

## Original Article

# Outsourcing of human resources and its impact on the executive performance of companies affiliated to the Ministry of Health

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## Abstract

**Background:** The emergence of global markets and competitors and new competitive strategies based on quality, speed and cooperation agreements have forced managers to adopt new management strategies. The present study aimed to provide a model of human resource outsourcing and its impact on the executive performance of companies affiliated to the Ministry of Health.

**Methods:** The research steps were: to determine the components of human resources outsourcing in the Ministry of Health, to determine the causes of the dynamics of the human resources outsourcing model in the Ministry of Health, and to determine the causal relationships of the components of human resources outsourcing in the Ministry of Health, respectively. First, a level, flow map and model simulation were developed. Then, the model test was performed based on the model validation tests, and finally, policies were designed and evaluated.

**Results:** As strategic factors increase, management factors improve. Social factors lead to the growth of strategic factors. The growth of service-related factors improves technology and quality, and leads to the growth of more economic factors, which ultimately improves the outsourcing of human resources.

**Conclusion:** Outsourcing, which is nowadays considered as a method of assigning a part of the work to the outside of the organization on a contract basis, like any other method that can be useful, might have many disadvantages if it does not have defined conditions and standards.

**Keywords:** Computer Simulation; Health; Outsource Services; Workforce.

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## Introduction

Organizations try to maintain their size to have more power and flexibility while meeting the needs. The specialization of their affairs has forced them to spend a number of the required forces as their core and their energy on these affairs and assign affairs that are not in their main specialty to other organizations. Small and medium-sized businesses spend about 20 to 40 percent of

their time fulfilling the requirements that are the biggest barrier to their production (1). In the last two decades, due to significant advances in the business environment, organizations can benefit from a range of services in areas such as hospitality, safety, design, production, marketing, logistics and information technology. In other words, development of intermediary supply markets accelerates

outsourcing and provides opportunities to improve their competitive position. Most Western organizations first used outsourcing to reduce overhead costs by reducing short-term costs. For example, Chrysler estimated that it would add \$ 325 million to its annual profits in 1997 by increasing outsourcing to external suppliers, resulting in more than \$ 2.1 billion in investment savings (2).

Outsourcing enables customers to use the benefits of reducing supplier costs, such as large-scale production savings and experience. Suppliers may accept investment and development costs, split the risk among many customers, and ultimately reduce supplier costs for all customers (3). Many studies in the outsourcing literature have examined the way of implementing in in the organizations, and fewer studies have been conducted in the area of human resource outsourcing modeling. This model is designed for a high-sensitivity ministry that has a great strategic and economic importance to the country. The dynamic model of implementing human resource outsourcing strategy causes business continuity in the organization in such a way that it enables the organization to keep pace with the changes through this internalized culture and protect itself against unexpected events ahead.

## Methods

### Study design

The present study was a developmental-applied research type with descriptive-causal method and based on pluralism in data. The basic model of human resource outsourcing is presented in Figure 1.

### Scope of research

The scope of research in three temporal, spatial, and thematic dimensions are as follows:

From a thematic point of view, the subject of research is in the area of human resources (designing a model for outsourcing human resources) in the public sector.

From a temporal point of view, this study was conducted for two years from the second half of 2018.

From a spatial point of view, the present study was conducted in a public organization in Iran (Ministry of Health) and the results of data analysis belong to this field. However, in terms of generalizability to similar fields, it can also be the basis for future studies.

