

Assessment and prioritization of business processes with the ability to outsource municipal fuzzy AHP approach(Case Study: Amir kola Municipality)

Ali Sorayaei¹, Shahnaz Bolboli², Zahra Atf³

¹Professor and Faculty member of Islamic Azad University, Babol, Iran,

²Master of Management of Islamic Azad University, Babol, Iran

³Master of Management, lecturer of Payam Noor University,

Abstract: - In the past two decades, the ultra-competitive environment, and more dynamic, Shrek the force to focus on core competencies have mentored .In this situation, one of the efficient approaches for companies is outsourcing. Outsourcing the word go, word abbreviation of the phrase "Outside resource using" is. In recent years outsourcing as a means of improving productivity in organizations and the administrators consider downsizing organizations areand has been implemented in different ways .This study aimed to evaluate the capability of processes, outsourcing was undertaken in municipality Babolusing questionnaires, Delphi method , and municipal experts about the processes by outsourcing the collection. In this study, the fuzzy analytic hierarchy process in order to take advantage of expert opinions and combine them to evaluate and prioritize its influential factors in municipal outsourcing capabilities were used .Based on AHP-FUZZY test to rank the factors and options, with the significance level of 0.4405 construction variables are important factors for outsourcing in the Cityand financial factors, and service are second and third respectively in priority., If it is known variables play a role in the development of the municipalities are outsourcing.

Keywords: - outsourcing, Fuzzy AHP approach, municipalities

I. INTRODUCTION

If the local organization of entities organized to define characteristics of the state and the administrative and financial autonomy is not necessarily a political and aimed at providing public services to local people, with maximum efficiency and effectiveness.(poormoalem,2011)

To be given the breadth of services that offer outsourcing strategy requires the use of. Outsourcing is a form of predetermined external provision to provide goods or services those were previously provided by the organization itself. The outsourcer literature further decisions "make or buy" are related. These resources can be organized into two options activity within the organization and governed by the hierarchy, and outsourcing and placing them under the rule of the market can be divided into. Outsourcing scholars (Hoffman and Shylsr, 2001) and (Chen, 2002), the degree of success in terms of achieving the goals of the outsourcer associated have with outsourcing (Al-Salim,2007)

The main goals of outsourcing include :1)competitive advantage ;2)access to key technologies ; 3)reduce operating costs;4)reduction of risk and risk sharing ;5)access to capital resources and6) focus on the goals., In recent years, outsourcing as a means of improving productivity in organizations and the administrators consider downsizing organizations and has been implemented in different ways.(khodaparast,2011)

Outsourcing or delegating some of the work out of the way like any other manner as may be useful ,if defined and transparent criteria and standards programs have targeted and coherent, strategic, scientific or may not be accompanied by great losses .The purpose and objective of this research by feature outsourced processes at the municipal level Amir Kola considering the increasing Productivity reduction in services and in general agility in decision making and implementation of other important issues related to the city.

II. LITERATURE REVIEW

Outsourcing

According to Corbett (Corbett, 1999) structuring the outsourcing organization's core competencies and external relations. From the perspective of AshnaydrjanZvkhvylr (2004) Outsourcing is the provision of services outside the organization while producing goods and services that represent the rapidly relying on the resources within the organization. In other words, in terms of the Anna outsourcing as a management strategy can be considered the opposite of the strategy is outsourcing. Thus, generally speaking, outsourcing is the transfer of non-strategic processes and the organization to focus on key processes within the organization (Alamtabriz, 2011)

In many cases, synonymous with the term outsourcing decisions of foreign affairs has been used. Expressions such as make or buy, merge or split refers to the outsourcing activities are and some writers refer to the outsourcing decisions have used Vertical Integration. (Motadel, 2011) Today, the term outsourcing contracts traditionally have replaced the traditional sense. However, some authors make the distinction between the two terms. (Mehregan, 2010)

Contracts to acquire items (such as product, component or service) know his company can manufacture and outsourcing is to gain at least knows that the company could not produce more than acting. But people like Shaw and Fair (1997), Lasyty and Hyrshym (1993) Vrvtry and Rabytsvn (1995) show that outsourcing is a form of contracting activities previously carried out by the company, and now it's been given to others. The Kelly and Rashid (2000) is the outsourcing, contracting with external suppliers for activities that were previously performed by the company, or are entirely new activities. (Alamtabriz, 2011)

Types of Outsourcing

In today's world, inland outsourcing - offshore company, offshore - offshore outsourcing company - the company as a key strategic activity are increasingly common. Inland outsourcing - outsourcing company, significant strategic utilization of company resources supply and service contractors for information technology or business processes are continuously. Inland outsourcing - offshore company and offshore outsourcing - outsourcing part in discussions, sometimes used interchangeably but we must be careful of their differences. Outsourcing offshore outsourcing company, outsourcing services from outside the country provides. For example, some of the advanced functions such as call centers, software development, application and management abilities of low-cost countries such as India, the Philippines, Ireland, China, etc. provide. (Bayazit, 2006).

