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RESEARCH ARTICLE **Open Access**

Designing a Performance Evaluation Model in Macro Government Organizations (Case Study: Jam Petrochemical Company)

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Abstract

Performance evaluation, as a tool to know the degree of success of organizations in achieving predetermined goals and a factor in managers' decisions, has been one of the constant needs of organizations. The purpose of this research is to identify performance evaluation indicators and explain the appropriate performance evaluation model in Macro government organizations such as Jam Petrochemical Company. This research is based on the purpose of applied research and also based on the research method with a mixed or combined approach with a sequential exploratory strategy. The required data were collected through qualitative research (interview) and quantitative research (questionnaire). In the quantitative part, the current research can be considered as a non-experimental (descriptive) type of research and a survey type. To analyze the data of the questionnaire, this research has been done in four phases, the first phase is to identify and rank the strengths and weaknesses of Jam Petrochemical Company, and the second phase is to use a Delphi test to identify indicators that are effective in evaluating the performance of Jam Petrochemical Company. The third phase is exploratory factor analysis and determining Dimensions of performance evaluation in Jam Petrochemical Company and finally the fourth phase of structural equations and path analysis. The results of the research showed that considering that the T-statistic for all variables is more significant than 1.96 and also considering the positiveness of the path coefficients, the variables (scientific observation, technology and technology, financial management, managers' responsibility, infrastructure management, management and leadership and human resources) are among the factors that make up the performance evaluation system in Jam Petrochemical Company.

Keywords: *Performance evaluation, Jam Petrochemical Company, Infrastructure management, Technology*

Introduction

The process that is carried out with the aim of determining the level of adequacy and worthiness of employees in the organization is called performance evaluation. In this process, the person is examined from the point of view of performance in assigned tasks and acceptance of responsibilities (Vegter et al., 2023). In this process, the senior managers of the organization examine the behavior of their subordinate employees, so that they can extract the strengths and weaknesses of the employees' behavior according to the feedback. Therefore, performance evaluation is done periodically with the aim of discovering the individual's talent and potential capacity and planning to improve the organization (Luc Nappert & Bamber, 2023). Performance appraisal is an annual process in which an employee's performance and productivity is evaluated against a set of predetermined goals. The performance evaluation process in organizations is very important to increase employee productivity and improve their

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results (Xiaoling Chen et al., 2023). In this process, employee performance, skills, achievements and employee growth or lack thereof are evaluated. Companies use the performance evaluation system to provide feedback in a more accurate and clear way at work and to justify increases in wages and bonuses (Maylor et al., 2023).

Organisations are constantly trying to adapt, survive, perform and influence. However, they are not always successful. To better understand what they can or should change to improve their ability to perform, organisations can conduct organisational assessments (Soltanzadeh et al., 2023). This diagnostic tool can help organisations obtain useful data on their performance, identify important factors that aid or impede their achievement of results, and situate themselves with respect to competitors. Interestingly, the demand for such evaluations is gaining ground. Donors are increasingly trying to deepen their understanding of the performance of organisations which they fund (e.g., government ministries, International Financial Institutions and other multilateral organisations, NGOs, as well as research institutions) not only to determine the contributions of these organisations to development results but also to better grasp the capacities these organisations have in place to support the achievement of results (Haniffah et al., 2023)

In fact, performance appraisal is a process by which organizations evaluate the performance of employees based on predetermined standards. The main goal of evaluation is to help managers effectively in companies and use human resources and ultimately improve the productivity of the organization (Jaaskelainen et al., 2022). Performance management is very important, not only because it is a determining factor in salary increases and employee promotions, but also because it can accurately assess an employee's skills, strengths, and weaknesses. However, performance appraisal is rarely used well because existing performance appraisal methods fail to improve employee performance outcomes (Abrantes et al., 2023).

The main issue is how to evaluate the proper performance of organizations. In this regard, first the organization determines its performance situation. In the next stage, the organization evaluates this situation and finally, through performance feedback meetings, managers give information to employees about their performance and its correction in order to achieve the goals of the organization. Lennon, 2022). If there are shortcomings in the person's performance, it is necessary to hold feedback meetings to identify and solve the basic problems. Therefore, using the performance management process helps managers and employees to focus on the organization's goals (Benet et al., 2023).

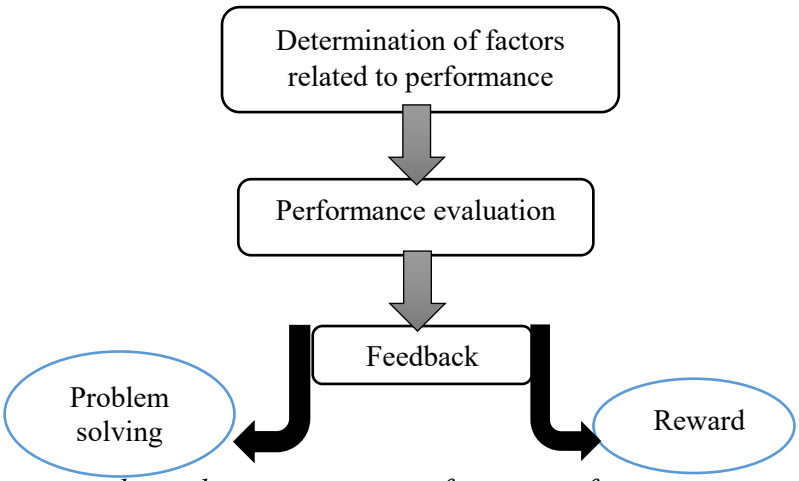

Figure 1. *Steps to evaluate the appropriate performance of an organization (source: Bravo & Caniato, 2023)*

