

# Smart Organization Characteristics and its Impact on Social and Environmental Performance: An Empirical Study on Jordan Phosphate Mines Company

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## Abstract

The aim of this research was to examine the effect of smart organization characteristics: clear strategic vision, merit culture, and supportive incentives system, on social and environmental performance.

A questionnaire has been developed to gather data from all directors and heads of departments at headquarter of Jordan Phosphate Mines Company which consists of 130 members. 61 questionnaires were retrieved which forms (47%) of study population.

The findings of the study were:

- The level of importance of respondents' perceptions about elements of smart organization characteristics in Jordan Phosphate Mines Company were moderate.
- The level of importance of respondents' perceptions about elements of social performance were moderate, except the paragraphs relating to introducing aids to poor families in the local community, respecting community customs and traditions, contributing in training of university students, and providing health care for company employees and their families, which the level of importance of each was high.
- The level of importance of respondents' perceptions about elements of environmental performance were moderate.
- There is no statistical impact of clear strategic vision and merit culture on social performance and environmental performance of Jordan Phosphate Mines Company.
- There is a statistical impact of supportive incentives system on social and environmental performance of Jordan Phosphate Mines Company.

Based on the findings of the study, Jordan Phosphate Mines Company is advised to pay more attention to environmental protection, and to enhance its role in sustainable social development. It is recommended that further studies on the variables of smart organization characteristics, social, and environmental performance could be conducted at other business organizations in Jordan.

**Keywords:** smart organization characteristics, social performance, environmental performance, Jordan Phosphate Mines Company

## 1. Introduction

Organizations faced radical changes in the beginning of the 21st century. These changes formed challenges that threatened the survival of organizations, which led several organizations to review their strategic points, focus on the adaptation to its environments, and to respond to customer needs and expectations through new methods such as building cooperation and virtual organizations.

Organizations adopted a new approach called agility in order to face these challenges. This concept became one of the most important new trends in today's complex organizations because the smart tools and smart human

resources play a crucial role in the organizational performance. Therefore, decision-makers in organizations have no choice these days except using organizational intelligence (Mahmoudi & Asgari, 2013).

The concept of the smart organization appeared in 1998 at Matheson and Matheson's book "The Smart Organization: Creating Value through Strategic R&D". Matheson and Matheson indicated that organization's ability to make smart decisions and adapt quickly to changes in the environment is the most important competitive advantage in the 21st century. Successful firms build a corporate culture that emphasizes making the right strategic decision at the right time, align organizational practices to support these decisions, and sustain their outcomes. Examples from General Motors, Pilkington Glass, and Bank One of Ohio were presented as best practices to demonstrate that enriched R&D can be implemented to create the smart organization (Matheson & Matheson, 1998).

Companies that operate in intelligent ways possess a competitive advantage, rather than act as a reaction to the crises and opportunities; can discover opportunities and invest in them before competitors, will be able to identify and solve problems before they become crises, and re-engineer internal processes, products, and services to enhance customer satisfaction, and increase their loyalty (Eckerson, 2003). Consequently, organizational intelligence is seen as a threshold to distinguish between winners and losers in the digital economy (Filos, 2006).

Smart organization has a clear strategic vision, merit culture, and supportive incentives system. Smart organization uses the employee's collective intelligence to enhance its ability to learn and adapt to the environment (Schafer, 2009).

In the 21st century smart companies use business intelligence to increase its agility and confront the growing customer needs, and changing markets. Effects of smart organizations should be considered from the systemic holistic perspective which includes three key areas related to the life cycle of products that define the organization's impacts on its suppliers, manufacturers, and distributors, on one hand, the relations of the organization that determine its impact on shareholders and customers on another hand, and the value of organization for environment and society, on the third hand (Estes, 2009).

Oswald is one of the major companies in risk management, financial intermediation and insurance, ranked the top 50 CEO's of smartest companies in the United States for their ability to build smart organizations and their effective leadership. A special awards were announced to companies in the areas of innovation, impact, and sustainability (Smart 50 Awards, 2015).

Despite the lack of agreement on the clear and specific criteria for measuring social performance and environmental performance of organizations, there are a lot of criteria by which to judge the performance of business organizations in environmental protection and community service. There are detailed indicators to measure the interests of each category of stakeholders, which are expressed as indicators measuring social performance and environmental performance to stakeholders; such as local community, environment, employees, customers, owners, shareholders, government, minorities, and groups with special needs, etc. Besides many business organizations have begun to develop their own standards for measuring the social performance and environmental performance with the evolution of the concept of social responsibility and business ethics (AL-Ghalibi & AL-Ameri, 2015).