History of Outsourcing

According to Andrew and Nada Kakabads-h (2003) devolution of taxes collected by the contractor (by the government), in Roman times, was the earliest form of outsourcing. In the eighteenth and nineteenth centuries, Britain maintenance of street lights, prison management, highway maintenance, and taxes collected, the activities of the contractors have been granted. At about the same time, the U.S. and Australia, and the French postal delivery, construction and management of the railway lines and the distribution of water resources outsourcing. (Bhattacharya, 2003)

On the other hand we can say that outsourcing decisions are sort of "build - Order" in [10] and the oldest studies of outsourcing under this title. A later economic issue in the context of the theory of cost the transaction has been modeled, (Kahraman, 2008)

And theoretical bases of all the outsource often referred to "the transaction cost economics (swap) » "Kavz" . (Mehregan, 2010) Discussion of nature theory (Kavz) that the use and benefit of the market, the high cost is empty. When you purchase products or services, we will cause those costs if the cost is too high, relying on the "production" is appropriate. (Al-Salim, 2007)

During the Industrial Revolution of the early 1980s, manufacturing strategy was based on a foundation of process and production requirements or orders received all the goods within the organization based on the facilities and the existing employees. However, due to the face of many difficulties, the direction of movement during recent decades in the specialization of activities, allocating responsibilities and planning issues have been smarter in this way, strengthening core competencies, achieves the target markets provide a competitive advantage. Obviously, specialization and thus limiting the scope, if possible, reduces blood was tasks to be delegated part of the system, which indicates the beginning of a particular topic as it is the outsourcing. (Ellahi, 2010)

Mehregan and colleagues (2012) in a research "offering a MADM model for outsourcing of business processes using analytic network process technique" showed; nowadays, outsourcings as one of the most effective strategies are known in the business world. In this context, the outsourcing of business processes as one of the most common forms outsourcing is considered. This paper presents a model for multiple attribute decision making processes outsourcing company is the main inflorescence. The presentation of this model, after

doing preliminary research and scientific documentation, 19 indicators that influence the supplier selection process outsourcing extracted Industry experts applying these criteria, four of compatibility, cost, quality and reputation of the supplier due to their high base and the strategy of the outsourcing company trunk Azin was used. Due to the specific characteristics of the analytic network process in such environments, the ability to use the relationship between these methods and criteria to rank the three options closely outsourcing was not carried out as far. The results indicate that outsourcing as nearly as far towards outsourcing and the outsourcing of non-performance was rated higher priority.

III. RESEARCH HISTORY

In 2002 Ati et al & Tising, factors such as leadership, smart, good relationships and understanding the factors affecting aspects of strategic human resource outsourcing activities, considered. Ghily&Ghir&RashRaushee, in 2004, the harvest of outsourcing, which transferring part of the activities of companies and other organizations to reduce the burden of incumbency in the study were considered. Lory, in 2004, due to the failure of outsourcing maintenance activities an organization review and it gives the new tasks and to solve problems. The main problem was the fact that this excuse to reduce costs and increase the productivity of their core activities were outsourced. Another problem occurs due to loss of its dedicated and experienced staff that has many years of expertise in the specialty they retire or leave the organization. Categories selection of suppliers of the conditions for effective communication with and management of these relationships will be among the cases that have a significant effect on the outcome of outsourcing maintenance activities.

IV. MATERIALS AND METHODS

Study due to its nature, such research fact (causal - comparative) is considered. Because it has been tried it that causes an effect (silent treatment organization) understands. Methods of data collection and analysis in both theoretical study and evaluate the literature include:

1 - Studies library for data collection in the field of literature and the literature of library resources, articles, books, and related laws, and is used worldwide web.