The importance of evaluating the performance of organizations can be explained by several reasons: first; the main goal of all organizations today is survival, and the evaluation of organizational performance is one of the most important components for the survival of an organization (Zhang et al., 2023). The survival of organizations depends on revenue generation, customer satisfaction and gaining market share. As a result, the main goal of all organizations is based on the above-mentioned items. To be successful in the mentioned areas, it is very important to determine the goal and the necessary steps to achieve it (Tanrıverdi et al., 2023). Second; Setting goals alone will not lead to the progress and success of the organization, for this reason, the existence of a criterion that determines the degree of achievement of organizational goals is of great importance, because like a guide, it will guide the organization towards the full achievement of its goals. (Van der Hauwaert et al., 2022). The necessity of investigating this research can be expressed as generally the process of evaluating the performance of employees shows the upward or downward slope of the organization. Therefore, in case of a setback or decline, it is possible to quickly and easily prevent further decline and make appropriate planning so that the organization moves upward again. Research questions the main question: "What is the appropriate performance evaluation model in Jam Petrochemical Company?" Sub questions:

1- "What are the performance evaluation indicators in Jam Petrochemical Company?"

2- "What are the components of the organizational axes evaluated for performance in Jam Petrochemical Company?"

3- "What is the leveling of performance evaluation variables in Jam Petrochemical Company?"

4- "How are the structural relationships between performance evaluation variables in Jam Petrochemical Company?"

Literature Review

Traditional performance evaluation systems have flaws and deficiencies, which led to a revolution in performance management. For example, evaluation systems were created that took into account the goals and the current environment, and several processes were created for the use of different organizations (Salais-Fierro et al., 2023). Finally, many evaluation models were proposed to support the processes, whose purpose was to help organizations to evaluate performance properly (Taheri et al., 2023). On the other hand, performance evaluation models differ in their main assumptions and how to use them. The choice of one affects all subsequent steps, so it is very important to choose it carefully (Niu et al., 2023). Most successful businesses end up combining several methods and may use them at different stages of an employee's career. There are many performance evaluation models, some dating back to the 1960s. But few have climbed steadily (Anjomshoae et al., 2021).

Three main elements combine in any employee evaluation:

Quality and quantity of work;

The time the employee does all that work?

The real value of an employee's work adds to the company.

Ideally, all employees receive a regular assessment of their strengths and weaknesses based on the latest projects they've been involved with. Using multiple assessment models, a full range of information can be obtained to inform critical HR decisions such as promotions and talent development programs (Reimann et al., 2023). In general, some of the most important models for evaluating the organization's performance are explained below:

Management based on objectives (MBO):

Figure 2. *Management based on objectives (source: Zhou et al., 2023)*

This model is a simple method of a goal-based approach to improve company performance that allows senior managers to determine the link between employee performance and basic strategic goals (Kerr & Santos, 2023). Management measures the results of each employee against a standard that represents the expected level of success. Some of the most important advantages of this model are:

Among the evaluation models, the MBO model creates a healthy relationship between bosses and employees;

Employees are more motivated to work harder. Because they helped create goals;

MBO sets goals, not implementation methods. This model gives employees the freedom to choose how to implement their goals.

Also, some of the most important disadvantages of this method include the following:

MBO is a result oriented method. Therefore, it helps to measure tangible performance results. But it ignores aspects, including communication skills or empathy;

The nature of MBO makes it suitable for short-term goals. It cannot be used to evaluate performance for long-term goals because they may be influenced by unknown factors (He et al., 2023).

360 degree performance evaluation

360 degree feedback is a performance evaluation model that is common in large and global organizations such as Google and Microsoft. This evaluation model is valuable when it prepares team members to take on higher-level responsibilities. Survey is its main tool. A 360 survey provides an overview of past performance through rating scales and open-ended feedback.

Some of the most important advantages of this method are:

Reduces managers' bias by providing other perspectives;

Reviews are anonymous and confidential. Because it creates a space for honest feedback;

They are a great tool for identifying skill gaps in teams/departments.

Also, some of the disadvantages of this method are:

Performance evaluation takes time and requires planning;

Some employees can exploit anonymity to settle personal accounts;

Feedback may not be accurate (Govindan et al., 2022).

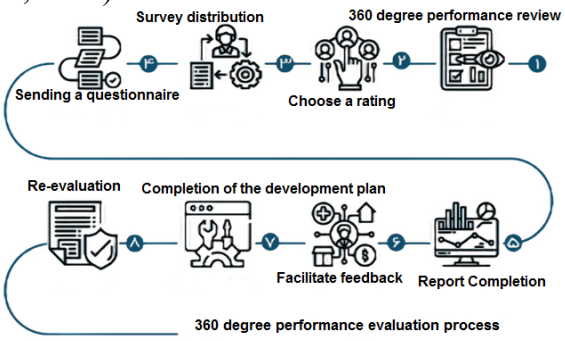

Figure 3. *Steps of 360 degree performance evaluation (source: Zhou et al., 2023)*

The event of a critical incident

This method measures either performance (or output) and performance-related behavior of the employee. This model of performance appraisal models is popular in the customer service world and allows managers to provide more global feedback on how an employee handles issues (Domingues et al., 2023). Some of the advantages of this model are:

This practice is common in customer service and medical insurance, where handling issues is a performance measure;

It helps managers to identify catastrophic or profitable events for the company. And how the employee's behavior affects the outcome;

Critical events provide insight into how to align existing employee behavior with best

practices. For example, better management of customer complaints.
Also, the disadvantages of this model include the following:
The critical incident method focuses only on identifying and dealing with important events;
This means that an employee's regular work is ignored even when their performance is consistent; • the events themselves may not accurately reflect what is happening at work (Nudurupati et al., 2021).

