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Providing an outsourcing model of service activities in electricity distribution companies

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Abstract

Organizations outsource the execution of some of their services in order to achieve benefits such as reducing costs and focusing on their main activities. In the same direction, the present research was carried out with the aim of providing a model of outsourcing of service activities in Tehran Electric Power Distribution Company in 1401. The research method was based on practical purpose and descriptive-survey in terms of data collection. The statistical population included the employees of Tehran Electric Power Distribution Company, and the statistical sample was considered to be 385 people using simple random sampling method and Cochran's formula for limited communities. The data collection tool was a questionnaire derived from the concepts and categories extracted from the literature review and related researches. In order to achieve the main goal of the research in achieving the outsourcing model, the Delphi method was used to establish the agreement of the indicators and final components, and at the end, the validation of the obtained model was done with the structural equation modeling method and the use of SPSS software. The correct management of the categories of the presented model can be effective in the successful application or effective development of the outsourcing of service activities.

Keywords: Outsourcing, Technology Infrastructure, Standardization, Technology Improvement, Empowerment, Electricity Distribution Company.

1. Introduction:

Outsourcing, like other scientific subjects, has different definitions from different points of view. Outsourcing in its basic concept means that the employees leave a part of the company's activities outside, and in fact, they leave the process and the work is done by the employees supplying that activity. This concept of outsourcing is known as traditional outsourcing, and in new outsourcing, employees are not actually moved, and a new service is used by a company in the set of business processes of the same company [1].

In any case, if a definition is to be expressed more comprehensively, it should include all aspects of outsourcing and various categories, outsourcing transfer or representation to a service provider or operation along with the day-to-day management of the business process. Is. Based on this, the customer receives more specific services on business-related process topics, the set of which completes the business process [2]. The purpose of outsourcing is to reduce costs, increase quality, or free up some company resources to allocate them to things that have a higher priority. In recent years, there have been many changes in the management of organizations and the structure of organizations has caused changes in management practices. At this time, organizations have to adapt themselves to the existing conditions and environment in order to achieve high efficiency and effectiveness. New organizations carry out their main activities according to their key forces and, while analyzing, entrust the activities that can be done outside the organization to expert forces outside the organization. In the hope that the contractors and forces outside the organization can do it better and at a lower cost in terms of economy, according to the relevant expertise [3]. Outsourcing as a strategy or at a lower level an inevitable policy is necessary to improve the efficiency of activities. Outsourcing is increasingly used as a basic solution by organizations that seek to focus on core

competencies, reduce operational costs, and increase service delivery. Many organizations choose and follow the process of outsourcing their organizational activities in order to maintain their competitive advantages in front of their competitors and reduce investment risks. In fact, today's organizations are forced to create a flexible structure and benefit more from the facilities outside the organization in order to use fleeting and less stable opportunities [4].

Considering that the responsibility of distributing electric power in Iran up to the level of 63 kV is the responsibility of regional power companies in Iran, and gradually the responsibility of higher voltages was added to it, and after a while, the responsibility of production and transmission was assigned to these companies. Of course, over time, problems arose in practice, which were studied in the headquarters of the electricity industry to deal with them, and according to the law of the first economic, social and cultural development program of the country and the policy of the Islamic Republic of Iran government to hand over service works to the private sector. The creation of independent and non-governmental companies that are responsible for the distribution of electricity took root, and after preparing the preparations for obtaining the necessary permits, electricity distribution companies were established.

2. Necessity of conducting research:

Trying to improve and effectively and efficiently use various resources such as labor, capital, materials, energy and information is the goal of all managers of economic organizations and industrial production units and service institutions [5]. The existence of a suitable organizational structure, efficient implementation methods, healthy work tools and equipment, a balanced work environment, and most importantly, qualified and competent human resources are among the necessities that must be taken into account by managers in order to achieve optimal productivity. One of the basic solutions for economic and

service organizations, especially electricity companies (which are facing major problems), is outsourcing [6]. Outsourcing is considered a fundamental feature of organizational restructuring, which has significantly changed the traditional boundaries of organizations. Therefore, organizations that are completely successful also use this tool to restructure their organizations, and the managers of these organizations have understood as a vital issue that creating key capabilities to meet customer needs is necessary and should be done in Try this way. In the last decade, outsourcing has become one of the most important issues in many businesses [7]. In 2011, more than 82% of small and medium-sized companies outsourced their activities, with service projects taking the first place among outsourcing projects with 39%. Perhaps the reason for this issue is the advantages such as focusing on the basic competence of the company, reducing costs, exploiting the intellectual capital of other organizations, better predicting future costs, acquiring the most up-to-date technologies, improving and increasing flexibility, which are considered for outsourcing service activities [3,5].