2-The use of questionnaires and interviews in order to collect data from the questionnaires and interviews were used for data analysis. In this study, the identification of indicators and options silence Organization expert opinion on this item questionnaire with Likert asked, then the data in SPSS was used and the factors that have an average of less than 0.03 were excluded. In the second phase, a questionnaire was designed according to the concept of hierarchical fuzzy and of 80 principals in the province has a government agency. The purpose of the questionnaire paired comparison of criteria in each level according to the criterion is at a higher level.

There are different methods in which their difference is on theory structure. Computation and complication of these methods leads to non-usability of these methods. Where change analysis method is easier than other FAHP method and is similar to traditional AHP. We preferred them to other methods in this study. Extent analysis method has been introduced by change in 1996 and is a Chinese researcher. Used numbers in this method are triangle phase numbers. (Bozbura, et al, 2006: 360) in extent analysis method, for every couple comparing matrix row, S_k value is a phase number and is computed as:

$$S_k = \sum_{j=1}^n M_{kj} \times \left[\sum_{i=1}^m \sum_{j=1}^n M_{ij} \right]^{-1} \quad (1)$$

Whereas:

$$\left[\sum_{i=1}^m \sum_{j=1}^n M_{ij} \right] = \left(\sum_{i=1}^m \sum_{j=1}^n l_{ij}, \sum_{i=1}^m \sum_{j=1}^n m_{ij}, \sum_{i=1}^m \sum_{j=1}^n u_{ij} \right) \quad (2)$$

By reversing above relation, we have:

$$\left[\sum_{i=1}^m \sum_{j=1}^n M_{ij} \right]^{-1} = \left(\frac{1}{\sum_{i=1}^m \sum_{j=1}^n l_{ij}}, \frac{1}{\sum_{i=1}^m \sum_{j=1}^n m_{ij}}, \frac{1}{\sum_{i=1}^m \sum_{j=1}^n u_{ij}} \right) \quad (3)$$

k indicates row number, I, j indicates chooser and indicators.

After computing s_k we should get their greatness ratio to each other. In general, if M_1, M_2 were two phases number, their greatness ratio would be computed as:

$$V(M_1 \geq M_2) = 1 \quad \text{if } m_1 \geq m_2$$

$$V(M_1 \geq M_2) = hgt(M_1 \cap M_2) \quad o.w \tag{4}$$

in equation 4 , we have:

$$hgt(M_1 \cap M_2) = \frac{u_1 - l_2}{(u_1 - l_2) + (m_2 - m_1)} \tag{5}$$

The amount of number greatness of triangle phase number from k other fuzzy number would be achieved by equation here:

$$V(M_1 \geq M_2, \dots, M_k) = V(M_1 \geq M_2, \dots, M_1 \geq M_k) \tag{6}$$

In order to compute indicators weight in couple matrix comparing , we have:

$$W'(x_i) = \min \{V(S_i \geq S_k)\} \quad k = 1, 2, \dots, n, k \neq i \tag{7}$$

At last, indicator vector weight would be as:

$$W' = [w'(x_1), w'(x_2), \dots, w'(x_i)] \tag{8}$$

Normalized weight would be as:

$$W_i = \frac{W'_i}{\sum W'_i} \tag{9}$$

w is fuzzy number (Shojaee, 2009;34)

Data analysis

According to the steps listed weight of each index options and gain the weight each is calculated in the table below:

Coefficients relative importance Options	Weight Indicator	Weight options	Options	Index
0.1239 0.0625 0.0369 0.0593 0.0877 0.0267 0.0426	0.4405	0.2813 0.1418 0.0837 0.1346 0.2013 0.0606 0.0967	*Cutback Asphalt city *Sidewalks of the city *Tessellation city streets *Execute work schedule and atmospheric alleys and streets of the city center *Repair pathway drilling and carving city *Implementation of planting lawns and parks *Run electrical and plumbing installations in the city	Construction
0.1495 0.0607 0.413 0.0832 0.0579	0.3926	0.3807 0.1547 0.1053 0.2119 0.1474	*Purchase and transport of mixed sand and rock bass and municipalities *Purchase 2 cm carrying rubble City *Buy seasonal plants and seedlings for landscaping *Buying Appliances for lighting the city *Buying oil paints for painting on street	Financial
0.1216 0.0142 0.0311	0.1669	0.7285 0.0853 0.1862	*Maintain and discharge of municipal green space *Run mural, tables and graphic design in the city *Run the waterfront sculpture and statues of scholars in the fields	Service

The results show that , purchase and transport of mixed sand and rock bass and municipalities , foundations and asphalt city , storage and discharge of municipal green space , drilling and carving a path to restore the city , purchasing appliances for lighting the city , sidewalks of the city , shopping and transport rubble 2 cm to the municipality , implementing work schedule and Atmospheric middle of alleys and streets of

the city , buy color oil for painting the street , run electric utilities and pipelines in the city , buying flowers seasonal plants and seedlings for landscaping , parquetry city streets , enforcing the waterfront sculpture scholars in fields , lawns and planting run Park and city-wide mural , tables and graphics ratings first XV have won .

