

THE RELATIONSHIP BETWEEN INTELLECTUAL CAPITAL, ORGANIZATIONAL LEARNING AND INNOVATIVE PERFORMANCE AMONG SMEs IN JORDAN

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Abstract: The aim of this study investigates empirically the relationship between intellectual capital, organizational learning and innovative performance among Jordanian SMEs. Data was gathered by using a questionnaire survey. The questionnaire was distributed to a sample of 600 managers / owners from Jordanian SMEs. 325 usable questionnaires were returned. PLS SEM technique had been applied to analyses the data. The findings showed that intellectual capital (human capital and customer capital dimensions) were found positively and significantly related to innovative performance. In addition, organizational learning (information acquisition, information distribution and organizational memory dimensions) also, were found positively and significantly related to innovative performance. The current findings showed that structural capital and information interpretation were not factors that could influence to innovative performance.

Keywords: Innovative Performance; Intellectual Capital; Organizational Learning; SMEs; Jordan

1. INTRODUCTION

Firms are faced with challenges concerning their survival and as such, they are continuously promoting differentiation and innovation whether or not it is related to the new product and service creation (Khalil, Nejadhussein & Fazel, 2013; Comlek, Kitapci, Celik & Ozsahin, 2012). Majority of firms are in need of creating innovative performance to direct them to create new products and services and enhancing the quality of their goods and services as well as acquiring an organizational structure that meets the requirements of competitive environment (Khalili et al., 2013; Riani, 2013). Therefore, in the context of SMEs, entrepreneurial environment with effective innovators are needed if such enterprises are desirous of increasing their level of expert and their survival level, (Fernandez-Mesa & Alegre 2015). SMEs displaying innovative performance may be affected by limitations in resources like the lack of qualified and experienced workforce or financial capabilities (De Leeuw, Lokshin & Duysters, 2014).

However, there is a need for more empirical research to be conducted to shed light on intellectual capital and organizational learning concepts in order to furnish an accurate description of the its effect. Prior studies reported that firm size positively and significantly influence innovative performance (Chen, Chen, & Vanhaverbeke, 2011). In the present study, the researcher focuses on small and medium-sized enterprises (SMEs) that have limited operations, minimal capital outlay and a few human resources. The SMEs are significantly different from their larger counterparts in their business models and thus, call for a divergent approach from them (Nasir, 2013).

In the context of Jordan, although Jordanian SMEs contribute significant to the economy, the sector has been plagued with challenges beginning from when Jordan developed into a highly deregulated and open market economy. Jordanian government has acknowledged the importance of innovation in developing the country economy. Thus, this study can make an effective contribution to understand the utmost way to plan for successful SMEs in Jordan. This study also should benefit both scholars and practitioners regarding ways for increasing the level of innovative performance among the SMEs. A literature search reveals limited empirical studies on the issues of intellectual capital and organizational learning and innovative performance among Jordanian SMEs.

2. LITERATURE REVIEW

2.1 Innovative Performance (IP)

The challenges for companies to survive are doing so differentiation and continuous innovation, whether it is related to the creation of new products and services (Khalili et al., 2013). So, according to Khalili, et al. (2013) focused to definition of innovative performance in newness of products and services, they defined innovative performance as it contains new products and new projects which are leading to these: new products and services improving the quality of goods and services, and adopting organizational structure with competitive environment requirements.

Khalili, et al. (2013) proposed assessments to measure the innovative performance in firms that include; number of new good and service projects, number of innovations for work processes and

methods, number of innovations that are-or possible to be patented, renewal of organizational structure and mentally to adapt the changing environmental conditions, marketing new products before than competition and finally the rate of new products in the production line. Furthermore, Hagedoorn and Cloudt (2003) defined innovative performance as the achievements of companies in terms of ideas, sketches, and models of new devices, products, processes and systems. But, Lokshin, Van Gils and Bauer (2009) focused to its definition of innovative performance as a radical innovations and incremental innovations which are the two extremes on the continuum of the novelty degree of a product. According to Gunday, Ulusoy, Kilic & Alpkan (2011) that innovative performance is the integration of the overall organizational achievements that stems from its renewal and improvements efforts in different innovative aspect of firm namely, processes, products, and structure.