According to global statistics, more than 90% of service and industrial companies outsource at least one of their activities, and according to the latest reports, about 30% of them have expressed dissatisfaction with outsourcing after 2 years. Outsourcing includes measurement criteria that show how companies provide a logical combination of planning and execution. The volume of global outsourcing is estimated at 300 billion dollars with more than 20 billion contracts in 2020, which about 10% of users were satisfied [6]. Also, this report shows that some companies that have used outsourcing to achieve productivity and efficiency have been successful and others have failed. Researchers estimate that more than 3 million management jobs will disappear in the United States by 2025 and will be transferred to India, China, Russia, and the Philippines [7]. Therefore, it can be seen that although the outsourcing of service activities

brings many advantages for organizations, it always confronts managers with concerns such as the risks of delegating matters to outside organizations and reducing the quality levels of services. Therefore, it is necessary to carefully review the managerial, organizational, financial and technical solutions of this solution in organizations [8]. If the outsourcing project is not managed well, sometimes it leads to the termination of the contract, the change of the service provider by returning to the mode of using internal resources, and sometimes the cost of terminating the contract and concluding a new contract exceeds the cost of the contracts themselves. Therefore, it can be seen that this study, which aims to provide a model for the outsourcing of service activities in the Great Tehran Electricity Distribution Company by using internal and external studies conducted in the field of outsourcing of service activities and also using the opinions of knowledgeable experts in this field It seems that it is of great importance and necessity both from a scientific point of view and from a scientific point of view.

3. Theoretical foundations of research:

3.1. The concept of outsourcing:

In many cases, the functions required for the organization are far from the organization's work area, and if the organization decides to meet this need internally, it causes expansion and lack of concentration in the organization, and also imposes a lot of overhead costs on the organization. Outsourcing occurs when a company or organization transfers all or part of the internal business task to an external supplier [1]. In other words, the organization, as a customer, buys a part of its task and business process from outside the organization. Outsourcing is transferring or delegating to a service provider or operation along with the day-to-day management of business processes. Outsourcing is the act of transferring some of the internal activities of an organization and handing over

the right to make decisions to a supplier outside the organization based on a contract. In order to strategically determine which parts of the work should be outsourced, it must be formulated with the company's strategic plan and considering the vision, mission, main axes of achieving the organization's missions, the organization's basic tasks, the major activities that are required for Organizations create value and the focus of organizational knowledge is strategic outsourcing of planning [3]. Organizations have to rely on their competitive advantages to succeed in today's business world; For this purpose, the outsourcing strategy will be a solution that allows the organization to use the resources, facilities and expertise of other organizations without the organization owning the resources and facilities. Strategic outsourcing is a strategic decision of an organization to hand over an activity that is carried out inside the organization to an external supplier. Therefore, strategic outsourcing is in line with the long-term strategies of the organization [8]. Strategic outsourcing examines the issue of outsourcing according to the future perspective, structure, competitive advantage, performance and current and future costs of the organization. Strategic outsourcing refers to activities related to the main business of the company and activities that can potentially and actually create a competitive advantage and lead to the creation of value for the organization. Since strategic outsourcing is related to changing the boundaries of the organization, it is considered as the main business and strategies of the company [9].

3.2. Benefits of outsourcing:

Outsourcing is one of the strategies that can lead to greater competitiveness of the organization through reducing and controlling operating costs, focusing the organization on core capabilities, benefiting from the skills of experts that are not available internally, improving the quality of work and etc [10]. For

organizations, the outsourcing decision is associated with many considerations due to its strategic requirements. Such a decision can be considered an important factor in profitability and therefore has an important contribution to the financial health of the company. The combination of outsourcing as a business strategy and modularity as a manufacturing strategy has attracted the attention of industries. This integrated strategy, which is called modular supply, has many advantages, such as increasing flexibility, increasing speed and advanced design capabilities, and reducing costs [11]. The advantages of outsourcing include focusing on core capabilities, downsizing, achieving the best performance, controlling and clarifying costs. According to Gartner Research Institute, statistics show that by the end of 2004, one out of every 10 jobs in the US software industry has been transferred to emerging and cheap markets such as India and China, and this trend is increasing rapidly. In America, human resource outsourcing, which has been mostly pursued by large companies, has taken a figure of over 8 billion dollars, which will reach more than three times by the end of 2006 [12]. At the global level, the figure of outsourcing of the financial and accounting sector in 2004 was about 40 billion dollars, which will reach 65 billion dollars in 2007. The total volume of this sector in 2004 was about 200 billion dollars. The total size of the global outsourcing market is estimated at about 386 billion dollars and is expected to increase at a rate of about 25% per year. Also, about 80% of the world's top 500 companies in the Fortune magazine list have outsourced part of their activities, and the outsourcing trend in these companies is increasing [13]. In the following, we review the benefits of project outsourcing:

