

A Study on Implications of Crowdsourcing Outcomes in Mashhad Municipality Organization

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Abstract

Crowdsourcing a strategic model to attract people interested and excited empower people usually can do what. The objective of this study is to identify and rank the impact of groundsheets in the city of Mashhad. This is a descriptive—survey research. The study population consisted of 3 members of the municipal organization managers in Mashhad and three faculty members and academic experts, which were examined to recognize results of the Delphi technique was used in groundsheet activities of the city of Mashhad. Meanwhile, a questionnaire to assess the impact and effectiveness of dimensions relative to each other based on the technique (DEMATEL) were collected and fuzzy network analysis techniques (FANP) for Super Decision were used. The results suggest that based on the Delphi technique, according to experts 8 factors (idea attraction, investment attraction, reduce costs, simplify the process of urban development, information sharing, decentralized organization, reduce referrals of people and improve the quality of life of citizens) to the main outcomes were identified as crowdsourcing, also using the results of DEMATEL attracted the most effective ideas and improve the quality of life for citizens to have the greatest influence. At the same time results of fuzzy analysis network (FANP) indicated that among mentioned factors, ideal attraction factor and reducing agent referrals showed that the highest and lowest scores respectively

Key words: Outsourcing; Crowdsourcing; Mashhad municipality organization

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INTRODUCTION

Nowadays, given increasing competitive pressures and globalization advances, companies must alleviate their costs and create new opportunities through optimum use of their internal and external sources (Motaref, 2016). Rapid changes in the business have forced senior managers to adopt strategies that both focus on organizations current successes (Beaulieu & Sarker, 2015) and time to invest in activities that enhance the organization's competitive advantage for future success (Lee, Ching, & Hong, 2012). One such technique that is widely proposed for improving the competitive position, outsourcing is that it can lead to competitive advantage, organizations, and optimal use of the opportunities to be successful (Bolat, Zgu, & Yılmaz, 2009). So prepare to respond faster to take advantage of fleeting opportunities and less stable, one of the main challenges for organizations and businesses in the current era is that today's organizations to actually had opportunities to smaller organizations (Geys & Rune, 2015) creating a flexible structure (Ghorbani et al., 2008) and also to take advantage of extensive opportunities outside organizations (Bartels & Lederer, 2009); therefore organizations should be able to take the competition to be able to quickly and appropriately create change. Why put all your efforts for key activities and routines and repetitive and standardized processes are outsourced (Farahani, 2011). According to Drucker, other organizations are not mandatory, but many people have in their hiring activities can be outsourced

services to institutions and external institutions and focus only on the activities for which they exist. This allows organizations to conduct their affairs as they relate directly to organizational goals (Nekouee, 2010). One of the new concepts in Outsourcing, is Crowdsourcing (Andriole, 2010). Despite being new, has experienced a strong growth rate (Beaulieu & Sarker, 2015).