Previous studies have shown that here are many factors that could effect on innovative performance. Some of the factors have been shown to have a positive relationship with innovative performance. These factors include intellectual capital (Alpkan, Bulut, Gunday, Ulusoy & Kilic, 2010; Chahal & Bakshi, 2015; Delgado, 2011; El-Telbani, 2013; Gonzalez-Loureiro & Dorrego, 2012; Halim, Ahmad, Ramayah & Hanifah, 2014; Han & Li, 2014; Wu, Chang & Chen, 2008; Zerenler, Hasiloglu & Sezgin, 2008), and the organizational learning (Comlek et al., 2012; Fernandez-Mesa & Alegre, 2015; Sanz-Valle, Naranjo-Valencia, Jiménez-Jiménez and Perez-Caballero, 2011; Wang, 2008; Wang & Ellinger, 2011). Furthermore, there is a lack of studies in intellectual capital and organizational learning with innovative performance in SMEs sector. Hence, the researcher did not find single study that explains the relationship of these compounded factors and innovative performance. Therefore, it is an indicator that innovative performance has not been extensively examined.

Lastly, based on the Resource-based View theory (Barney, 1991), the heterogeneous resources are characterized as valuable, rare, inimitable and non-substitutable (VRIN) to obtain and maintain competitive advantage of firm that could lead to enhanced firm performance. Availability of ideas, talents, projects and employees' /managers' knowledge base by intellectual capital and organizational learning. So they are necessary to achieving of innovative performance.

2.2 Intellectual Capital

Intellectual capital is an input to innovation; innovation as a result of the use of knowledge and intellectual capital, the innovation process as a knowledge management process (González-Loureiro & Dorrego, 2012). Innovation represents a way to create more value in a firm. Therefore, it seems that firms with a greater strategic focus on innovation should have higher ratios of value creation. So, firms with the same level of intellectual capital might not derive equal benefits, because they differ in their ability of sensing, seizing and reconfiguring such capital (Han & Li, 2014).

In the present study, intellectual capital is defined based on the definition provided in literature that refers to the concept as the intangible assets that the firm has and it comprises of human capital, structural capital and customer capital (Wu et al., 2008). This definition covers all main dimensions of intellectual capital; human capital, structural capital and customer capital.

2.3 Intellectual Capital and Innovative Performance (IP)

In the past, studies on intellectual capital and innovative performance have shown a mix results when tested in various settings. While some of studies have shown significant relationships between intellectual capital and innovative performance, the findings they reported were inconsistent. Majority studies that reported a positive and significant relationship between the two variables (e.g. Alpkan et al., 2010; Chahal & Bakshi, 2015; Delgado, 2011; El-Telbani, 2013; Gonzalez-Loureiro & Dorrego, 2012; Halim et al., 2014; Han & Li, 2014; Wu et al., 2008; Zerenler et al., 2008). On the other hand, there are few other studies have shown some of intellectual capital dimension negatively related to innovative performance (e.g. Campanella, Rosaria Della Peruta & Del Giudice, 2014; Subramaniam & Youndt, 2005).