Helping to focus on the main activities of the organization: When a company is growing and accepting several projects, the backstage of the organization of that company also increases in parallel. This issue may cause the main activities of

the organization to remain incomplete. Outsourcing activities and sub-projects helps to prevent disruption to the company's main projects [14].

Reducing organization costs: When a company outsources part of its activities, the costs related to hiring employees such as training, management supervision, taxes, retirement, etc. are eliminated [11].

Return on investment: When you outsource activities in your desired area, the return on investment to your organization increases. You can even delegate your activities to a team instead of an individual. In this way, you will be sure of better performance and return on investment [15].

Improving conditions in case of lack of space and manpower: Sometimes it happens that the company's work and activities increase to such an extent that it is beyond the responsibility of the employees. If there is not enough budget or space to hire new staff, outsourcing the project is the best solution [8].

Risk reduction: Usually, the costs of starting a business are very high, and since the people to whom the project outsourcing is entrusted have a lot of experience in distinguishing between right and wrong, the risk of making a wrong decision and incurring costs is greatly reduced [2].

Improving operational control: In an organization, there are usually parts that are out of control or have weak management. These are the most important options for outsourcing. In this way, by outsourcing the project, the need for management disappears. On the other hand, the company you outsource to may be able to improve your company's management ability [16].

Improving the ability of internal employees: sometimes a large project may be ordered to a company that is beyond the ability of the employees of that company, in this case, by entrusting the project to people who come from outside the company, the project can be done efficiently and it is also possible It is provided so that the employees of the company are trained and their ability increases in that particular field [17].

3.3. Outsourcing measures:

In many organizations, it has been observed that in addition to the problem of understanding the concepts and basics of outsourcing, its implementation has been done by trial and error without adopting a scientific and systematic method, while an organization that intends to receive outsourcing services effectively needs to have Necessary strategies and infrastructures and adoption of a scientific and comprehensive approach for the implementation of outsourcing [18]. Below is a major part of infrastructure factors and its implementation steps.

Networking of production: The background is network outsourcing or production process. In order to outsource, the company must first know what activities it has for production so that it can decide which activity to outsource and which activity to perform itself. At this stage, the description of the services and the ID card of the activities are defined in a clear and standardized way. Also, technical standards are converted into legal and contractual language and terms, and indicators of work handover are also determined [19].

Selection of activities that can be outsourced (outsourcing methodology): The problem that senior managers face is not the use of outsourcing, but the determination of the activity that should be outsourced. At this stage, it should be known how much outsourcing of any activity helps the organization in reaching its goal? What are the opportunities and threats, and what are its effects (outsourcing) on human resources, methods, costs, etc.? For this purpose, it is better to design a logical framework and a conceptual and systemic model in which the effective variables in outsourcing decisions and the direction of the relationships of these variables are determined, and the result is the selection of outsourceable activities [20]. In this regard, the role of management consultants is key and vital for the proper execution of outsourcing projects based on a scientific

approach. With a scientific attitude, the organization can even outsource its main activity if it still maintains the control mechanism on the main activity. Also, the identification of business risks such as cultural differences of organizations or the risk of not delivering the service on time or the lack of expected quality and limitations in choosing a substitute contractor are important factors in evaluating activities for outsourcing [21-23].

Outsourced accounting: The most important motivation at the negotiating table is the price. If the final price is unclear, both parties will lose. The price of the transaction should be such that both parties are in a win-win situation. Meanwhile, in a competitive situation, the supplier is selected based on the price. Determining such a price requires a cost accounting system for each activity. Evaluating the effectiveness of outsourced activities on financial goals, such as reducing costs or the speed of capital return, is also possible by applying such an accounting system [24].