Crowdsourcing concept first described by Howe (2006) has been proposed as means to create exclusive product and foreign experts and consumers are to take the relevant commodity (Howe, 2006). In other words, crowdsourcing, outsourcing is the same but with the difference that instead of giving to one person or to a sum of the deposit (Charalabidis et al., 2014). A combination of two words crowdsourcing and outsourcing means outsourcing to the public's population crowdsourcing other words a form of outsourcing, but not specific to companies or organizations but unknown to many people. Unknown means that a company can build its population. This population also includes people to be efficient and inexperienced (Habibi, 2011). Several definitions expressed for crowdsourcing, Alonso and Liz (2008) states that crowdsourcing is outsourcing tasks to a group of people rather than an employee or contractor is obliged to carry out those tasks. Pedersen and Quinn (2006) states that the length of the tasks web-based crowdsourcing the people money received by the applicants. Brabham (2009) argues that crowdsourcing means providing an online problem-solving and production model that has already been used by for-profit companies, such as Threadless & iStock. Brabham also elsewhere (2008) argues that crowdsourcing is a strategic model to attract people interested and excited by the empower people to deliver superior solutions qualitatively and quantitatively compared to what it can do business as usual. Also, by definition Berger-Helshman and Penin (2011) crowdsourcing way to achieve out of the firm's existing knowledge and Chanal and Karon Fasen (2013) also in this regard that the opening of crowdsourcing means a firm's innovation process for integrating and publishing numerous merits through the web. Is a web-based crowdsourcing business model (Wagner & Majchrzak, 2007), and usually through a public call on the Internet. Crowdsourcing focus on the participation of the population in activities such as problem-solving, development of concepts such as participation in opinion formation, innovation, production and service delivery processes that affect product quality, customer loyalty and satisfaction has a direct effect (Hassanzadeh, 2010). Crowdsourcing focusing on the voluntary participation of the population, in order to produce innovative products (Santani & Gatica-Perez, 2015). One of these methods is to attract and develop ideas; in fact, crowdsourcing, collaboration increased in the framework of "collective wisdom" (Tarrell et al., 2013). According to this framework, in the right

circumstances, groups are remarkably intelligent than the smartest people in their own. The collective wisdom, but in the aggregate they are of average solutions (Surowiecki, 2004). If it's correct implementation based on existing requirements could be favorable effect on the productivity, cost reduction (Andriole, 2010), reducing time and quickly perform tasks (Beaulieu & Sarker, 2015), increasing the quality (Mutengezanwa et al., 2011) and productivity (Hassanzadeh, 2010) and getting rid of the non-professional activities (Motaref, 2016). Also decentralized, informality, vertical and horizontal communication, lack of information monopoly, is one of the benefits of crowdsourcing (Santani & Gatica-Perez, 2015). Therefore, this study aimed to take advantage of crowdsourcing and release the potential damage that has been developed.

1. PROBLEM STATEMENT

An important issue today, particularly in urban areas and large cities in developing countries is and a lot of research confirms, is formation of the intelligent city concept (Pacione, 2011). With increasing desire of citizens to live in big cities is no secret (Alikhani, Musakhani, & Memarzade, 2014). The concentration of capital, facilities, employment opportunities, housing and services are the main factors tend to live in large cities (Amiri, Azizi, & Taleghani, 2012). It is natural that the process of becoming the world's urban population will increase (Klein, 2010). The United Nations said in its latest report, 54% of the world population lived in urban areas, and is expected to until the year (2050) to 66%. Estimates show a combination of urbanization and population growth areas of the world in the distance up to 35 years, 5.2 billion people will be added to the world population, most of the population growth in the continents of Asia and Africa and certain countries as India, China and Nigeria.

Also, according to World Bank population, urbanization in the country of 52 million and 589 thousand and 754 people per year (2010) to 57 million and 169 thousand people a year (2014), in other words 73% of the population live in large cities. It has become the main choice of people live in cities, local governments in the management and construction with numerous and complex problems facing the citizens see fit (Jahanshahi, 2016). The demand for affordable housing, transportation, the relationship between urbanization and climate change, decentralization and integration and other cities are just a few examples of problems to which city officials faced and to meet numerous hurdles ahead of them and harness them (Morovati, Sharifabadi, & Golshan, 2013), there is the question of how appropriate solutions can be found to solve these problems? The main solution is to move towards smart cities, from the public to help urban development are immersive (Ghorbani, 2008), as a result