Behavioral Rating Scale (BARS)
Behavioral Rating Scale (BARS) is a vertical/horizontal rating scale performance evaluation method. The scale scores range from one to five. They relate these scores to specific examples of poor, average, and good performance.
The advantages of this model are:
BARS, which is a performance evaluation model, is suitable for different businesses of any size;
BARS addresses a major problem with conventional rating scales of personality by providing specific behavioral examples for each grade;
These scores set clear standards for performance evaluation and ensure fairness during the review process.
The disadvantages of this model can be seen in the following cases;
Designing and implementing this model of employee performance evaluation models for each job role takes time;
Job requirements change over time, so BARS needs to be updated regularly;
To successfully carry out this method of performance evaluation, managers need detailed information about the actions of their employees (Penaloza et al., 2021).
5- Psychological evaluation
In this model of employee performance evaluation models, qualified psychologists test employees with in-depth interviews and tests. Using these surveys, they assess characteristics that can affect an employee's performance in the workplace (Ahmadpour et al., 2023).
The advantages of this Amal model are the following:
This model of evaluation models allows managers to evaluate an employee based on their future potential rather than their past performance;
This model gives introverted and socially isolated employees an opportunity to show their potential;
Psychological assessments can help identify mental health problems.
The disadvantages of this model are:
Psychological assessment is a slow and complex process;
Finding trained professionals to perform tests can be difficult;
Accuracy can vary according to the expertise of the psychologist and the emotional state of the volunteers (Blais et al., 2023).

The findings of Luc Nappert & Bamber (2023) research with title: "Out of control? Tracking system technologies and performance measurement" showed that the wider implications of our findings and challenge managers, regardless of workplace, to consider the consequences of introducing ever-more sophisticated monitoring and measurement systems, especially for those whom the systems target.

The findings of Abadtalab et al., (2023) article with title: "Staff performance Competencies and Information Security: An Analysis of the Role of Library Software System Development" showed that there is a significant relationship between functional competencies and information security management with the mediating role of library software system development. The findings of Benet et al., (2023) article with title: "Out of control? Tracking system technologies and performance measurement" showed that how a PMS is used by managers at a cooperative bank as an artefact, supporting conversational and material practices. Combined with the organisation's strong socialisation process and managers and employees' need to defend their social and cooperative identity, a PMS supports the bank's hybrid nature and leads to the avoidance of tension and conflict. That shows

that the PMS presents a specific feature: flexibility in its handling and use by managers and employees. The findings of Bravo & Caniato (2023) article with title: "Sustainability performance measurement in the food supply chain: Trade-offs, institutional pressures, and contextual factors" showed that a prevalence of normative pressures from the market and from other stages in the supply chain in terms of SPM prioritization caused by institutional pressures (i.e., isomorphic) and contingent on other factors, such as the firm's size and culture. The findings of Zhou et al., (2023) article with title: "Beyond throughput: Incorporating air transport network topology in airport performance measurement" showed that valuable insights for benchmarking airports in the worldwide air transportation network. By considering both traditional throughput criteria and air transport network topology, our approach can help airport operators, policymakers, and other stakeholders make more informed decisions about airport investments and improvements. The findings of Kerr & Santos (2023) article with title: "The impact of performance measurement diversity on customer-oriented selling behavior" showed that sales management can encourage more pro-customer behavior by using a more diverse performance measurement schema to influence the underlying drivers of customer-oriented selling behavior, including salesperson attitudes and subjective norms. This is particularly important in transactional selling environments where the use of diverse measures has the strongest effect on pro-customer attitudes and customer-oriented selling behavior. The findings of Vegter et al., (2023) article with title: "Performance measurement system for circular supply chain management" showed that Service lifetime - the time period of use, recovery and reuse until incineration - is as relevant to circularity as the much-mentioned product lifetime. The maturity of circularity follows four phases: virgin materials only, combination, recovered materials only, deterioration. Shortening the supply chain leads to a rebound effect and increases the environmental impact. The circular premium can relate to shareholders as well as to customers. The findings of Azhang et al., (2023) article with title: "A Conceptual Framework for Performance Evaluation in Corporations" showed that conceptual framework first identifies the drivers that led to the emergence of the performance evaluation phenomenon. These drivers include intra-organizational and extra-organizational drivers. Extra-organizational drivers have competition and the complexity of the business environment, and intra-organizational drivers include performance control, planning and budgeting, motivating and rewarding employees, and identifying opportunities for performance improvement. All drivers are summarized in better decision-making for optimal resource allocation. In the next step, the performance evaluation master plan is presented in three sections: goal setting, performance measures setting, and evaluation and reporting.

The findings of Etemadi et al., (2023) article with title: "Dentifying and explaining a model for improving DNA genetic codes (Case study: Isfahan Tokafulad Holding Companies)" showed that semantic DNA with a factor load of 0.93 is the dominant DNA in 4 out of 6 companies under investigation. It was also found that planning and payment system are the least important and change processes are the most important in line with the improvement model. In the improved model based on covariance analysis, the mutual effects of payment system and planning with mission, leadership style with teamwork, performance management with decision-making, interpersonal relations with change processes and change processes with work group should be considered.

The findings of MokhtarpourAsl & Kameli (2022) article with title: "A Model for Evaluating the Sustainable Performance of Human Resources" showed that the proposed model contains three dimensions, eight components and twenty one indicators, which can be used as a proper framework for evaluating the sustainable performance of

human resources. Besides, the model shows that the highest to the lowest ranks among the dimensions are respectively job quality, success, and sustainable behavior. The findings of Niroomand et al., (2021) article with title: "Individual characteristics indicators evaluate the performance of employees of military organizations" showed that the performance evaluation indicators of Iranian military personnel were 72 indicators. The findings of Aftabi & Soltanpanah (2021) article with title:" Identifying and Prioritizing Factors Affecting Employee Performance" showed that cooperation with a coefficient of importance of 0.328, initiative with 0.254, leadership with 0.220 and quality of work with 0.198 in the first to fourth ranks are effective factors in evaluating the performance of employees in the judice of Province.