### Methods of data analysis

The collected data were analyzed by exploratory factor to properly coded and entered into SPSS software to discover their

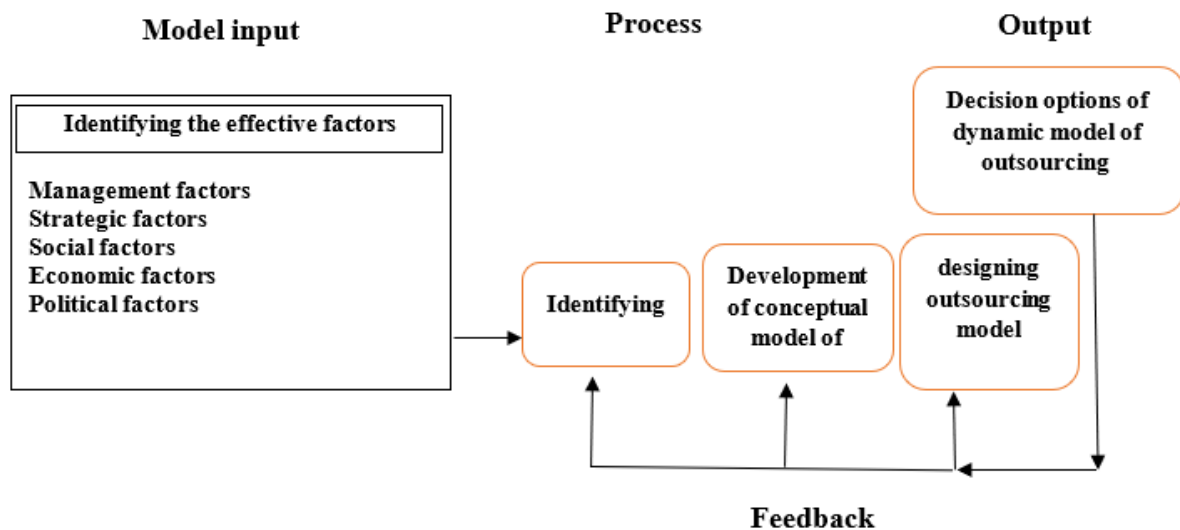


Figure 1. Initial model of human resource outsourcing (Source: research findings)

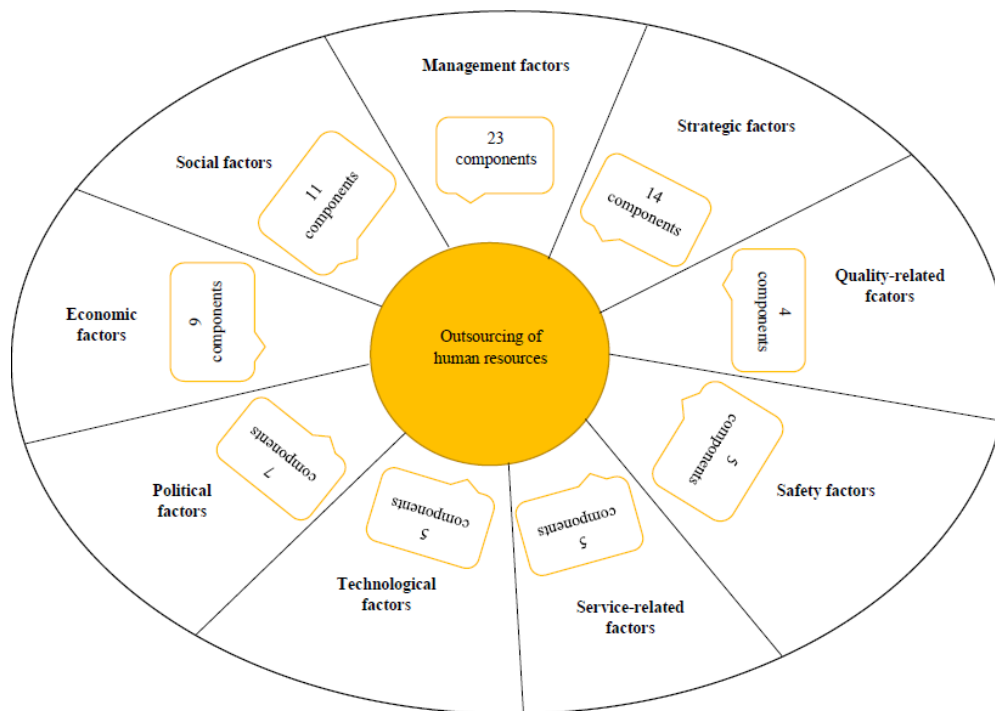


Figure 2. Conceptual model of research (Source: research findings)