Organizations vary depending on the nature of its business and processes in its impacts on the environment. For example, oil companies, chemical industry, and extractive industries are not business-friendly environment. Other organizations are less harmful to the environment, such as universities and banks. But it is known that all organizations have disparate negative impacts on the environment (AL-Ghalibi & AL-Ameri, 2015).

As illustrated in previous literature (Chang, Wenjing, & Xiaoyan, 2015), environmental issues, environmental protection, and the legal and regulatory enforcement mechanism for environmental and social performance in emerging economies is much weaker than those in developed economies. While previous studies have focused on the impact of regulatory and legal factors in environmental performance, other studies offered different interpretations of the companies that own the self-regulation and voluntary environmental performance improvement, but the results seem mixed.

Jordan Phosphate Mines Company (JPMC) supports local community to achieve sustainable development, and encourages the local community members to launch their own small enterprises in order to provide employment and local economic development. The volume of cash and in-kind support from the company during the years (2010-2014) to the community was 14 millions (JPMC Annual Report, 2014).

Mission of JPMC is to be one of the leading companies in the phosphate mining and the development of products, such as fertilizers and other in lower cost, while preserving the environment and employees safety to

benefit shareholders, employees, community, and national economy. JPMC launched its vision to remain at the forefront of international companies that meet the needs of its customers and benefit the shareholders (JPMC Website, 2016).

JPMC is developing programs on social responsibility and sustainability, and adopting some characteristics of smart organization such as formulating a strategic vision, building a supportive organizational culture, and developing incentive systems that support its vision and organizational culture. While interested group in the environment considered with the great danger which may result from extractive industries on local community and environment, the problem of study may arise from a question about JPMC experience outputs of smart organization particularly on social performance and environmental performance. Therefore, the purpose of this study was to explore the impact of smart organization characteristics on social and environmental performance of JPMC.

## 2. Literature Review & Study Hypotheses

Ostadali & Banisi's study (2014) reported significant positive impact of organizational intelligence and organizational learning on employees' performance, the same study also revealed that levels of organizational intelligence and organizational learning at the Oil Ministry in Iran were ranging from moderate to high. It can be concluded that organizations with high levels of organizational intelligence, learning, and performance have the ability to understand and gain knowledge relevant to business objectives, act on complex conditions, work effectively, interpret environmental signals, and to act wisely on different events and learn from new experiences.

Rasule and Mohammadrahim's study (2014) revealed a relationship between organizational intelligence and efficiency of employee training, and physical education in the management of education in Azerbaijan

The results of one study (Kahkha, Pourghaz, & Marziyeh, 2015) indicated that level of managers' perceptions about organizational intelligence, and career advancement was high. The same study explored that organizational intelligence and its elements are associated with a positive statistical relationship to innovation management and career advancement.

Ejeilat's study results (2013) showed that there is a statistical impact of smart organization characteristics on technical innovation, a statistical impact of smart organization characteristics (achieve purpose, understand the environment, mobilize resources, and building collective intelligence) on learning orientation, and a statistical impact of smart organization characteristics on technical innovation through learning orientation as mediating variable. Ejeilat's study (2013) recommended programming, designing, and development companies in Amman city to integrate the outputs of applying smart organization characteristics to achieve cumulative experience which has a positive impact on innovation and performance.

AL-Masalheh's study concluded that there is a statistical significant impact of operations of knowledge management system on organizational agility at manufacturing companies in Jordan. The study also found that there is a significant statistical impact of operations of knowledge management system on organizations' responsiveness, competency, quickness, and flexibility to encounter radical, unprecedented, and unpredicted changes in business environments.

The study of Al-Qasim (2010) found that principles of organizational smartness (achieve purpose, understand the environment, mobilize resources, and building collective intelligence) are available at commercial banks in Jordan.

Filos's study (2006) revealed that the concept of smart organization came up as a result of business organizations need to respond to the digital economy that is rapidly changing. The study concluded that smart organizations are characterized by the ability to quickly adapt to meet the challenges, and enjoy agility in knowledge generation, and enabling organizations to capture opportunities in the digital age.