Some of the most important innovations of this article are:

-Examining the role of evaluating the performance of senior managers of Jam Petrochemical Company in the success of this company;

-Analysis of the most important challenges and shortcomings in the evaluation of Jam Petrochemical Company's performance;

-Identifying the most important performance evaluation indicators of Jam Petrochemical Company;

-Determining performance evaluation dimensions in Jam Petrochemical Company;

-Designing a performance evaluation model in Jam Petrochemical Company.

Research Methodology

This article is among applied researches in terms of its purpose, and the purpose of such researches is to apply knowledge in new situations and in a specific field. The current research method is a mixed or combined approach with a sequential exploratory strategy; because the required data was collected through qualitative research tools (interview) and quantitative research (questionnaire). In fact, in this research, the researchers study the subject by combining the positive aspects of qualitative and quantitative research.

Quantitative part

In the quantitative part, the current research can be considered as a non-experimental (descriptive) type of research and a survey type. Also, the current research is cross-sectional in terms of time, and the collection of the required data was done at a specific point in time. The data needed in the qualitative study has been obtained by several methods, including interview, document review and observation. To determine the sample size, Morgan's table was used, which according to the population of 400 people, the sample size is 196. The cluster sampling method that randomly selected clusters from branches was simple. In this research, to ensure that the net number of returned questionnaires is more than the above value, 210 distribution questionnaires and 200 questionnaires were analyzed, and the return rate of questionnaires is 95%. In the qualitative part of the research, first, after reviewing the literature, the researcher compiled and conducted a semi-structured interview with the experts and experts, and finally, the summary of the experts' opinion from the interview and the components extracted from the literature became the basis for compiling the questionnaire.

Quantitative part

In the quantitative part, after determining the dimensions and components of the developed model in the qualitative stage, the researcher designs a questionnaire to measure the developed model.

Findings

Identifying and ranking the strengths and weaknesses of Jam Petrochemical Company

For this purpose, a researcher-made questionnaire with 10 dimensions and 155 items has been used. This questionnaire was given to 30 managers and presidents of Jam Petrochemical Company, then using the collected data to identify the strengths and weaknesses of each The dimensions were

discussed and at the end they were ranked using Shannon entropy.

Ranking the strengths and weaknesses of Jam Petrochemical Company using Shannon's entropy

First step: Shannon entropy is considered for each random phenomenon of a probability distribution as follows.

$$E= S\begin{pmatrix} P1 \\ P2 \\ 0 \\ 0 \\ Pn \end{pmatrix}. \Sigma mi=1\ Pi= 1$$

In order to calculate the entropy of such phenomena, which includes indices due to the uncertainty of the numbers inside the matrix, he provided the following formula:

Ej = -K Σmi=I (Pi Ln Pi). K

Entropy index= E=j

Number of options: m

The possible value of the index value from the point of view of the i-th option: Pi

Symbol of natural logarithm: ln

Constant value to adjust entropy between zero and one: k

Note that in decision matrices, it is generally < 3m, which means that for less than 3

M= 3> e= $\frac{2}{7} \rightarrow l_n m > 1 \rightarrow \frac{1}{l_n m} < 1$

In this formula, the closer Ej i.e. the entropy of the jth index gets closer to one, the influence of the said index will decrease and will be close to zero in the prioritization of the variables. Therefore, if a phenomenon or an index is equally likely from the point of view of all options, its entropy will be 100% and equal to one received and therefore such an index will not have any role in choosing an option, which seems obvious. This case is explained mathematically in general as follows.

If an indicator has the same value from the point of view of option m, then: relation (4)

Ej= -KΣm i=1 (Pi Ln Pi). = Ej = 1

That is, such an index is 100% entropy and does not have any role in choosing options, and as will be shown, its weight becomes zero.

At this stage, the de-scaling of the matrix of the existing situation is also done with the clock software. The second step: the amount of diversity or deviation from being fully entroped for each index is calculated as follows relation (5):

Dj= 1- Ej , j =1,2, ….,n

The third step: the weight of each index is obtained using the following equation: Equation (6)

$$w_j = \frac{D_j}{\sum^m i = 1} * j = 1, 2, \dots, n$$

The results of table (1) show that among the strength factors of the petrochemical company, the human resource factor has the highest rank.

The results of table (2) show that among the weak factors of Jam Petrochemical Company, the information and communication technology factor has the highest rank.

Delphi test and identification of performance evaluation indicators

As can be seen in Table 3, the value of 0.0001 is a significant indicator, which is less than the criterion of 0.05. Correlation confirms the responses. Also, a value higher than 0.5 for Kendall's W coefficient also shows acceptable agreement of opinions in this test. The above table shows the summary of statistics related to reliability analysis. Based on the results of this table, the reliability value of the indicators is equal to 0.851, which shows that the 49 related items have a high level of internal consistency.

Table 1.
Index ranking using the Shannon entropy method (strengths)

							0.294	K index value
Indicators	Human resources strength	Structural strength	Leadership strength	Research strength	Production strength	Financial strength	Technology strength	Process strength
Ej	0.997	0.999	1.000	0.998	0.999	0.999	0.998	0.998
Dj	0.003	0.001	0.000	0.002	0.001	0.001	0.002	0.002
Wj	0.198	0.050	0.036	0.181	0.063	0.050	0.114	0.151
Rank of each indicator	1	8	10	2	7	5	9	3
Total weight of indicators	1							