of this approach, offering creative solutions and deeper participation in the development of cities will be people (Pedersen, 2013). Due to the increasing population in cities around the world instantly updated, some of the limitations of existing municipal management systems such as budget constraints, or space limitations and the need to exploit the resources of wisdom, innovation and collective ideas towards the so-called to “crowdsourcing” (Bott & Young, 2012). Crowdsourcing (crowd) kind of engagement urban populations in urban problem solving, management, design and development of the city (Marcus & Parameswaran, 2013). The main city crowdsourcing approach, trying to absorb new ideas (Seyfodin et al., 2014) and to share ideas for solving a problem (Hassanzadeh, 2010) or directing efforts to benefit the society for innovation (Morovati, Sharifabadi, & Golshan, 2013) as well as facilitating the development of towns (Bott & Young, 2012), reducing the reference of people, improving the quality of life of citizens (Amiri, Azizi, & Taleghani, 2012) and investment for urban projects (Santani & Gatica-Perez, 2015). However, according to Article 11 of the Directive Council of Ministers to become the cultural capital of the Islamic world in Mashhad, crowdsourcing projects, urban planning, cultural, religious, civil and other organizations can Mashhad Municipality the basic solution to this important but it is still clearly articulated mechanism customer about it, there it seems that the root of it, their lack of knowledge of the authorities in crowdsourcing effective urban management in Mashhad. Therefore, given the lack of a coherent and systematic scientific research in this regard, the central question that has puzzled researchers mind this is what is implications of crowdsourcing in the city of Mashhad? How such implications are rated?

2. METHODOLOGY

The methodology of the study in terms of the purpose and terms of nature is descriptive survey. The population of this study, three of the managers of the municipality of Mashhad and three teachers and academic experts who agreed to participate were included in this study, is, that by counting all methods were studied. Crowdsourcing to identify the implications for the organization of Mashhad Municipality of Delphi technique was used so that the implications of crowdsourcing research records were extracted. Then designed a questionnaire based on these factors and the experts in the study were distributed (the first stage of implementation of the Delphi technique) and after gathering the necessary reforms in their questionnaire survey was carried out and then questionnaires were distributed among professionals (the second stage Delphi method) and after collection and review, and effective challenges we extracted from the questionnaire revealed factors specified in the table with

only slight variations with 8 elements (1) were confirmed; In the third round on the final results of the questionnaires and then saturated and theoretical persuasion in the field of study a questionnaire inferred factors for prioritizing the challenge using network analysis model (FANP) was prepared. to measure the impact and effectiveness of dimensions are relative to one another questionnaire based on the technique (DEMATEL) was distributed among experts study were analyzed using SPSS Super Decision.

3. INFERENCE ANALYSIS

AutFirst question: What is implications of crowdsourcing in the city of Mashhad?

DEMATEL techniques that decision based on pairwise comparisons are a variety of methods, given judgment of experts in extracting and structuring of a systematic them by applying the principles of graph theory, hierarchical structure of agents in the system, along with the relationships between these elements provides impact and inspiration, so that the impact of these relationships and their importance will be given a numerical score. The purpose of this study is comparison of the eight criteria used their names in Table 1 below.

Table 1
Notations

Abbreviation	Title	Row
C ₁	Idea attraction	1
C ₂	Investment	2
C ₃	Reduction in costs	3
C ₄	Facilitating the development of towns	4
C ₅	Share information	5
C ₆	Decentralized organization	6
C ₇	Reduce referrals of people	7
C ₈	Improve the quality of life of citizens	8

With each of the five criteria used to compare the value is the name of the value in shown Table 2.

Table 2
Value Used in Research and Equivalents Name

Very high effect	High effect	Moderate effect	Low effect	No effect	Name
4	3	2	1	00.0	Value

For taking all the experts we mean Formula (1) for them:

$$\bar{z} = (x^1 + x^2 + x^3 + \dots + x^p) / p \quad (1)$$

Where p , is number of experts and x^1, x^2, \dots, x^p , respectively comparison matrix paired Certified 1, Certified and Certified p are 2. Table 3 shows the average pairwise comparisons.

