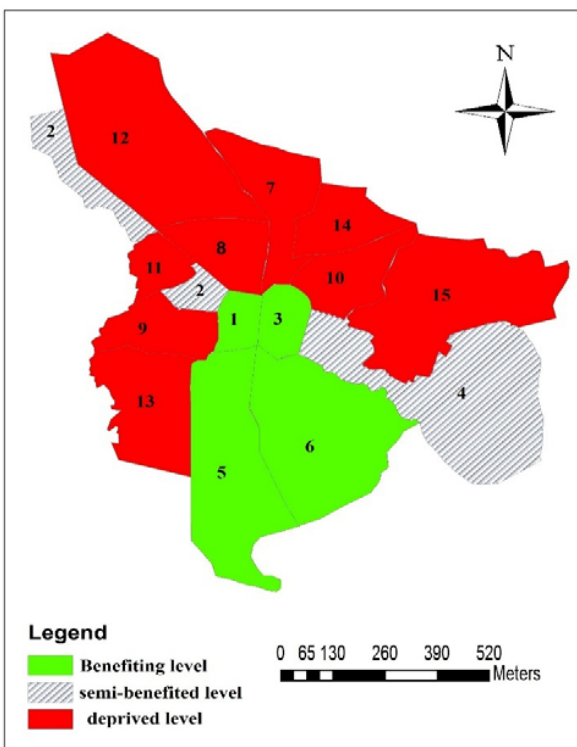| Areas	Benefiting level	Rank
1	0.54289	1
2	0.146583	6
3	0.415027	3
4	0.21915	5
5	0.487198	2
6	0.304217	4
7	0.048567	11
8	0.040852	13
9	0.061813	9
10	0.043961	12
11	0.075313	8
12	0.056967	10
13	0.023234	15
14	0.029743	14
15	0.084527	7

Fig. 2 The benefiting level of Isfahan areas in terms of creative city indices

According to Table IV and the selected variables, rank 1 is for area 1 in terms of creative city indices with mean value 0.54 Area 5 is the second rank with average value 0.48 area 3 is the third rank with mean value 0.41. Furthermore, area 6 is at rank 4 with mean value 0.30, area 4 is at rank 5 with mean value 0.21, area 2 is at rank 6 with mean value 0.14, area 15 is at rank 7 with mean value 0.08, area 11 is at rank 8 with mean value 0.07, area 9 is at rank 9 with mean value 0.06, area 12 is at rank 10 with average value 0.05, area 7 is at rank 11 with mean value 0.048, area 10 is at rank 12 with mean value

0.043, area 8 is at rank 13 with mean value 0.040, area 14 is at rank 14 with mean value 0.029, area 13 is at rank 15 with mean value 0.023 which is the last rank.

For better knowledge of area in terms of benefiting from creative city indices and determining the priority with reference to the obtained results, TOPSIS model was investigated at three levels of fully benefiting, half-benefiting (average) and least benefiting (deprived), the results are as follow:

Areas 1, 3, 5 and 6 with mean priority coefficient 0.43 are at the first level that is benefiting level.

Areas 2 and 4 with mean priority coefficient 0.17 are at the second level (semi-benefited).

Areas 7, 8, 9, 10, 11, 12, 13, 14, 15 with mean 0.04 are the third level (deprived in terms of creative city indices) (Table V).

TABLE V
THE BENEFITING LEVEL OF ISFAHAN CITY AREAS IN TERMS OF CREATIVE CITY INDICES

ROW	Areas	Priority coefficient (rank)	Mean priority coefficient	Benefiting level
1	1	0.54	0.43	Benefiting
2	5	0.48		
3	3	0.41		
4	6	0.30		
5	4	0.21	0.17	Semi-benefiting
6	2	0.14		
7	15	0.08	0.04	Deprived
8	11	0.07		
9	9	0.06		
10	12	0.05		
11	7	0.048		
12	10	0.043		
13	8	0.040		
14	14	0.029		
15	13	0.023		

TABLE VI
THE INVESTIGATION OF NORTH AND SOUTH AREAS OF ZAYANDE ROOD

Title	Areas	Priority coefficient (rank)	Mean priority coefficient	Benefiting level
Southern area of Zayande Rood	5	0.48	0.26	Benefiting
	6	0.30		
	13	0.023		
North areas of Zayande Rood river	1	0.54	0.14	Deprived
	3	0.41		
	4	0.21		
	2	0.14		
	15	0.08		
	11	0.07		
	9	0.06		
	12	0.05		
	7	0.048		
	10	0.043		
	8	0.040		
	14	0.029		

Furthermore, the north and south areas of Zayande Rood River are compared in terms of benefiting from creative city indices, the results of which are presented in Table VI.

Table VI indicates that the southern areas of Zayahnde Rood River by mean priority coefficient 0.26 has better status in terms of creative city indices in comparison with northern areas of Zayande Rood. In overall, the results of this study indicate that the fifteen areas of Isfahan city are not the same in terms of benefiting from creative city indices.

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