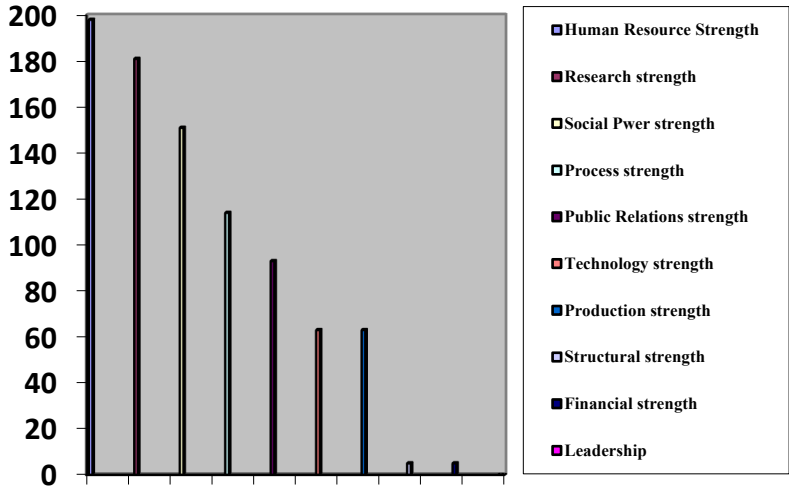

Diagram 1. *Index ranking using the Shannon entropy method (strengths)*

As can be seen in Table 5, the value of 0.0001 significant index, which is less than the criterion of 0.05, confirms the correlation of the answers. Also, a value higher than 0.05 for Kendall's W coefficient also shows acceptable agreement of opinions in this test. Table 6 shows the summary of statistics related to reliability analysis. Based on the results of this table, the reliability value of the indicators is equal to 0.781, which shows that the 36 related items have a high level of internal consistency. As can be seen in Table 7, the value of 0.0001 significant index, which is less than the criterion of 0.05, confirms the correlation of the answers. Also, a value higher than 0.05 for Kendall's W coefficient also shows acceptable agreement of opinions in this test. Table 8 shows the summary of statistics related to reliability analysis. Based on the results of this table, the reliability value of the indicators is equal to 0.792, which shows that the 36 related items have a high level of internal consistency.

Structural equations and path analysis of the measurement model

The section of the measurement model includes the questions or indicators of the dimension along with that dimension, and the relationships between the questions and the dimensions are analyzed in this section.

Table 2.

Ranking of indicators using the Shannon entropy method (weaknesses)

							0.294	K index value
Indicators	Human resources Weakness	Structural weakness	Leadership weakness	Research weakness	Production weakness	Financial weakness	Technology Weakness	Process weakness
Ej	0.998	0.995	0.998	0.998	0.996	0.993	0.997	0.998
Dj	0.002	0.005	0.002	0.004	0.004	0.007	0.003	0.002
Wj	0.066	0.143	0.078	0.066	0.119	0.223	0.081	0.053
Rank of each indicator	8	2	6	7	9	4	1	10
Total weight of indicators	1							

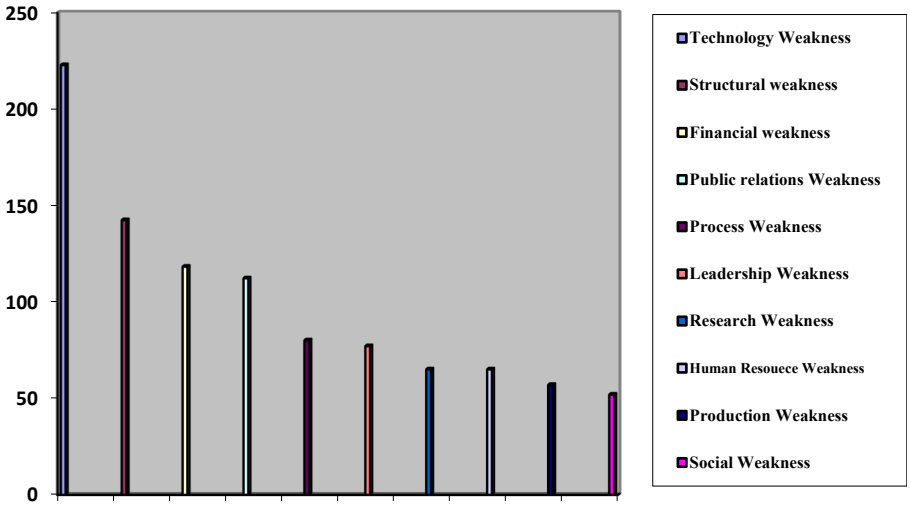

Diagram 2. *Index ranking using the Shannon entropy method (weaknesses)*

Table 3.

W. Kendall correlation test (first round Delphi)

Qty	Correlation coefficient of W. Kendall	Chi-square index	Degrees of freedom	Significant index
25	0.226	319.145	48	0.0001

Table 4.

Calculation of Cronbach's alpha of the first stage of Delphi

Qty	Cronbach's alpha
49	0.853

Table 5.

W. Kendall correlation test (Delphi second round)

Qty	Correlation coefficient of W. Kendall	Chi-square index	Degrees of freedom	Significant index
25	0.231	202.371	35	0.0001

Table 6.
Calculation of Cronbach's alpha of the second stage of Delphi

Qty	Cronbach's alpha
36	0.782

Table 7.
W. Kendall correlation test (third round Delphi)

Qty	Correlation coefficient of W. Kendall	Chi-square index	Degrees of freedom	Significant index
25	0.193	169.279	35	0.0001

Table 8.
Calculation of Cronbach's alpha of the third stage of Delphi

Qty	Cronbach's alpha
36	0.793

Table 9.
Evaluation of external research model

Main model variables	(AVE>0.05)
Management of scientific observation	0.821
Technology management	0.768
Financial Management	0.665
Infrastructure management	0.829
Management and leadership	0.746
Human resources	0.945
Managers' responsibility performance evaluation	

Table 10.
Fornell and Larcker matrix to check divergent validity

	Managers' responsibility	Management of scientific observation	Technology management	Financial Management	Infrastructure management	Management and leadership	Human resources
Managers' responsibility	0.906						
Management of scientific observation	0.342	0.848					
Technology management	0.140	0.714	0.877				
Financial Management	0.211	0.684	0.427	0.815			
Infrastructure management	0.246	0.655	0.408	0.282	0.910		
Management and leadership	0.075	0.697	0.355	0.396	0.36	0.846	
Human resources	0.207	0.616	0.283	0.224	0.265	0.290	0.972

According to Table 10, the root value of the AVE variables in the present study, which are placed in the houses in the main diagonal of the matrix, is higher than the correlation value between them, which are arranged in the lower and left houses of the main diameter. Therefore, it can be stated that in the current research, the structures (the latent variables) in the model interact more with their indicators than with other structures. In other words, the divergent validity of the model is adequate.