factor structure. Then, with the aim of performing confirmatory factor analysis, the measurement models in LISREL software were examined. In this section, the necessary modifications were applied on the factor structure and research variables based on the fit indices obtained from the confirmatory factor analysis. Since many fit indices were affected by the number of samples (GFI, NFI and AFI) and other indices were affected by the ratio of observed variables to latent variables (NNFI and CFI), the main index for the goodness of the fit model were P-value and then the RMSEA.

Factors affecting human resources outsourcing include: The concepts of management factors, strategic factors, quality factors, safety factors, service-related factors, technological factors, political factors, economic factors, and social factors in Figure 2.

#### Reliability

The reliability coefficient (Cronbach's alpha) was used to determine the internal reliability of the questionnaire. In this

regard, values higher than 0.75 indicate acceptable and appropriate reliability for the questionnaire. As seen, the constructs used in this study in terms of reliability have good and acceptable condition in Table 1.

Table 1. The reliability analysis of factors affecting human resource outsourcing (Source: Software output used)

Factors	Cronbach's alpha
Management	0.962
Strategic	0.943
quality	0.802
Safety	0.869
Service-related	0.934
Technological	0.804
Political	0.855
Economical	0.920
social	0.933

*Designing a Human Resources outsourcing model and its impact on the Iran's executive performance in the long term to optimize the outsourcing decision of the Ministry of Health*

In the first stage, 84 components were developed to identify the effective components of human resource outsourcing based on the theoretical foundations of the

research. Then, by conducting in-depth semi-structured interviews with experts of the Ministry of Energy of Iran, 10 other components were identified. By brainstorming with experts, a total of 94 effective components on human resource outsourcing in 10 groups of management factors, strategic factors, quality factors, safety factors, service-related, factors technological factors, political factors, economic factors, and social factors and human resource outsourcing was categorized. The result of this stage led to the preparation of a questionnaire to assess the research structures, which was distributed in the study population after examining its initial validity and reliability. In this regard, exploratory factor analysis and confirmatory factor analysis were simultaneously used. For this purpose, each structure was first analyzed by exploratory factor and based on factor loads and Bartlett test results, the necessary corrections were made on the measures. Then, confirmatory factor analysis was performed on the extracted factor structure to ensure accuracy and precision. Based on the fit indices of the model, the final correction was made on them. After performing exploratory and confirmatory factor analysis for the structures and examining their internal consistency using Cronbach's alpha coefficient, the structures of the human resources outsourcing model were determined

Designing a dynamic model of human resources outsourcing implementation and its impact on the Iran's executive performance in the long term to optimize the outsourcing decision of the Ministry of Health

After designing the initial model of human resources outsourcing, to answer the second research question, the dynamic model of human resources outsourcing in the Ministry of Health was designed. Based on the experts' opinions and research results in the research literature, a dynamic hypothesis was perceived. This dynamic

hypothesis can be considered in the form of a reinforcement loop called the human resource outsourcing loop.

Regarding the reinforcing feedback loop, it can be stated that with increasing strategic factors, management factors are improved. It should be noted that social factors lead to the growth of strategic factors. The growth of service-related factors and technological factors increases the quality factors and thus leads to the growth of more economic factors, which ultimately improves the outsourcing of human resources. After formulating a dynamic hypothesis, using the semi-structured interviews with experts, cause and effect relationships between the components of human resource outsourcing were determined and accordingly a causal diagram was designed.