Table 3
The Average Opinion of all Experts

	C ₁	C ₂	C ₃	C ₄	C ₅	C ₆	C ₇	C ₈
C ₁	0.00	1.17	2.17	1.33	1.50	3.00	3.17	2.83
C ₂	0.50	0.00	1.83	0.83	1.00	3.33	3.17	2.67
C ₃	0.17	0.17	0.00	0.17	0.33	1.33	1.50	1.17
C ₄	0.50	1.00	1.67	0.00	0.83	2.67	3.33	1.83
C ₅	0.17	0.67	1.33	0.33	0.00	2.33	2.50	1.00
C ₆	0.00	0.00	0.33	0.17	0.17	0.00	1.17	0.17
C ₇	0.00	0.00	0.50	0.00	0.17	0.83	0.00	0.17
C ₈	0.33	0.50	1.17	0.17	0.33	1.50	1.67	0.00

For normalizing the matrix derived from Formulas (2) and (3), we use Table 4.

$$H_{ij} = \frac{z_{ij}}{r} \quad (2)$$

Wherer is as follows:

$$r = \max_{1 \leq i \leq n} \left(\sum_{j=1}^n z_{ij} \right) \quad (3)$$

Table 4
Normalized Matrix

	C ₁	C ₂	C ₃	C ₄	C ₅	C ₆	C ₇	C ₈
C ₁	0.00	0.08	0.14	0.09	0.10	0.20	0.21	0.19
C ₂	0.03	0.00	0.12	0.05	0.07	0.22	0.21	0.18
C ₃	0.01	0.01	0.00	0.01	0.02	0.09	0.10	0.08
C ₄	0.03	0.07	0.11	0.00	0.05	0.18	0.22	0.12
C ₅	0.01	0.04	0.09	0.02	0.00	0.15	0.16	0.07
C ₆	0.00	0.00	0.02	0.01	0.01	0.00	0.08	0.01
C ₇	0.00	0.00	0.03	0.00	0.01	0.05	0.00	0.01
C ₈	0.02	0.03	0.08	0.01	0.02	0.10	0.11	0.00

After the matrix, the matrix of fuzzy relations According to Formula (4) is obtained.

$$T = \lim_{k \rightarrow +\infty} (H^1 + H^2 + \dots + H^k) = H \times (1 - H)^{-1} \quad (4)$$

The Formula (1) is the identity matrix. Table 5 shows the *t* matrix.

Table 5
Matrix of Relations

	C ₁	C ₂	C ₃	C ₄	C ₅	C ₆	C ₇	C ₈
C ₁	0.02	0.10	0.22	0.11	0.13	0.33	0.35	0.25
C ₂	0.04	0.02	0.18	0.07	0.09	0.31	0.32	0.22
C ₃	0.01	0.02	0.02	0.02	0.03	0.12	0.14	0.09
C ₄	0.04	0.08	0.16	0.02	0.08	0.27	0.32	0.17
C ₅	0.02	0.05	0.12	0.03	0.02	0.21	0.23	0.10
C ₆	0.00	0.00	0.03	0.01	0.01	0.01	0.09	0.02
C ₇	0.00	0.00	0.04	0.00	0.01	0.06	0.01	0.02
C ₈	0.03	0.04	0.10	0.02	0.03	0.14	0.16	0.03

The next step is to get all the rows and columns of the matrix *T*. Whole rows and columns according to formulas (5) and (6).

$$(D)_{n \times 1} = \left[\sum_{j=1}^n T_{ij} \right]_{n \times 1}, \quad (5)$$

$$(R)_{1 \times n} = \left[\sum_{i=1}^n T_{ij} \right]_{1 \times n}. \quad (6)$$

The *D* and *R* are respectively matrix $n \times 1$ and $1 \times n$.

Next, the Relationship between the Criteria (*D_i-R_i*) is determined. If *D_i-R_i* > 0 is the Relevant Criterion is effective and if *D_i-R_i* < 0 is the Relevant Criterion is Bonding. Table 6, *D_i + R_i* and *D_i-R_i*.