In conclusion, many studies have been conducted and found all three intellectual capital dimensions such as human capital, customer capital and structural capital were significantly positively related to innovative performance (Alpkan et al., 2010; El Telbani, 2013; Halim et al., 2014; Han & Li, 2014; Wu et al., 2008). Therefore, it is hypothesized that:

- H1: There is positive relationship between intellectual capital and innovative performance
- H1a: There is positive relationship between human capital and innovative performance
- H1b: There is positive relationship between structural capital and innovative performance
- H1c: There is positive relationship between customer capital and innovative performance

2.4 Organizational Learning

The essence of organizational learning (OL) in creating knowledge within the organization works towards sustaining competitive advantage that leads towards the creation of novel markets and positions (Jones & Macpherson, 2006). Stated clearly, an organization's knowledge is considered as an asset that contributes when managed towards the innovative performance of the firm (Wang & Ellinger, 2011). However, non-systematic and inconsistent practices of learning are still common in SMEs where firm infrastructure and HR-related solutions are relatively weak (Tam & Gray, 2016).

The present study defines organizational learning as a process that involves information acquisition, information distribution, information interpretation, and organizational memory among employees in the organization (Wang & Ellinger, 2011). This definition covers all main dimensions of organizational learning which includes both adoption of behavior change and creation of knowledge at multiple levels within an organization and is most suitable definition for SMEs' learning context (Wang & Ellinger, 2011; Wang, 2008; Huber, 1991).

2.5 Organizational Learning and Innovative Performance (IP)

A review of literature also reveals that majority of the studies concerning organizational learning and innovative performance has shown a mix results when tested in various settings. Some prior studies that reported a positive and significant relationship between the two variables organizational learning and innovative performance (e.g. Abo-Kashef, 2013; Dada & Fogg, 2014; Fernandez-Mesa & Alegre, 2015; Santos-Vijande, López-Sánchez & González-Mieres, 2012); Wang & Ellinger, 2011; Zhou, Hu, H & Shi, 2015). Contrastingly, Comlek et al. (2012) and Abo-Kashef (2013) revealed positive impacts as some of OL dimensions on innovative performance but such impact was insignificant.

In conclusion, many studies have been conducted and found all four organizational learning dimensions such as information acquisition, information distribution, information interpretation, and organizational memory were significantly positively related to innovative performance (Comlek et al., 2012; Fernandez-Mesa & Alegre, 2015; Sanz-Valle et al., 2011; Wang, 2008; Wang & Ellinger, 2011). Therefore, it is hypothesized that:

- H2: There is positive relationship between organizational learning and innovative performance
- H2a: There is positive relationship between information acquisition and innovative performance
- H2b: There is positive relationship between information distribution and innovative performance
- H2c: There is positive relationship between information interpretation and innovative performance
- H2d: There is positive between organizational memory and innovative performance

2.6 Theoretical Framework

As a result, the intellectual capital and organizational learning appear to be major interests in order to develop the capacity for innovative performance in organizations. Consequently, the above discussion leads to the theoretical framework as given in Figure 1.

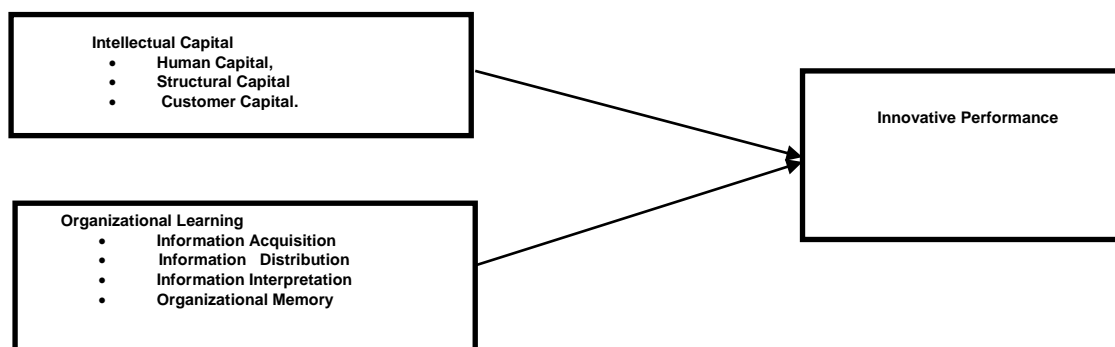


Fig. 1: Theoretical Framework

3. RESEARCH METHODOLOGY

3.1 Respondents of the Study

The total number of the SMEs in Jordan is 43091 (Social Security Corporation, 2016). However, for practical reasons, only 11227 SMEs in Amman, Irbid and Zarqa that have been in operation for more than 3 years were chosen in the population for this study. These cities were chosen as they are among the cities that have the most SMEs in Jordan.