According to the dynamic hypothesis, all outsourcing themes were divided into identified factors and causal relationships were established between them. In the stage, they were divided into key research variables in two forms of endogenous and exogenous variables. In the next stage, based on the relationships between independent and dependent variables and based on data collected from the study population, surface and flow diagrams were simulated using Vensim software. Given the objective modeling, which was to investigate the factors affecting the outsourcing of human resources, the following levels were selected for decision making:

Level of strategy development, level of contract affairs, level of job identification, level of recruitment, level of planning, level of reward system, level of safety and health, level of updating, level of nature of technology, level of welfare and motivation

To examine the internal factors underlying the brand, 94 items were considered in the prepared questionnaire and were placed among the sample people. We first used exploratory factor analysis to examine

Table 2. Extracted factors and percentage of variance explained by the components of factors affecting human resource outsourcing

Component	Initial eigenvalues			The sum of squares of extracted factor loads			The sum of squares of extracted factor loads after varimax rotation		
	Total	Percentage of variance	Percentage of cumulative variance	Total	Percentage of variance	Percentage of cumulative variance	Total	Percentage of variance	Percentage of cumulative variance
1	13.79	16.61	16.61	13.79	16.61	16.61	12.69	15.29	15.29
2	7.8	9.38	25.99	7.78	9.38	25.99	8.16	9.83	25.13
3	6.59	7.94	33.92	6.59	7.94	33.92	6.79	8.18	33.31
4	5.67	6.83	40.76	5.67	6.83	40.76	5.63	6.79	40.10
5	4.19	5.04	45.80	4.19	5.04	45.80	4.05	4.87	44.97
6	3.79	4.56	50.36	3.79	4.56	50.36	3.91	4.71	49.69
7	3.17	3.82	54.19	3.17	3.82	54.19	3.39	4.09	53.77
8	2.76	3.33	57.51	2.76	3.33	57.51	2.94	3.55	57.32
9	2.50	3.01	60.52	2.50	3.01	60.52	2.65	3.19	60.51

whether the desired structures were could measure the target.

The KMO (sampling adequacy) value is 0.874 and the significance level of Bartlett sphericity test is 0.0009. Therefore, in addition to sampling adequacy, the implementation of factor analysis based on the studied correlation matrix was also justified.

According to the results of the extracted factors table and the percentage of variance explained by the components of the factors affecting the outsourcing of human resources shown in Table 2, the eigenvalues of the 9 factors were larger than 3, accounting for approximately 60% of the total variations. Among them, the eigenvalue of the first factor is 16.61, the eigenvalue of the second factor is 9.38, the eigenvalue of third factor was 7.94, the eigenvalue of fourth factor was 6.83, the eigenvalue of fifth factor was 05.04, the eigenvalue of sixth factor was 4.56, the eigenvalue of seventh factor was 3.82, the eigenvalue of eighth factor was 3.33 and the eigenvalue of ninth factor was 3.01.

Confirmatory factor analysis of structural factors affecting human resource outsourcing

The values of CFI, GFI were 0.981 and 0.754, respectively, the value of RMSEA was 0.025 and the ratio of chi-square to the degree of freedom was also less than 3

(1.161). Thus, the structure designed to measure the factors affecting the outsourcing of human resources seems to be appropriate.

#### Reliability

The reliability coefficient (Cronbach's alpha) was used to determine the internal consistency of the questionnaire. In this regard, values greater than 0.75 indicate acceptable and appropriate reliability Table 3. As seen, the structures used in this study have an appropriate and acceptable status in terms of reliability.

Table 3. Reliability analysis of the factors affecting human resource outsourcing

Factors	Cronbach's alpha
Management	0.962
Strategic	0.943
quality	0.802
Safety	0.869
Service-related	0.934
Technological	0.804
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Economical	0.920
social	0.933

## Results

### Demographic information of the respondents

Examining the gender of employees shows that 88.3% of them are male and 11.7% are female. Table 4 shows the frequency distribution of the gender of the statistical sample.

The level of education of the employees who completed the questionnaire was measured in the form of a rank variable at five levels (under diploma, diploma, associate, bachelor and master and above).