Matheson and Matheson's study (2001) indicated that application of the principles of organizational intelligence is positively correlated with performance, which led to the conclusion that smart organizations have better performance than those that are not in the same level of intelligence.

The researchers expect that current study will be significant by adding new knowledge to academics, practitioners, and JPMC in Jordan. New information may contribute to the relevant literature by closing the research gap in terms of the relationship between smart organization characteristics and performance especially social and environmental performance.

Based on reviewing the related previous literature, the following hypotheses were postulated:

H<sub>1</sub>: Smart organization characteristics (clear strategic vision, merit culture, and supportive incentives system) are positively related to the company's social performance. The following three sub hypotheses were derived from this hypothesis:

H<sub>1.1</sub>: Clear strategic vision positively is related to the company's social performance.

H<sub>1.2</sub>: Merit culture is related to the company's social performance

H<sub>1.3</sub>: Supportive incentives system is related to the company's social performance.

H<sub>2</sub>: Smart organization characteristics (clear strategic vision, merit culture, and supportive incentives system) are related to the company's environmental performance. The following three sub hypotheses were derived from this hypothesis:

H<sub>2.1</sub>: Clear strategic vision is related to the company's environmental performance.

H<sub>2.2</sub>: Merit culture is related to the company's environmental performance.

H<sub>2.3</sub>: Supportive incentives system is related to the company's environmental performance.

Figure 1 shows framework of the study, which consists of independent variables smart organization characteristics (clear strategic vision, merit culture, and supportive incentives system) and two dependent variables, namely social performance and environmental performance of JPMC.

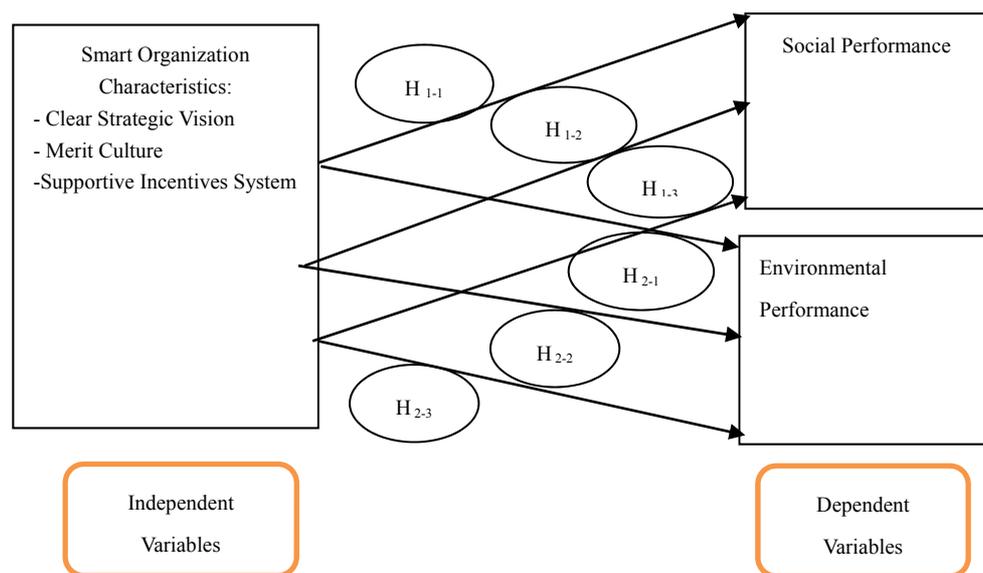


Figure 1. Framework of the study

The variables of this study were operationalized to make them measurable in a tangible way to be involved in the research process (Zikmund et al., 2013) by looking at the behavioral dimensions, facets, or properties denoted by the concept (Sekaran & Bougie, 2013) and then subdividing them into several obviously measurable elements as can be seen in Tables 2, 3, and 4 which show the paragraphs that were used to measure the searched variables; smart organization characteristics, social performance, environmental performance respectively.

### 3. Research Methodology

This study is an empirical research on the JPMC. In order to measure the impact of smart organization characteristics on social performance and environmental performance, a survey questionnaire was distributed to all directors and heads of departments in the headquarter of the JPMC to collect the relevant field data about research variables in order to test the research hypotheses, and then to formulate some recommendations that enhance the social performance and environmental performance of the JPMC based on the reached results.