Table 6
The Effectiveness of the Criteria

Criteria	Impact		
Idea attraction	1.67	1.34	1
Investment	1.58	0.95	2
Reduction in costs	1.33	-0.35	5
Facilitating the development of towns	1.41	0.86	3
Share information	1.19	0.36	4
Decentralized organization	1.64	-1.28	7
Reduce referrals of people	1.76	-1.46	8
Improve the quality of life of citizens	1.44	-0.42	6

Question: How Such Implications Are Rated?

In order to achieve the goal of paired comparisons questionnaire was designed and distributed among the professionals. Due to the phased approach in the study of verbal phrases and fuzzy numbers in Table 7 was used.

Table 7
Phase Spectra Corresponding Verbal Expression

Code	Verbal expression	Fuzzy
1	Equal preferred	(1,1,1)
2	Prefer low to moderate	(1,1.5,1.5)
3	Preferred medium	(1,2,2)
4	Preferred medium to high	(3,3.5,4)
5	Most preferred	(3,4,4.5)
6	Rather high to very high	(3,4.5,5)
7	Rather too much	(5,5.5,6)
8	Too much prefer to be quite high	(5,6,7)
9	Rather quite a lot	(5,7,9)

In this section due to the shape (2), paired comparison tables taken and modified toxic and colleagues (2009) gained weight component and based on that prioritization is dumped. The software is used to calculate the

compatibility of Boucher and its description can be found below.

Gorgus and Boucher (1998) suggested to check the compatibility, two matrix (number of middle and fuzzy number) of each matrix phase and the compatibility of each matrix derived based on computing hours. The rate adjustment fuzzy matrix of paired comparisons are as following:

Step 1: In the first phase to two-phase triangular matrix divide. First of triangular $A^m = [a_{ijm}]$ Numbers judgment matrix is formed and the second matrix $A^s = \sqrt{a_{iju} \cdot a_{ijl}}$ is triangular geometric mean of the high and low numbers $A^s = \sqrt{a_{iju} \cdot a_{ijl}}$.

Step 2: weight vector matrix using your hourly calculated as follows:

$$w_i^m = \frac{1}{n} \frac{\sum_{j=1}^n a_{ijm}}{\sum_{i=1}^n a_{ijm}} \quad (7)$$

Where $w^m = [w_i^m]$.

$$w_i^s = \frac{1}{n} \frac{\sum_{j=1}^n \sqrt{a_{iju} \cdot a_{ijl}}}{\sum_{i=1}^n \sqrt{a_{iju} \cdot a_{ijl}}} \quad (8)$$

Where $w^s = [w_i^s]$.

Step 3: Maximum Eigenvalues for any Matrix Using the following equations.

$$\lambda_{\max}^m = \frac{1}{n} \sum_{i=1}^n \sum_{j=1}^n a_{ijm} \left(\frac{w_j^m}{w_i^m} \right) \quad (9)$$

$$\lambda_{\max}^s = \frac{1}{n} \sum_{i=1}^n \sum_{j=1}^n \sqrt{a_{iju} \cdot a_{ijl}} \left(\frac{w_j^s}{w_i^s} \right) \quad (10)$$

Step 4: Calculate the consistency index by using the following formulas:

$$CI^m = \frac{(\lambda_{\max}^m - n)}{(n-1)} \quad (11)$$

$$CI^s = \frac{(\lambda_{\max}^s - n)}{(n-1)} \quad (12)$$

Step 5: To calculate the mismatch rate (CR), CI index on a random index (RI) divide. If the result is less than 1.0, compatible and usable diagnosed matrix flora. The clock to get the amount of random indices (RI), 100 matrix with random numbers and the condition of the mutual incompatibility of values and average them and has been calculated. But since fuzzy comparisons are always integer values, and even in this case, the geometric mean, screw them into the generally non-integer numbers, even if you use the scale (9-1) hours not be seen from Table random indices (RI) hour. So Boucher produced 400 random matrix re-table random indices (RI) for fuzzy pairwise comparison matrices produced.