Selection of service providers: holding a tender, identification and selection of service providers is the next step. At this stage, preparing suitable conditions for requesting proposals and requesting information from contractors and announcing it to product or service providers, access to professional and experienced providers (qualified) and their initial evaluation are important things for a proper outsourcing [25-28]. At this stage, it is suggested to form a team to evaluate the proposed projects with a certificate of activity and description of services. It is added that the relationship between these companies is established through contracts and supervision [29]. Contracts should be concluded transparently and respecting the rights of both parties after negotiation and reaching an agreement. By signing a contract, in fact, a cooperative relationship with other employers has been established, and this is a complete mutual commitment. In the outsourcing of contracting parties, they are part-time colleagues [30,31].

Performance monitoring and integrated control systems with an information and communication technology approach: Organizations that outsource actually create a network of interaction with each other. This network and production chain ultimately leads to the realization of goals such as reducing costs, improving product quality, improving skills, or reducing production time. After the contract, monitoring and controlling the operations of organizations has a vital role, and this requires a comprehensive and coherent communication, monitoring and evaluation program based on delivery indicators, agreements made and goals indicated [32].

3.4. Outsourcing levels:

In a division, outsourcing can be examined in two areas of products (manufacturing) and services (support matters). In the field of construction and production, technology development, manufacturing of parts, components and subassemblies can be entrusted to a supplier for production [33]. Outsourcing can be done in things like the following:

- Support services (guarding and security, janitorial, food service, etc.)
- Warehousing and inventory management
- Project planning and control
- Logistics and transportation
- Services and information services
- Welfare services
- Employee salary affairs (salary list)
- Temporary labor affairs
- Travel services
- Customer satisfaction service [17,25,34].

As a management strategy, outsourcing is frequently seen in the market. Depending on the type and form of the selected outsourcing strategy, the services provided may include the following:

- Professional handling of risks related to a specific operation
- To inform about working conditions
- Logistics and transportation support
- Maintenance of employee documents
- Planning of requirements and materials [35,36].

5. Research Hypotheses

- **Hypothesis H1:** Management factors have an effect on the outsourcing of electricity company activities.
- **Hypothesis H2:** Organizational factors affect the outsourcing of electricity company activities.
- **Hypothesis H3:** Technical and structural factors affect the outsourcing of electricity company activities.
- **Hypothesis H4:** Factors related to contractors affect the outsourcing of electricity company activities.

6. Research Method:

Statistical population: The statistical population included the employees of the Electricity Distribution Company of Iran (Tehran Province).

The sample size formulas and procedures used for categorical data are very similar, but some variations do exist. Since the data are qualitatively and the number of statistical community is unlimited, so the sample size calculation formula is as follows:

$$n = \frac{Z_{\alpha/2}^2 p_0(1-p_0)}{\epsilon^2} \quad (1)$$

In this study, researcher has set the alpha level a priori at .05, plans to use a proportional variable, has set the level of acceptable error at 5%, and has estimated the standard deviation of the scale as .5. Cochran's sample size formula for categorical data and an example of its use is presented here along with explanations as to how these decisions were made.

$$n = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2} = 384.16 \quad (2)$$

Where $Z_{\alpha/2}$ = value for selected alpha level of .025 in each tail = 1.96.

(The alpha level of .05 indicates the level of risk the researcher is willing to take that true margin of error may exceed the acceptable margin of error).

Where $p(q)$ = estimate of variance = .25.

(Maximum possible proportion (.5) *1-Maximum possible proportion (.5) produces maximum possible sample size).

Where ϵ = acceptable margin of error for proportion being estimated = .1

4. Analysis of information

SPSS software was used for statistical analysis and one-sample t-test was used to analyze the statistical hypotheses. We used SPSS 24 to analyze the data. In following the results of test hypotheses are offered:

Testing Hypothesis H1. Management factors have an effect on the outsourcing of electricity company activities.

The results of SPSS are shown below:

Table. 1. One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
H1	385	6.8443	1.01973	.17362

Table. 2. One-Sample Test

	Test Value = 5					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
H1	16.844	384	.000	1.4721	1.09443	1.6832

Testing Hypothesis H2. Organizational factors affect the outsourcing of electricity company activities.

The results of SPSS are shown below:

Table. 3. One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
H2	385	6.8426	1.0964	.17031

Table. 4. One-Sample Test

	Test Value = 5					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
H2	16.8443	384	.000	1.6843	1.6385	2.0591

Testing Hypothesis H3. Technical and structural factors affect the outsourcing of electricity company activities.

The results of SPSS are shown below:

Table. 5. One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
H3	385	6.7392	1.0793	.19831

Table. 6. One-Sample Test

	Test Value = 5					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
H3	15.0946	384	.000	1.7931	1.0588	1.7692

Testing Hypothesis H4. Factors related to contractors affect the outsourcing of electricity company activities.