### 3.1 Jordan Phosphate Mines Company

JPMC was founded in 1949, JPMC is a public shareholding limited company, aiming at the exploitation of phosphate ore in Jordan. Its current capital is JOD 75 million. JPMC has assumed its pioneering position among the international companies in the fields of mining and producing fertilizers. It has become a major component of the Jordanian economic structure and exports. The company operates in Jordan, which has the fifth largest reserve of phosphate in the world, JPMC is the second largest exporter, and sixth largest producer of phosphate in the world (JPMC Website, 2016).

JPMC is committed to minimize the impacts of its operations and products on the environment, and continuously search for solutions related to environment issues affecting the industry of energy. JPMC strives to protect the environment in accordance with international standards, and reduce water and energy consumption. (JPMC Website, 2016).

JPMC established a series of successful projects with strategic partners in Jordan to improve the performance, quality, and product development. Strategic planning is the most important factor in the success of JPMC, which plans to cut costs and raise productivity, diversify exports, promote fundamental values, and human resource development. JPMC is interested in scientific research for the development of processes and products (JPMC Annual Report, 2014).

### 3.2 Unit of Analysis

Unit of analysis refers to the level of aggregation of the data to be collected during the data analysis stage. The analysis unit may be at the individual, group, business unit, or organization level (Sekaran & Bougie, 2013; Zikmund et al., 2013). The unit of analysis of the present study consists of all directors and heads of departments in headquarter of the JPMC; because they are familiar with the company's practices in relation to social and environmental performance, and realize the company's characteristics. 130 questionnaires were distributed to all directors and heads of departments in headquarter of the JPMC, 61 were retrieved; which constitutes 47% of the total number of directors and heads of departments in headquarter of the company.

### 3.3 Research Tool

Questionnaire was developed after reviewing previous studies (Al-kasasbeh, 2016; Banisi & Ostadali, 2014; Schafer, 2009; Schwaninger, 2009; Albrecht, 2003) to measure smart organization characteristics, social performance, and environmental performance variables. The questionnaire included (37) paragraphs according to quintet likert scale.

### 3.4 Validity of Research Tool

The questionnaire was reviewed by a group of faculty members in the field of business management and management information systems, to ensure that the paragraphs of the questionnaire can measure smart organization characteristics, social performance, and environmental performance variables. Some paragraphs have been amended based on professionals' suggestions.

### 3.5 Reliability of Research Tool

Cronbach alpha coefficient was extracted to verify the internal consistency of the independent and dependent variables. Table 1 shows reliability coefficients of smart organization characteristics, social performance, and environmental performance variables which exceeded 70%, which is an acceptable measurement for statistical analysis.

Table 1. Cronbach Alpha coefficients

Variables	Cronbach Alpha
Clear strategic vision	0.942
Merit culture	0.917
Supportive incentives system	0.944
Social performance	0.914
Environmental performance	0.878

## 4. Research Findings

### 4.1 Perceptions of Respondents about the Study Variables

To measure perceptions of directors and heads of departments about the study variables, the level of importance of the responses to the questionnaire items was adopted according to the following equation:

Category Length = (maximum answer - minimum answer) / number of importance levels.

Category Length = (5-1)/3 = 1.33

Based on arithmetic mean, low importance level is ranging from 1-2.33, moderate importance level is ranging from 2.34-3.66, and high importance level is ranging from 3.67-5.

#### 4.1.1 Perceptions of Respondents about Smart Organization Characteristics

A review of arithmetic mean in table 2 shows that the perceptions of respondents about all items of the smart organization characteristics were moderate with general mean (2.9569).

Table 2. Arithmetic mean, standard deviations, and significance level for items of smart organization characteristics