The criterion of determination coefficient

The second criterion for checking the fit of the structural model in a research is the R2 coefficients related to the endogenous (dependent) variables of the model. According to Figure 1, the value of R2 for the variables of managers' responsibility, scientific observation management, technology management, financial management, infrastructure management, management and leadership, and human resources is equal to (0.146, 0.510, 0.468, 0.429, 0.486, and 0.379), which It confirms

the appropriateness of the fit of the structural model.

Overall fit of the model (GOF criterion)

The general model includes both measurement and structural model parts, and by confirming its fit, the fit check in a model is complete. To check the fit of the overall model, only one criterion called GOF is used. This criterion is calculated through the following formula:

GOF= √Communalities× R2

Communalities value is obtained from the average communal values of first-order latent variables. These values for the hidden variables of the first order of the model are as described in the table below, which results in Communalities equal to 0.796.

On the other hand, the output of the model shown in Figure 1 showed that for the variables of managers' responsibility, scientific observation management, technology management, financial management, infrastructure management, management and leadership, human power is equal to (0.146 and 0.510) respectively. 0.468, 0.429, 0.486, and 0.379) has been calculated. The average value of R2 of endogenous variables of the model is equal to (0.403).

Considering the three values of 0.01, 0.25 and 0.36 as weak, medium and strong values for GOF, obtaining a value of 0.566 for GOF shows the overall strong fit of the model in this study.

Examining the predictive fit of the model

Considering that in Smart PLS software, the t-statistic value is used to check the significance of the coefficients, and this value is 1.96 for a 5% error, to check the significance of comparing the t-statistic value of the relationships with the above assumed number. is used. So, if the value of t statistic is greater than 1.96, the relationship shown is significant. Therefore, according to the above figure, it can be seen that all the relations of the model are significant.

Table 11.

Average shared values of hidden variables

Hidden variables	Average shared values
Managers' responsibility	0.821
Management of scientific observation	0.768
Financial Management	0.665
Infrastructure management	0.829
Management and leadership	0.746
Human resources	0.945
Average	0.796

According to table 11 and that the t-statistic for all variables is greater than 1.96 and also considering the positive path coefficients, it can be concluded that the variables (managers' responsibility, scientific observation management, financial management, infrastructure management, management and leadership and human resources) are effective factors on performance evaluation. What is the ranking of the factors that make up the performance evaluation system of Jam Petrochemical Company? According to table 12 and also according to the value of path coefficient of the variables, the prioritization of factors affecting the performance evaluation in Jam Petrochemical Company is as follows:

Table 12.

Aston Geiser statistic values of research variables

Variables	Aston Geiser	Status
Managers' responsibility	0.642	Strong predictive fit
Financial Management	0.672	Strong predictive fit
Human resources	0.531	Strong predictive fit
Technology management	0.694	Strong predictive fit
Management and leadership	0.632	Strong predictive fit
Infrastructure management	0.852	Strong predictive fit

According to table 12 and also according to the value of path coefficient of the variables, the prioritization of factors affecting performance evaluation in Jam Petrochemical Company is as follows: Also according to the results of table 12, the highest priority is related to infrastructure management factor and management factors Technological, financial management, scientific observation management, management and leadership and human resources management are the next priorities.