A systematic random sampling method was applied and a total of 600 questionnaires were distributed through a representative appointed at each city. The distribution and collection of the survey instruments took about four months. Of the 600 questionnaires distributed to managers/owners of SMEs, only 325 questionnaires were found to be useful for further analysis, which indicates a response rate of 54.1%. The respondents of this study consisted of 82.5% of the 325 SMEs in this survey were in Amman. Majority of the age of the SMEs (61.2%) were above ten years. According to type of industry that 51.4% of SMEs were manufacturing. In terms of the total number of employee in the SMEs, the category of 20 to 99 (medium enterprises) was the largest group (64.9%). Most of the ownership of SMEs had (46.2%) of limited liability.

3.2 Measurements

Five-point Likert scale was used in all measures, whereby 1 represents 'strongly disagree', 2 represents 'disagree', 3 represents 'neutral', 4 represents 'agree' and 5 represents 'strongly agree'. Firstly, innovative performance measured by seven items developed by Gunday et al., (2011). Intellectual capital was measured using by three dimensions namely, human capital, structural capital and customer capital. Human capital was measured by six items scale adopted from Wu, et al. (2008), while structural capital was measured using by seven items scale adopted from Wu, et al. (2008). Customer capital is measured by six items. Lastly, organizational learning was measured using by four dimensions namely, information acquisition, information distribution, information interpretation and organizational memory. Organizational learning is measured by 25 items developed by Wang and Ellinger (2011). Information acquisition was measured by seven items scale while information distribution was measured using by five items scale. Information interpretation is measured by five items and organizational memory was measured by eight items.

4. DATA ANALYSIS

This study employed SPSS 20.0 for all descriptive analysis and partial least squares (PLS) path modeling using Smart PLS 2.0 software to perform data analysis (Wold, 1985; Hair, Hult, Ringle, & Sarstedt, 2014; Wong, 2013; Henseler, Ringle & Sinkovics, 2009). A PLS model is normally analyzed and interpreted in two stages (Hair et al, 2014; Valerie, 2012); the measurement model and structural model to test the hypothesis.

4.1 Measurement Model

According to Hair, Ringle and Sarstedt (2011), and Gotz, Liehr-Gobbers, and Krafft (2010), there are three step procedures for evaluating the measurement model namely, individual item reliabilities, convergent validity and discriminant validity. According to Hair et al. (2014) and Hair et al. (2011), indicator loadings (factor loadings) should be higher than 0.70. Based on the above recommendations, this study used a cut-off value for factor loadings at 0.70 as being significant. As shown in Table 1 and Figure 2, all item loads a range from 0.71 to 0.89 into their respective construct. Next, the convergent validity of each construct was assessed. Convergent validity refers to the extent to which item truly represents the intended latent construct and indeed correlate with other measures of the same latent construct (Hair et al., 2011; Valerie, 2012). Convergent validity was assessed by examining the average variance extracted (AVE) and composite reliability (CR) of 0.70 (Hair et al., 2011; Valerie, 2012). Chin (1998) recommends that AVE of more than 0.5 and the CR of 0.7 or above are deemed acceptable. As can be seen from Table 1, all loadings and AVE are above 0.5 and the composite reliability values are more than 0.7. Therefore, it can be concluded that convergent validity has been established.