Item	Mean	S.D.	Sig. Level
JPMC has a strategic vision	3.3443	.94667	Moderate
JPMC's vision describes the efforts required to achieve its objectives	3.1967	.92772	Moderate
JPMC's vision is an inspire source for its core values	3.1803	.90385	Moderate
JPMC is keen to communicate its vision clearly to all employees	2.9508	1.00708	Moderate
JPMC's vision enhances the collective intelligence of team members	2.7541	.99425	Moderate
JPMC's vision achieves the alignment between its goals and resources	3.0000	.91287	Moderate
JPMC's vision provides underlying motivation for teams to improve their performance to exceed the expected level	2.8361	.93417	Moderate
JPMC's values enhance the ability of teams to share knowledge	2.9016	1.02802	Moderate
JPMC's culture encourages open dialogue between employees	2.7869	1.06638	Moderate
JPMC listens to the voices of opposition workers	2.7377	1.03121	Moderate
JPMC does not punish dissenting opinions of its directions	2.9836	.95728	Moderate
JPMC encourages the exchange of creative ideas even though it's difficult to implement	2.7869	.95070	Moderate
JPMC provides an environment that encourages innovative behavior	2.7705	1.00654	Moderate
JPMC provides space for the collective adaptation	2.9016	.97818	Moderate
JPMC incentives system supports the company values	3.3607	.91347	Moderate
JPMC rewards interaction between individuals to achieve its objectives	2.9508	1.00708	Moderate
JPMC rewards cooperation between colleagues to develop its teams	2.9836	.99149	Moderate
JPMC rewards employees efforts which enhance its intelligence	2.8852	1.01814	Moderate
JPMC rewards knowledge sharing process between employees	2.8689	1.05634	Moderate
<b>General Mean</b>	<b>2.9569</b>		<b>Moderate</b>

#### 4.1.2 Perceptions of Respondents about Social Performance

Table 3. Arithmetic mean, standard deviations, and significance level for items of social performance

Item	Mean	S.D.	Sig. Level
JPMC provides an assistance for poor families of the community	3.8525	.83339	High
JPMC contributes in creating jobs for the community	3.4918	.88737	Moderate
JPMC contributes to support infrastructure projects in the community	3.4918	.84898	Moderate
JPMC contributes to support small businesses in community	3.2131	1.00191	Moderate
JPMC is one of the enabling factors of social development in the community	3.6230	.79925	Moderate
JPMC respects the customs and traditions of the community	3.8033	.65370	High
JPMC takes into account the principle of equal opportunities of employment.	2.4754	1.11962	Moderate
JPMC provides grants to assist charities in the community	3.5082	.88737	Moderate
JPMC provides support to schools in the community	3.3934	.89961	Moderate
JPMC offers scholarships to outstanding students in the community	2.9016	1.16483	Moderate
JPMC sponsors the national actors in the community	3.5410	.80775	Moderate
JPMC contributes in the training of university students from the local community	3.9344	.83404	High

JPMC provides health care for its employees	3.8197	.88522	High
JPMC provides health care for the families of their employees	3.8033	.87216	High
<b>General Mean</b>	3.4895		Moderate

It could be noted from arithmetic mean in Table 3 that the respondents' perceptions about the items of social performance were moderate with the exception of items 20, 25, 31, 32, and 33 were with high significance levels with arithmetic means (3.8525), (3.8033), (3.9344), (3.8197), and (3.8033) respectively.

#### 4.1.3 Perceptions of Respondents about Environmental Performance

It could be noted from arithmetic mean in the Table 4 that the respondents' perceptions about items of environmental performance were moderate with a general mean (3.5041).

Table 4. Arithmetic mean, standard deviations, and significance level for items of environmental performance

Item	Mean	S.D.	Sig. Level
JPMC takes into account the international standards in its production processes to maintain the various components of the environment	3.6393	.77530	Moderate
JPMC contributes in reducing the carbon emissions that pollute the environment	3.6557	.77212	Moderate
JPMC adopts environmental friendly alternative energy solutions	3.2131	.91496	Moderate
JPMC takes the procedures to minimize the damage of its operations on the community	3.5082	.64866	Moderate
<b>General Mean</b>	3.5041		Moderate

#### 4.2 Hypotheses Testing

The results of the multiple regression analysis in table (5) indicate that there is no statistical effect of clear strategic vision on social performance of JPMC; Beta = .007, P = .963 Thus, hypothesis H1-1 was rejected. Also H1-2 was rejected as it was found that there is no statistical effect of merit culture on social performance of JPMC; Beta = .164, P = .418. But the results revealed that there is a statistical effect of supportive incentives system on social performance of JPMC; Beta = .564, P = 0.001 which supported hypothesis H1-3.

Table 5. Results of multiple regression analysis of the effect of smart organization characteristics on social performance

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	1.957	.230		8.527	.000
	Vision	.006	.122	.007	.047	.963
	Culture	.123	.151	.164	.816	.418
	Incentive	.387	.113	.564	3.412	.001

Dependent Variable: Social Performance.