According to Table 4, the largest number of people (54.6%) had a bachelor's degree and the least 5.9% had a post-diploma degree, and in terms of employment, 17.6% of employees had more than 20 years of experience and 26.3% of employees had less than 5 years of experience. 50.2 percent of the samples were between 31 and 40 years old. The variable related to organizational post including the levels of managers, experts, managers, operating staff, and others is stated in Table 4.

*Results of qualitative phase*

A dynamic hypothesis is an efficient theory of how a problem arises. Model developer, as facilitator, tries to receive the mental models of the people involved in the problem and the experts related to the subject. Accordingly, the dynamic

Table 4. Demographic information of the participants

	Variable	N.	%
Gender	Male	1810	88.3%
	Female	240	11.7%
Education Degree	High school	120	5.9%
	Diploma	530	25.9%
	Associate Degree	190	9.3%
	Bachelor	1120	54.3%
	Doctorate and above	90	4.4%
Age services	Lower5years	540	26.3%
	6-10years	430	21%
	11-15 years	460	22.4%
	16-20years	260	12.7%
Marriage	Upper20 years	360	17.6%
	Single	230	11.2%
age	Married	1820	88.8%
	20-30years	610	29.8%
	31-40years	1030	50.2%
	41-50years	350	17.1%
	Upper50years	60	2.9%
Job	Management	300	14.6%
	Expert	410	20%
	Clerk	690	33.7%
	Others	650	31.7%

hypothesis of this study was formulated in accordance with the desired objectives as follows:

In the process of outsourcing human resources, several factors are influential that can be divided into 9 structures: management factors, strategic factors, quality factors, safety factors, service-related factors, technological factors, political factors, economic factors, and social factors. These structures have causal relationships beyond linear and one-way relationships and their feedback and effects can be observed over time in the development and optimization of human resource outsourcing.

Based on the opinions of experts and the results of studies conducted in this regard, a dynamic hypothesis is presented. This dynamic hypothesis can be considered as a reinforcement loop called "human resource outsourcing optimization loop" according to Figure 3.

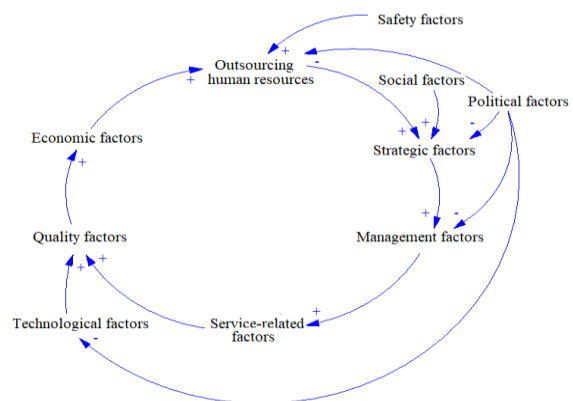


Figure 3. Dynamic hypothesis: Human resource outsourcing optimization loop

Regarding the feedback loop, it can be stated that with the improvement of strategic factors, the management factor improves. Improving management factors has a positive effect on service-related factors.

Improving service-related factors has a positive effect on quality-related factors. Increasing the quality improves the economic factors of the organization and improving the economic situation of the organization can increase the outsourcing

of human resources. Safety and social factors have a positive effect on human resource outsourcing, but political factors have a negative effect on human resource outsourcing, strategic factors, and management factors.

According to the dynamic hypothesis, causal relationships between all influential factors identified and were named as

management factors, strategic factors, quality factors, safety factors, service-related factors, technological factors, political factors, economic factors and social factors.

Factors were categorized based on the mentioned themes. The key variables of the model are divided into endogenous and exogenous variables according to Table 5.