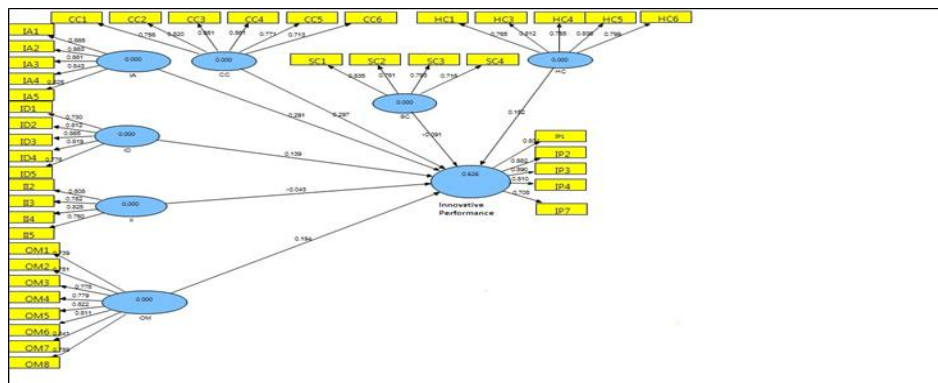


Fig. 2: Construct Validity for Study Model

Table 1: Result of the Measurement Model – Convergent Validity

Constructs	Items	Loading	Average Variance Extracted (AVE)	CR
Innovative Performance	IP1	0.83	0.68	0.92
	IP2	0.88		
	IP3	0.89		
	IP4	0.81		
	IP7	0.71		
Human Capital	HC1	0.76	0.63	0.90
	HC3	0.81		
	HC4	0.76		
	HC5	0.84		
	HC6	0.80		
Structural Capital	SC1	0.83	0.60	0.86
	SC2	0.76		
	SC3	0.79		
	SC4	0.72		
Customer Capital	CC1	0.76	0.64	0.91
	CC2	0.82		
	CC3	0.85		
	CC4	0.86		
	CC5	0.77		
	CC6	0.71		
Information Acquisition	IA1	0.89	0.75	0.94
	IA2	0.88		
	IA3	0.88		
	IA4	0.84		
	IA5	0.83		
Information Distribution	ID1	0.73	0.64	0.90
	ID2	0.81		
	ID3	0.86		
	ID4	0.82		
	ID5	0.78		
Information Interpretation	II2	0.81	0.63	0.87
	II3	0.78		
	II4	0.83		
	II5	0.76		

Organizational Memory	OM1	0.74	0.62	0.93
	OM2	0.75		
	OM3	0.78		
	OM4	0.78		
	OM5	0.82		
	OM6	0.81		
	OM7	0.84		
	OM8	0.79		

The discriminant validity as next step, according to Hair et al. (2011) stated that discriminant validity stipulates that each latent constructs' AVE should be higher than the construct's highest squared correlation with other latent construct (Fornell–Larcker's, 1981) and the indicators loadings should be greater than all its cross loadings. In the present study, discriminant validity of the measures was assessed through the Fornell and Larcker's (1981) criterion. Similar with correlation matrix depicted in Table 2.

Table 2: Discriminant validity of construct

	Customer Capital	Human Capital	Information Acquisition	Information Distribution	Information Interpretation	Innovative Performance	Organizational Memory	Structural Capital
Customer Capital	0.80							
Human Capital	0.67	0.80						
Information Acquisition	0.58	0.50	0.86					
Information Distribution	0.64	0.61	0.46	0.80				
Information Interpretation	0.59	0.56	0.45	0.53	0.79			
Innovative Performance	0.70	0.60	0.64	0.60	0.49	0.83		
Organizational Memory	0.69	0.55	0.56	0.63	0.58	0.65	0.79	
Structural Capital	0.63	0.65	0.55	0.61	0.46	0.53	0.55	0.78

Note: Diagonal represents the square root of Average Variance Extracted (AVE) while the other entries represent squared correlations

4.2 Structural Model

The structural model illustrates the relationships between latent variables or constructs that were hypothesized in the model of research. The significance of all path estimates and the variance explained (R²) of the endogenous constructs were applied to determine the goodness of the theoretical model (Chin, 2010). As presented in Table 3 and Figure 3, the results of the structural model from the PLS output.