The results of the multiple regression analysis in table (6) indicate that there is no statistical effect of clear strategic vision on social performance of JPMC; Beta = .358, P = .091 Thus, hypothesis H2-1 was rejected. There is no statistical effect of merit culture on social performance of JPMC; Beta = -.460, P = .082. Thus, hypothesis H2-2 was also rejected. Whereas, hypothesis H2-3 was supported; Beta = .463, P = 0.035 which indicates that a statistical effect of supportive incentives system on social performance of JPMC exists.

Table 6. Results of multiple regression analysis to test the effect of smart organization characteristics on environmental performance

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	
	B	Std. Error	Beta			
1	(Constant)	2.643	.322		8.213	.000
	Vision	.294	.171	.358	1.721	.091

Culture	-.376	.212	-.460	-1.771	.082
Incentive	.344	.159	.463	2.162	.035

Dependent Variable: Environmental Performance.

## 5. Conclusion

This research came to measure the impact of smart organization characteristics on social performance and environmental performance of JPMC. In the light of research results, the following conclusions were found based on the analyses:

-The perceptions of respondents about all items of the smart organization characteristics were moderate. This indicates that insufficient efforts have been devoted by JPMC to the clear delivery of its vision to employees, which means that the company couldn't enhance the collective intelligence of its teams to work well, was not able to build up a merit based organizational culture, and did not clearly link between its incentive system, and both of its vision and culture.

This result agrees somewhat with the results of Banisi and Ostadali's study (2014) which explored that organizational intelligence levels among employees of the Oil Ministry in Iran are ranging from moderate to high.

-The respondents' perceptions about the items of social performance were moderate with the exception of some paragraphs relating to company assistance for poor families of the community, company respect of customs and traditions of the community, contribution in university students training, and providing health care for its employees and their families. The significance levels of these paragraphs were high.

According to significance level of many items of social performance, it seems that the contribution of JPMC in creating jobs for the local community is still modest. Its role in enhancing principle of equal employment opportunities, providing scholarships for outstanding students, supporting of infrastructure projects, small businesses, charities, schools, and sponsorships is still limited.

-The respondents' perceptions about items of environmental performance were moderate. This indicated that JPMC neither devoted enough efforts to protect the environment nor taked the necessary procedures to minimize the damage of its operations on the surrounded environment. This also declared that JPMC's contributions in reducing carbon emissions which pollute the environment were insufficient. We can also conclude that environmental friendly alternative energy solutions were not adopted, and international standards were not also taken into account in different components of the environment in production processes.

-There is no statistical effect of clear strategic vision and merit culture on social performance and environmental performance of JPMC. This might be due to the lack of the company's sufficient role in enabling social development in the local community, and the lack of the company's role in enhancing its interest in the green dimension of friendly environment.

-There is a statistical effect of supportive incentives system on social performance and environmental performance of the JPMC. The results of the study regarding the impact of supportive incentives system on social performance and environmental performance partially consistent with the results of Matheson & Matheson's study (2001) which revealed that the application of organizational intelligence principles is positively correlated with performance. Also the results of this study partially consistent with findings of Mahmoudi & Asgari's study (2013) which found that the smart tools and smart human resources are playing a crucial role in organizational performance.

## 6. Implications

In the light of the research findings, the following implications could be presented:

1-Since there is a positive effect of supportive incentives system on both of social performance and environmental performance, it is necessary to pay more attention to supportive incentives system building in JPMC through delivering its vision clearly to all employees, enhancing collective intelligence teams, building an organizational culture based on respect to values of merit and efficiency, and linking incentive and rewards system with the company's vision, core values, and organizational culture.

2-The need to raise the level of contribution of JPMC in providing jobs for the local community, enhancing its role in sustainable social development, taking into account the principle of equal employment opportunities, increasing its support for infrastructure projects, small businesses, charities, schools, and the need to pay more attention to provide scholarships for outstanding students, and sponsoring national activities.

3-JPMC is advised to pay more attention to environmental protection, through procedures of minimizing the damage of its operations on the environment, reducing the carbon emissions that pollute the environment, adopting of environmental friendly alternative energy solutions, taking into account the international standards in protecting the environment, and enhancing its interest in the green dimension.

### 7. Limitations

Since the data was collected from JPMC only, generalizability to other companies might be limited. Thereafter, it is recommended to conduct further studies on the variables smart organization characteristics, social performance, and environmental performance at other business organizations in Jordan.

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