Table 5. Key variables

Endogenous	Exogenous
Development of human resources strategy	Risk of access to information used in human resource management activities
human resources planning	Risks of dependence on foreign suppliers
Analyzing and creating job identifications	Observing legal considerations by the contractor in relations with employees and the organization
Recruitment and especially recruitment of key personnel	Risks caused by the impact of outsourcing human resource management activities on employee satisfaction, morale and trust in the organization
Employee training and development	Competence of human resources
Performance management system, evaluation and development of variable reward system	Government policies and guidelines (Fourth and Fifth Development Plan with the implementation of Article 44 of the Constitution)
	Intellectual property protection laws
Welfare and motivation	The influence of pressure groups
Contracts affairs	The rate of political change in the industry
job safety and health	Frameworks set for employment contracts with contractors
Creating and updating methods and guidelines	Labor Law
	Political stability
	Population growth rate
	Number and quality of university graduates
	Fashion orientation in using new management approaches
	Media views and judgments regarding the outsourcing of activities
	Social safety status
	Observing justice and civil rights in human resource management processes
	The process of supply of human resources in society (less than market demand, balanced with more than market demand)
	Creating value in society by preserving national and religious values and beliefs, environmental protection, extra-organizational entrepreneurship, economic growth and legal behaviors
	Citizens' and employees' opinions and views on outsourcing activities to the private sector
	Employee relationships of human resources company
	Interaction with the supplier
	The speed of change of technology used in human resource management activities
	The effect of technology on the cost structure of human resource management activities
	The extent of dissemination and expansion of technology used by the organization in performing human resource management activities
	The level of research and development activities regarding the technology used by the organization in performing human resource management activities
The type and nature of technology used by the organization in human resource management activities	

Endogenous variables are variables that are the main focus of the model and change during model simulation. Exogenous variables are variables that are outside the model and there is no feedback for them from endogenous variables.

#### *Results of quantitative phase*

##### *Level and flow diagrams*

Based on the purpose of modeling, which is to examine the dynamic model of human resources outsourcing implementation in the Ministry of Energy, the following levels were selected for decision making:

##### *Development of human resources strategy*

##### *Human resources planning*

##### *Analyzing and creating job identifications*

##### *Recruitment and especially recruitment of key personnel*

##### *Employee training and development*

##### *Performance management system*

##### *Welfare and motivation*

##### *Contracts affairs*

##### *Job safety and health*

##### *Creating and updating methods and guidelines*

##### *Evaluating and developing a variable reward system*

Safety, social, political, and technological factors are defined as model constants that we will use them in the section of defining of policies to select the best policy.

#### **Discussion**

Based on the present study, regarding the factors of formulating human resources strategy and human resource planning, the implementation of policy (government policies and guidelines) is better than other policies. The reason for the failure of outsourcing net activities in one organization was examined and new solutions to problems were presented. Li et al., showed that the main problem in this organization was that they had outsourced

their core activities to reduce costs and increase productivity. Another cause of problems was the loss of experienced and committed employees who had several years of expertise in the organization due to retirement or leaving the organization (4). Lilly & Gray, consistent with this result showed that supplier competition in the HR provider market has a direct effect on the amount of human resource outsourcing which in turn has a direct effect on human resource performance. Environmental uncertainty (primary, competitive, and supplier) is proposed to moderate the relationship between amount of human resource outsourcing and human resource performance while asset specificity is proposed to moderate the relationship between supplier competition and amount of human resource outsourcing (5).

Regarding the factors of the performance management system and the creation and updating of methods and guidelines, the implementation of policy of political stability is the best option. In a study, they determine the non-core activities of the organization for outsourcing. In this selection, factors such as competitiveness, the level of knowledge and assets involved in the activities and processes and the general and unique capabilities of the organization in that area are examined (6). In a more recent study, Adler notes that a review by the Gartner group listed six factors that are important in outsourcing decisions: dependency risk, spillover risk, trust, relative proficiency, strategic capabilities, and flexibility (7).