Table 8 random indices (RI)

Table 8
Random Indices (RI)

Matrices size	R^m	R^s
1	0	0
2	0	0
3	0.4890	0.1796
4	0.7937	0.2627
5	1.0720	0.3597
6	1.1996	0.3818
7	1.2874	0.4090
8	1.3410	0.4164
9	1.3793	0.4348
10	1.4095	0.4455
11	1.4181	0.4536
12	1.4462	0.4776
13	1.4555	0.4691
14	1.4913	0.4804
15	1.4986	0.4880

Random matrix to produce the first intermediate values triangular fuzzy number randomly [1/9, 9] generated in the interval mutual arrangement. The lower limit value of each triangular number in the [Middle quantity produced and 1/9], and the upper limit of the range [1/9 and quantity of produced middle] of production and finally divided randomly into two random matrix of matrix geometric mean of the middle 1/9 and lower and upper bounds, index them were random. unremarkable inconsistency in the column value RI^m is greater than RI^s . The difference therefore is that the random numbers generated for the middle and upper limits, but the range of random numbers generated the middle number, it pales and therefore less likely to be incompatible in there. Incompatibility with the rate on two-matrix based on the relationships we compare them with the 0.1 threshold:

$$CR^s = \frac{CI^s}{RI^s} \quad (13)$$

$$CR^m = \frac{CI^m}{RI^m} \quad (14)$$

If both of these indicators were less than 0.1, fuzzy consistent matrix. If both were greater than 1.0, the decision will be asked to reconsider the proposed priorities and greater than 1.0 and CR^m (CR^s) only if, the decision to revise the median values (around), fuzzy judgments do it. The super matrix component weight calculation steps are as follows:

The first step is to bring together experts, the geometric mean is used for pairwise comparisons of respondents.

Second, the eigenvector is calculated to obtain the aggregated for each pairwise comparison tables, according to the Formula (15) of the logarithmic least squares method, is used.

$$w_k^s = \frac{\left(\prod_{j=1}^n a_{kj}^s\right)^{\frac{1}{n}}}{\sum_{i=1}^n \left(\prod_{j=1}^n a_{ij}^s\right)^{\frac{1}{n}}}, \quad s \in \{l, m, u\}. \quad (15)$$

Where $\tilde{w}_k = (w_k^l, w_k^m, w_k^u) \quad k=1,2,3,\dots,n$.

The third phase: the formation of a special vector matrices (W_{ij}): This matrix contains special vectors that of paired comparisons for the second phase. Generally, this matrix can be divided into two categories:

(a) Matrix that includes special vectors that relations between the surface (vertical) show. If the two components there is no relationship between the level of the confluence of the two components of the matrix (0,0,0) is placed. Other elements also with respect to the vertical relationship between the components, especially the vector values are obtained from the second stage.

(b) Matrix that includes special vectors are horizontal relationships (the surface) shows. The square and the diagonal matrix of (1,1,1) is. If the relationship between the two components there is no level at the confluence of the two components of the matrix (0, 0,0) is placed. Other elements also with regard to the relationship between horizontal components, especially vector values are obtained from the second stage.

Special attention if the surface of the matrix-vector, one or more elements in the main diagonal (1,1,1) is not because normalization has been done in that column. Therefore, the normalization phase column to gather all the numbers, the median values of fuzzy numbers are dumped into that column. Table 9 shows special vector matrix.

Table 9
For Level 2 to Level 1 Matrix Vector

Item	Comparison
Idea Attraction	(0.188,0.254,0.274)
reduction in costs	(0.164,0.207,0.23)
Decentralized organization	(0.083,0.097,0.123)
The process of urbanization	(0.148,0.186,0.213)
Facilitate information sharing	(0.099,0.12,0.142)
Investment	(0.039,0.042,0.053)
Improve the quality of life of citizens	(0.03,0.033,0.041)
Reduce referrals of people	(0.054,0.061,0.078)

The fourth step: Calculate the final weight levels to calculate the final weight of the components of each level (W_i^*) must matrix-vector product for the interrelations in particular vector the same level in the final weight multiplied by the higher level

$$W_i^* = W_i \times W_{i(i-1)} \times W_{i-1}^* \quad (16)$$

If there is a matrix W_{ii} , it is an identity matrix degree Empathy replace it. In other words, you should use the following formula.

$$W_i^* = I \times W_{i(i-1)} \times W_{i-1}^* \quad (17)$$

The following charts show the final weight.