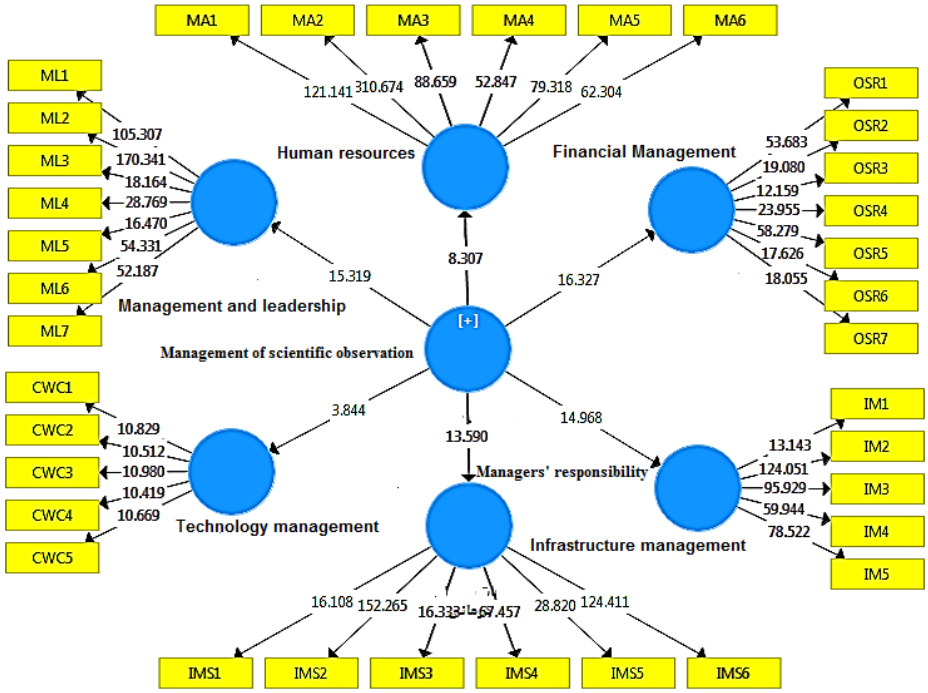

Diagram 3. *Results of relationships between research variables*

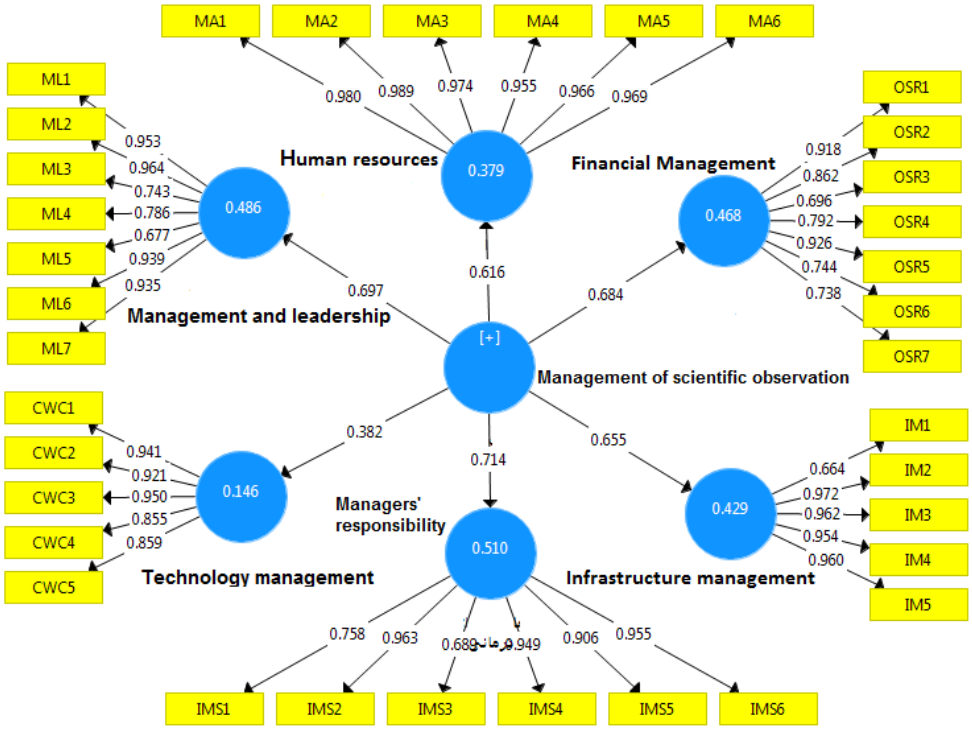

Diagram 4. *Value of path coefficient of secondary variables*

Table 13.
Results of relationships between research variables

Independent variable	Analysis path	Dependent	T-statistics	The coefficient value	Mark	Meaningfulness
Performance evaluation	→	Managers' responsibility	3.844	0.382	+	0.0001
Performance evaluation	→	Financial Management	13.590	0.714	+	0.0001
Performance evaluation	→	Technology management	16.327	0.684	+	0.0001
Performance evaluation	→	Infrastructure management	14.968	0.655	+	0.0001
Performance evaluation	→	Management and leadership	15.319	0.697	+	0.0001
Performance evaluation	→	Human resources	8.037	0.616	+	0.0001

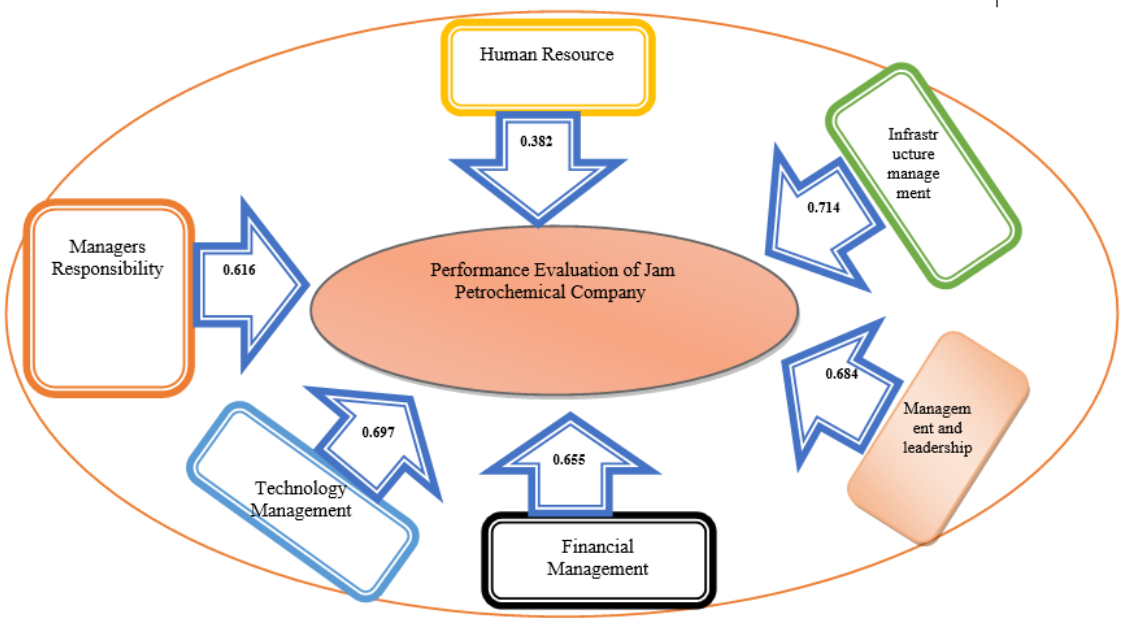

Figure 3. *The final model of the performance evaluation system in Jam Petrochemical Company*

Table 14.
Prioritization of factors affecting performance evaluation in Jam Petrochemical Company