Regarding the factors of human resource strategy formulation and human resource planning, the implementation of policy of access to human resource management information) is better than other policies. Regarding the factors of employee training and development and welfare and motivation and recruitment, the implementation of policy of employee satisfaction and morale and trust in the

organization is the best option. Regarding the factors of the performance management system and the creation and updating of methods and guidelines, the implementation of the policy of observing legal considerations is the best option.

In the study, organizations believe that costs can be reduced through outsourcing. When a company specializes in providing special services, it focuses on its area of expertise and provides these services to many organizations. Thus, these companies are much more efficient since they use savings relative to scale and can divide costs among more companies. The study of organizations that had outsourced their activities for at least 2 years showed a financial savings of about 10 to 15 percent (8). Another issue related to cost savings is cost control. The service user company may be more alert when the external service supplier charges for each service compared to free internal services (9). As shown in the present study, the factors of the concepts of organizational structure and Islamic management are defined as model constants that in the policy definition section, they are used to select the best policy. After the model was approved by the policy tests, necessary definitions and their effects on the model were examined. These policies and their results are presented with here. Hunter and Saunders indicated that HR staff spend up to 85% of their time on managing standard administrative processes and only 15% on strategic activities. In best practice organizations these percentages would typically be reversed. By outsourcing these non-core business activities, HR functions can focus the managerial effort on delivering the strategic and high impact policy matters, such as winning the war for talent, which are of true value to achieving business goals. Consequently, the time and effort required to manage routine administrative and data management work can be avoided and internal resources can be re-deployed to more useful work. Organizations which did

outsource reported that they reduced administrative tasks by more than half and increased their strategic focus by 40% (10).

The study does not consider outsourcing as the only option to achieve the benefits mentioned for it, and in addition to outsourcing, it refers to methods such as insourcing, which provide a framework for adopting each of these strategies in specific conditions. The validation of these theoretical frameworks has been done by conducting interviews and implementing them in some organizations. Outsourcing does not necessarily lead to improved quality and service, reduced costs, and increased long-term efficiency in the long term. Traditional knowledge on the issue of outsourcing believes that non-core activities should be at the focus of attention. At present, the question is which of the activities is non-core. It varies in different organizations depending on the opinion of experts and responsible people (11). In many studies that discuss outsourcing, cost benefits appear to be a compelling argument for contracting out services previously performed internally, and Vining & Globerman, note that empirical data from government agencies outsourcing to private suppliers generated savings in the range of 20-30% in production costs. However, some of these same studies caution that cost should not be the only factor considered in the decision to outsource. Other factors to consider include vendor expertise, customer and employee satisfaction, and loss of strategic advantage (12).

Regarding the factors of the performance management system and the creation and updating of methods and guidelines, the implementation of policy of political stability is the best option. In this regard, Vaxevanou & Konstantopoulos, research presented a strategic supply model to support managers in justifying strategic factors and technology include the importance of process technology in competitive advantage, the maturity of

process technology in industry and the position of process technology in comparison with competitors. This process tries to make supply decisions in accordance with a strategy in products with high engineering knowledge. This approach is based on the following three principles: Focusing on components of the product that are critical and participation in their construction is an indicator, external supply of products in which suppliers have a competitive advantage over the organization, larger scale, low cost structure or stronger functional stimuli (13). The general science-practice gap is particularly evident in the area of performance management. Practitioners are interested in several issues directly related to performance management, including talent management, leadership development, intensification of work as employers try to increase productivity with fewer employees, and managing change (14). Almost all organizations outsource, and the trend is growing. In a study conducted by Hewitt Associates, 94% said of those surveyed said that they had outsourced one or more HR functions (15). Studies of outsourcing arrangements of at least two years' duration showed that outsourcing resulted in cost savings ranging from 10–20%, with an average of 15%. About 50% of the firms felt that their cost savings objectives had been met, and labor productivity had improved (16).