Human capital was found positively and significantly related to innovative performance ($\beta = 0.152$, $t = 2.518$, $p < 0.05$), hence, supporting Hypothesis 1a. In addition Hypothesis 1b showed no significant relationship between structural capital and innovative performance ($\beta = -0.091$, $t = 1.492$, $p > 0.10$), thus, this Hypothesis 1b was not supported. Customer capital was found positively and significantly related to innovative performance ($\beta = 0.297$, $t = 3.745$, $p < 0.05$), hence, supporting Hypothesis 1c.

Information acquisition was found positively and significantly related to innovative performance ($\beta = 0.291$, $t = 5.207$, $p < 0.05$), hence, supporting Hypothesis 2a. Similarly, Hypothesis 1b showed positive relationship and significant between information distribution and innovative performance ($\beta = 0.139$, $t = 1.492$, $p > 0.10$), thus, this Hypothesis 1b was not supported.

= 2.035, $p < 0.05$), thus, this Hypothesis 2b was supported. In addition, information interpretation was found negatively and non-significantly related to innovative performance ($\beta = -0.043$, $t = 0.991$, $p > 0.10$), hence, Hypothesis 2c was not supported. Lastly, organizational memory was found positively and significantly related to innovative performance ($\beta = 0.194$, $t = 3.329$, $p < 0.05$), hence, supporting Hypothesis 2d.

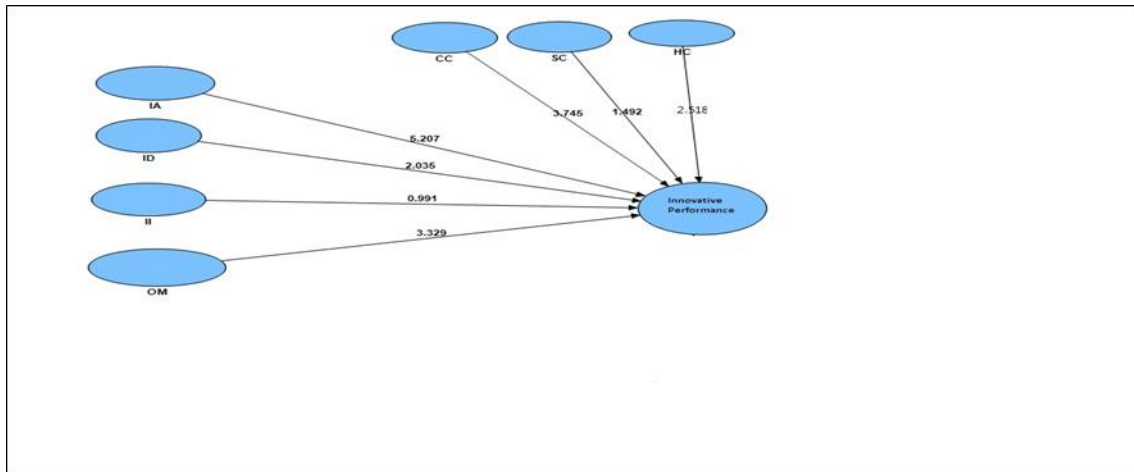


Figure 3: The Structural Model

Table 3: Summary of the Structural Model

Hypothesis	Relation	Beta	Standard Error	T-Value	P-value	Decision
H1a	Human Capital -> Innovative Performance	0.152	0.062	2.518	0.01**	Supported
H1b	Structural Capital -> Innovative Performance	-0.091	0.062	1.492	0.07	Not Supported
H1c	Customer Capital -> Innovative Performance	0.297	0.084	3.745	0.00***	Supported
H2a	Information Acquisition -> Innovative Performance	0.291	0.056	5.207	0.00***	Supported
H2b	Information Distribution -> Innovative Performance	0.139	0.067	2.035	0.02**	Supported
H2c	Information Interpretation -> Innovative Performance	-0.043	0.042	0.991	0.16	Not Supported
H2d	Organizational Memory -> Innovative Performance	0.194	0.056	3.329	0.00***	Supported

Note: ***Significant at 0.01 (1-tailed), **significant at 0.05 (1-tailed), *significant at 0.1 (1-tailed).