Indicator	Path coefficient	Priority
Infrastructure management	0.714	1
Technology management	0.697	2
Management and leadership	0684	3
Financial Management	0655	4
Managers' responsibility	0.616	5
Human resources	0.382	6

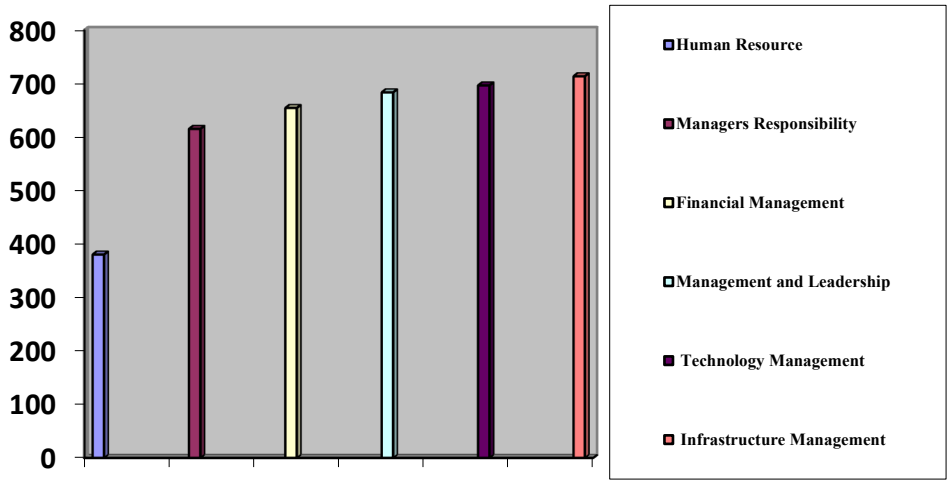

Chart 5. *Prioritization of factors affecting performance evaluation in Jam Petrochemical Company*

Conclusion

Organizational performance is a ubiquitous term which is nevertheless loosely defined. Though the construct depends on a number of unique factors associated with each organization, yet the lack of a universal definition makes it challenging for professionals to concur about what exactly they mean by organizational performance. This CQ Dossier summarizes the existing evidence about the financial, social, psychological, and operational aspects of organizational performance to arrive at a comprehensive definition and introduce interventions how to improve it. Performance management can focus on the performance of a whole organization, a department, an employee, or the processes in place to manage particular tasks. Performance management standards are generally organized and disseminated by senior leadership at an organization and by task owners, and may include specifying tasks and outcomes of a job, providing timely feedback and coaching, comparing employees' actual performance and behaviors with desired performance and behaviors, instituting rewards, etc. The technique can involve outlining the role of each individual in the organization in terms of functions and responsibilities.

Specialists in many fields are concerned with organizational performance including strategic planners, operations, finance, legal, and organizational development.

Also, Performance evaluation is a tool that is used by managers in large organizations and companies to measure employee performance and its quality. Performance evaluation brings more transparency in the work environment, strengthens the relationship between the employer and employees, and improves the performance of the company, and in recent years, it has been used by many organizations and business owners to improve the performance of employees. Performance appraisal, also known as performance review, career development, or employee evaluation, is a method by which the job performance of employees is measured and evaluated. Performance appraisal is a part of career development processes and includes regular review of the organization's employees' performance. All organizations that have learned to "win from within" by focusing on their employees rely on systematic performance appraisal processes to regularly measure and evaluate their employees' performance. Also, performance evaluation has a direct role in providing periodic feedback to employees, in a way that helps them to be more aware of their performance. The purpose of using the performance evaluation tool is to create a space for the employees of a group so that they can perform

in the best way and use their abilities as much as possible in order to achieve the goals of the organization and have high efficiency in the work environment. Close monitoring of workforce performance helps organizations identify better performing employees to serve as role models for others. Performance evaluation also allows organizations to identify employees who are performing poorly and find the cause of their underperformance and to be able to eliminate the problems and obstacles that cause them as much as possible. As a result, all employees will be able to perform at their best.

The purpose of this article is to design a performance evaluation model in large government organizations with an emphasis on Jam Petrochemical Company. In this regard, the current research has been carried out in 4 phases: the first phase, identifying and ranking the strengths and weaknesses of Jam Petrochemical Company, and the second phase, a Delphi test to identify indicators that are effective in evaluating the performance of Jam Petrochemical Company, and the third phase, analyzing exploratory factor and determination of performance evaluation dimensions in Jam Petrochemical Company and finally the fourth phase, structural equations and path analysis. According to the data collected from the directors and presidents of Jam Petrochemical Company and the analysis done, the weaknesses and strengths of each dimension were identified, and at the end, these dimensions were ranked using Shannon's entropy. Among the strength factors of Jam Petrochemical Company, the infrastructure management factor has the highest rank, which indicates the use of expert and responsible personnel in this organization. Among the weak factors of Jam Petrochemical Company, information and communication technology factor has the highest rating, which shows that this organization has not used enough information and communication technology equipment and facilities. The findings of this part of the research are in line with the findings of Kerr & Santos (2023), Luc Nappert & Bamber (2023), Bravo and Kaniato (2023), and MokhtarpourAsl & Kameli (2022). Also, considering the positive path coefficients, it can be concluded that the variables of infrastructure management, technology management, management and leadership, financial management, managers' responsibility and human resources are effective factors on performance evaluation. The findings of this part of the research are in line with the findings of Azhang et al. (2023), Benet et al. (2023), Niroomand et al. (2021) and Aftabi & Soltanpanah (2021).

Therefore, Jam Petrochemical Company, while maintaining and strengthening these factors, must take serious action in the areas where there are weaknesses in order to eliminate the deficiencies, so that it can help the development of the oil and gas sector in the current situation, especially during the period of all-round sanctions.

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