Regarding the factors of human resource strategy formulation and human resource planning, implementation of the policy of access to human resource management information is better than other policies. Regarding the factors of employee training and development and welfare and motivation and recruitment, the implementation of the policy of employee satisfaction and morale and trust in the organization is the best option. Wilkinson & Young, emphasized on the importance of clarity of interaction processes between organization and its stakeholder groups. Organizations should use modern

frameworks such as value chain and stakeholder's analyses in order to manage suggested received value to the stakeholders (17). Saadat consistent with my study showed that performance management provides an opportunity for interaction, participation, setting organizational management objectives which may result in improving organizational performance (18).

Regarding the factors of the performance management system and the creation and updating of methods and guidelines, the implementation of the policy of observing legal considerations is the best option. De Cenzo & Robbins, stated that human resource planning is the process by which an organization determines the right number of employees, type of required expertise and skills in order to achieve its overall goals (19). Human resource is the most valuable factor of production and the main source of competitive advantage. Humanistic factor is considered as a strategic resource for organizations; therefore, human resource planning is a part of strategic planning. The foundation of Human resource planning is recognizing the assumptions that decision makings are based on it and in the case of proper prediction and good judgment the expected goals realize (20).

Factors such as intelligent leadership, good relationships and correct understanding, and human resources factors are considered as the factors affecting the strategic aspects of outsourcing activities. Assigning a part of the activities of the organization to other companies and organizations and reducing the burden of the organization are considered in the study. In different studies, the issue of outsourcing has been studied from different aspects (21). Leaders in human resources careers oversee the operations of their department and often coordinate with others in management positions. The human resources leader is a key link between management and the employee workforce. A good HR

professional is able to resolve difficult situations and consult with managers on problems with employees. Organizational skills. Leaders in human resources careers must be able to manage many projects at once and prioritize tasks.

### **Recommendations**

In the present study, it is recommended for researchers and outsourcing decision makers pay attention to the components of management, strategic, safety, quality, service-related factors as well as the political and social, economic and technological factors of in their organization.

The researcher's recommended solution to strengthen social capital to create a sense of responsibility among the people towards the vision document and the general policies of Article 44 as a complement to the market and the government is crucial for the implementation of these policies. Social capital can mobilize individuals and groups to achieve specific goals and economic efficiencies.

The role and position of the government should change from ownership to sovereignty and from tenure to planning and supervision.

The government should be in the position of expert and consultant of the private sector and an impartial observer and facilitate the outsourcing without by providing the necessary information.

### **Conclusion**

In the present study, a model with a dynamic approach in the area of human resources outsourcing, which has a great strategic and economic importance for the country, was designed. It is expected that it will lead to the institutionalization of human resource outsourcing based on the dynamic model in the organization. Without considering the influential factors in the internal and external environment of the organization in which outsourcing decisions are formulated and implemented,

these decisions seem to be futile. In other words, paying attention merely to internal or external factors cannot fully identify the problems and challenges in this area in Iranian public organizations. Also, since organizational decisions have a great value and the role of values and social beliefs cannot be eliminated from it, the results of positivist studies alone cannot answer the questions in this area. In practice, this study emphasizes that the one-dimensional and partial view of agents and decision makers to outsource activities will not achieve the expected results of these decisions. The scope of decisions in public organizations is wide and comprehensive. Public organizations cover a wide range of citizens' lives and are highly concerning with different aspects of their lives. Undoubtedly, we cannot be optimistic for future of such decisions if the focus of decision makers is only on the internal or external environment of the organization and if they only emphasize limited aspects of the factors.

### **Authors' contribution**

Reza Dehghani Kasgari and Asadollah Mehrara developed the study concept and design. Reza Dehghani Kasgari acquired the data. Reza Dehghani Kasgari and Asadollah Mehrara analyzed and interpreted the data, and wrote the first draft of the manuscript. All authors contributed to the intellectual content, manuscript editing and read and approved the final manuscript.

### **Informed consent**

Questionnaires were filled with the participants' satisfaction and written consent was obtained from the participants in this study.

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### **Conflict of interest**

The authors declare that they have no conflict of interests.

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