The results of SPSS are shown below:

Table. 7. One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
H4	385	6.7593	1.0658	.19643

Table. 8. One-Sample Test

	Test Value = 5					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
H4	17.7443	384	.000	1.9653	1.6883	1.9752

Strategies or ways of working that facilitate and guide the movement towards the outsourcing of service activities. Strategies and actions are plans and actions that help to design the model. The strategies that have been identified as factors of operational strategies to achieve results from the quality of participation phenomenon in the current research include; Improving the efficiency of organizational operations, development and empowerment, improving technology and standardization. The most important point in outsourcing is emphasizing the efficiency of organizational operations.

The efficiency of outsourcing activities is greatly affected by factors such as choosing the right contractor, explaining the tasks assigned to the contractor, monitoring the performance of assigned tasks, providing feedback to the organization, solving problems, strengthening the strengths of the outsourcing process, and managing the risk of the outsourcing process. One of the most important risks of outsourcing is choosing the wrong contractor. The process of

selecting a contractor is complex due to the existence of many and sometimes contradictory criteria and requires careful consideration. Selection of competent contractors along with a clear explanation of the duties assigned to the contractor can greatly reduce the probability of failure. The ability to delegate and explain the tasks and expectations assigned to capable and efficient contractors can reduce the risk of outsourcing for organizations as much as possible. Because despite the fact that process outsourcing can bring many benefits to the organization, such risks require serious and effective management and the weakness in recognizing and managing risks is worrying because it can lead to the loss of competitive advantages and the organization pushed to the brink of destruction. Correct and wise management of outsourcing contracts requires monitoring and controlling outsourcing relationships, and giving corrective feedback.

Financial failure of the contractor company is one of the risks of outsourcing business processes; Because when a process is outsourced, it is difficult and expensive to return it to the organization. The risk of financial failure is the risk that may arise due to the financial collapse of the contractor company, and then the only thing that the domestic company can do is to hire the employees of the contractor company, which may also face a strike by the domestic employees. Usually, when concluding outsourcing contracts, companies underestimate production costs, which can include transfer costs, relocation costs, and parallel processing costs. Also, companies may not estimate management costs correctly. The expansion of contracts and the large number of activities that are outsourced have high hidden costs.

The factors related to this outcome include the complexity of the outsourced activities, measurement problems and lack of confidence in the beginning of the work. Internal employees and others may be under financial pressure as much as the outsourcing organization, which causes them to look for opportunities to

commit fraud or extortion. Therefore, they should increase monitoring and identification, management control and coercion and threat within the organization. Measuring the contractor's performance requires careful monitoring of the contractor's activities and continuous control of its operations, which requires spending a lot of money. The employer may reduce its performance to cut costs and cut some of its support. The condition of order management and improvement is to reduce costs and remain competitive. Because basically, the custodian and transferor organization have a suitable development management system, training and growth, but contracting systems are deprived of having such infrastructure systems in terms of the need for investment, and as a result, there is a managerial, technical, skill and system gap between The organization's employees and contractor's employees are created, this affects the integrity of the activity and process.

Conclusion:

Consequences include visible and invisible effective results or outputs that are created as a result of the implementation of outsourcing activities in the organization and are the outputs of employing strategies. This field, which is the result of the implementation of operational strategies regarding the outsourcing of activities, includes three categories of the service organization, the client, and the results related to the final customer. In general, the effects of outsourcing on organizational activities can be listed in the following categories:

1. Consequences for the organization of the client's employer: in the form of financial consequences: cost reduction, better control of resources, better forecasting of costs, conversion of fixed costs to variable costs, reduction of contract costs, reduction of liquidity problems and consequences of internal processes: increasing control of affairs, reducing security threats in the field of confidential

information, increasing attention to the organization's long-term vision, creating more creativity and innovation to improve growth, focusing the organization on its core competencies, creating formal and specialized standards for planning work, reducing bureaucracy and unnecessary formalities, administrative benefits
A more appropriate selection of capacities.

2. Consequences for the service contractor organization: increasing profitability, increasing productivity, reducing the need for specialists in the organization, reducing the need for staff, reducing mental injuries to employees, improving the public image of the organization, learning new specialties, making employees more responsible, developing and exchanging skills and experiences of employees, reducing redundancies, etc.

3. Consequences for customers or clients: improving marketing measures, reducing competition costs, increasing customer orientation, responding appropriately to customers, reducing lagging behind competitors, increasing the volume of orders, speeding up the service delivery process, reducing service delivery costs in the long term and etc.

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