V. CONCLUSIONS

Based on AHP-FUZZY test to rank the factors and options, with the significance level of 0.4405 construction variables are important factors for outsourcing in the City ,important financial variables selected by 0.3926 and services with the .1669 second and third variables are important.

Variables are development options to prioritize the chorus :

Cutback asphalt streets, digging and carving the path to restore the city, making the city sidewalks, alleys and streets of the center of Atmospheric implement work schedule and city-run electric and plumbing installations in the city, St. tessellation city and run parks, lawns and planting rank first and seventh, respectively, were acquired.

Prioritize financial variables as chorus options are :

Buying and carrying sand bass and mixed mountain municipalities, purchasing appliances for lighting the city, shopping and transport rubble 2 cm to the municipality, buy color oil for painting the street and buy flowers, plants and seedlings season for green areas ranked first and fifth, respectively, were acquired.

Prioritize services for chorus variable options are :

Storage and discharge of municipal green spacerun the waterfront sculpture ,statues and scholars in the fields of graphic design and implement a city-wide mural and tables respectively ranked first and third respectively.

And of those ,among all the sub-factors of buying and transporting sand and rock mixture to the Municipality of financial variables were in the priority factors.

REFERENCES

- [1] Alamtabriz.A, Shayesteh R. (1390), assessment and prioritization of business process outsourcing in the State Tax Taxation fuzzy TOPSIS approach, taxes, spring and summer; New era - 19 (10 (Issue 58)) :189-220.
- [2] Al-Salim, Bashar. (2007), "Decision Models for Manufacturing Outsourcing", Ph.D Dissertation, University of Nebraska
- [3] Amy, Lee.H.I. Wen-Chin , Chen. and Chiang-Jan Chang (2006). "A fuzzy AHP and BSC approach for evaluating performance of IT department in the manufacturing industry in Taiwan." Expert Systems with Applications. pp. 1-12.
- [4] Bayazit, O. (2006). "Use of analytic network process in vendor selection decisions", Benchmarking An International journal, Vol. 13 No. 5, pp. 566-79.
- [5] Bhattacharya, S., Behara, R. S., & Gundersen, D. E. (2003). "Business risk perspectives on information systems outsourcing". International Journal of Accounting Information Systems, Vol. 4, No.1, pp. 75-94.
- [6] Bevilacqua , M. Ciarapica , F.E. and G.Giacchetta. (2006). "A Fuzzy QFD Approach to Supplier Selection." Journal of Purchasing and Supply Management, pp.14-27.
- [7] Cao Q & Wang Q. (2007). "Optimizing vendor selection in a twostage outsourcing process", Computers & Operations Research 34, 3757 – 3768.
- [8] Elahishaban, Salami H., Khawaja M. (2011) present a model of multi-criteria decision making for outsourcing of business processes using analytic network process technique; 3 (6) :17-30 .
- [9] ElahiShaban, police Nadia-Shayan Ali (2010), improving information systems outsourcing management ninth day Spring-Summer 1389 No. 23
- [10] KhodaparastMashhadi M, Solomon M. Farr, Taherid M. (2011) Evaluation of the efficiency distribution process outsourcing company Mashhad, 17 () :213-239 .
- [11] Kahraman C., Engin O., Kabak O., Kaya I. ;IS outsourcing decisions using a group decision-making approach; Engineering Application of Artificial Intelligence 22 , 2008
- [12] Motadal, Afsharkazmy MA, Open Hand, Sara (2011) A model for decision support information technology outsourcing projects using the method of group decision-making; 23 (89) :1-14 .
- [13] Mann A., Kauffman R.J., Han K., Nault B.R.(2011). "Are there contagion effects in information technology and business process outsourcing?", Decision Support Systems, in press
- [14] pormoalem, N. (2011), Engineering Outsourcing Transportation, Department of Transportation - Department of Education, Research and Technology