5. RESULTS AND DISCUSSION

In general, intellectual capital is significantly related to innovative performance; the findings of this study support previous findings, except the finding regarding to structural capital. The finding relating to structural capital is not as hypothesized; it shows that there is no relationship between structural

capital and innovative performance. Hence, let's examine this finding first. The current findings showed that structural capital is not a factor that could influence innovative performance, one possible explanation for this situation is that structural capital included all non-human storehouses of knowledge in organizations, but SMEs do not have enough of these resources that enhance the environment for innovation in its production, because of their small size and recent establishment. Hence, SMEs need longer time to increase and improve level of innovative performance.

The findings of the study also revealed that human, capital customer capital and innovative performance were positively related. It seemed that the findings of this study confirm the findings of previous research (Alpkan et al., 2010; El Telbani, 2013; Halim et al., 2014; Han & Li, 2014; Wu et al., 2008 ; Zerenler et al., 2008). In other words, human capital is important for innovative performance. Indeed, when SMEs are highly acquired with their human capital they are able to do their performance better and thus is able to higher innovation. Another factor that was found to have a positive effect on innovative performance is customer capital. SMEs that is supportive of its customer capital means that the firms value the contribution of their level of innovative performance.

From the findings, H2 (organizational learning and innovative performance) is supported; the findings of this study support previous findings, except the finding regarding to information interpretation. The findings relating information interpretation are not as hypothesized; it shows that there is no relationship between information interpretation and innovative performance. Hence, let's examine this finding first. Unexpectedly,

According to findings of the study also revealed that information interpretation and innovative performance was not significantly related. However, a plausible explanation for this inconsistent finding might be due to the information interpretation that included the sharing of the organization of its aims, knowledge and experience to its committed employees and the development of internal rotation programs for employee shifting from one department to the next while providing learning opportunities (Wang & Ellinger, 2011). Jordanian SMEs due to the obvious weakness in its internal environment to work, especially in teamwork, as well as Jordanian SMEs (especially small companies) continue to suffer in the training process and maybe this is due to the limited size of the companies and shortage of the government support to SMEs.

The result from the present study indicated that an information acquisition, information distribution and organizational memory were positively related to innovative performance. This finding supports previous studies conducted by Comlek et al. (2012), Fernandez-Mesa and Alegre, (2015), Sanz-Valle et al. (2011), Wang (2008) and Wang and Ellinger (2011). Information acquisition is the important factor to gain new knowledge to improve performance of companies. In the context of Jordanian SMEs, external sources for new knowledge production are needed to development new innovation for performance. The current findings showed that information distribution is a factor that could influence innovative performance, due to information distribution is the spread of knowledge among the members of the organization to assist transference through individual organizational level of learning (Wang & Ellinger, 2011). In addition, the present findings of this study showed that Jordanian SMEs focus on distribution of the knowledge which is one of the fundamentals that make the knowledge more valuable for all employees, due to the organizational culture and lack of resources. Lastly, the findings indicated that organizational memory was the important predictor to innovative performance, although organizational memory consider as final stage in the organizational learning process. In addition, it is important for SMEs to own and use updated databases to keep abreast of the current knowledge and experience.

6. CONCLUSION

In conclusion, intellectual capital and organizational learning are good for enhancing innovative performance, which implies that SMEs must do to enhance these dimensions of intellectual capital (human capital and customer capital). In addition, this study supports the effect of organizational learning (information acquisition, information distribution, and organizational memory) with innovative performance among SMEs in Jordan.

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