Table 10
Matrix Final Weight Ratio

Component	Final fuzzy weight	The final weight	Rate
C ₁	(0.188,0.254,0.274)	0.246	1
C ₂	(0.164,0.207,0.23)	0.204	2
C ₃	(0.083,0.097,0.123)	0.099	5
C ₄	(0.148,0.186,0.213)	0.184	3
C ₅	(0.099,0.12,0.142)	0.12	4
C ₆	(0.039,0.042,0.053)	0.044	7
C ₇	(0.03,0.033,0.041)	0.034	8
C ₈	(0.054,0.061,0.078)	0.063	6

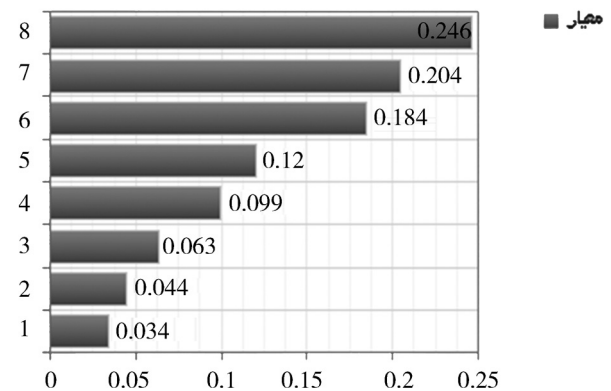


Figure 1
Comparison of Graph Final Weight Ratio

CONCLUSION

Today, companies trying to diversify its business to focus on activities that they know better are that they be driven, so if possible, other activities are given to other companies. One of the useful tools to achieve this crowdsourcing is important. In this study, based on implementing methods that modeling method according to the experts, the higher the value ($D-R$) is more positive than negative however is strong and penetrating cut, permeability is strong. Thus, according to the results, attracting the most effective ideas and improve the quality of life of citizens has the greatest influence. The influential factors, those factors that ($D+R$) larger, yet ($D-R$) are positive, are more important. As well as those factors that influenced factors ($D+R$) larger, yet ($D-R$) smaller, more important factors are high. So absorbed the idea that the most influential factor on investment, reduce costs, simplify the process of urban development, information sharing, decentralized organization, reduce referrals of people and improve the quality of life of citizens. Also according to the results of the test are ranked using fuzzy analytical network process (FANP) was found between the three dimensions (capture ideas,

investment, reduce costs, simplify the process of urban development, information sharing, decentralized latest the organization, reduce referrals of people and quality of life), after absorbing the ideas of the others is the highest and the lowest reduction after referring people to have the impact of crowdsourcing.

RECOMMENDATION

(a) Use Public Relations to call as well as adopt appropriate promotional programs for attracting talented people in this area to implementation of crowdsourcing.

(b) Inclusive setting up a centralized data management system to communicate directly with citizens, to allow them information on issues such as transportation, traffic, environment, urban sanitation and public health, improve the city, improve urban streets and sidewalks and crosswalks streets need collect more, the system can be involved in urban decision-making bodies and institutions and to comment on various issues are as follows:

- Design and distribute free collecting information and ideas of citizens;
- Legal and political environment conducive to participation by the public and the private sector in managing the city;
- Legal and political environment conducive to participation by the public and the private sector in managing the city;
- Consistent communication with the public and provide information and make requests of the social system, facts and suggestions in the normal institutions of government;
- Accountability and transparency of public and private institutions for their actions and decisions.

Creating an integrated system that is able to identify and assess risks before and after transfer of the project from the city of crowdsourcing projects

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