

# Innovation as a Mediator in the Effect of Organisational Learning and Organisational Performance of Egypt's Public Sector Spinning and Weaving Companies

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This study aims to explore the impact of organisational learning (information acquisition- information dissemination - information interpretation- organisational memory) on organisational performance due to the innovations centred in Egypt's public sector spinning and weaving companies. To test the degree of impact, the researchers undertook path analysis by using the Analysis of Moment Structures' tool known as Amos. This study's findings show that, due to the innovations centred in Egypt's public sector spinning and weaving companies, the dimensions of organisational learning processes have a significant effect on organisational performance. This supports the recommendation that, with technical innovation at the centre, care and attention is needed to support organisational learning processes to improve performance.

**Key words:** *Innovation; Organisational Learning; Organisational Performance*



## Introduction

Organisations are constantly seeking an effective strategy to improve their performance. In stable environments as proposed in the Management and Economics Literature (Dharmadasa 2009), performance has been improved through effective operational practices such as job specialisation and cost control. Recent changes in the competitive environment, more particularly as demonstrated in the emergence of globalisation and knowledge-based economies and advances in information technology and communication, have forced organisations to continue to seek new strategies. This is because; current strategies are no longer able to improve performance (Reschka, Bagschik et al., 2015).

Management literature emphasises the leading roles of organisational learning (Grundhoefer, 2013; Kalmuk and Acar, 2015; Coats, 2015; Gomes and Wojahn, 2017; Soomro, Mangi et al., 2020) and artistic innovation (Jiménez-Jiménez, 2011; Abdiaziz and Yassin 2014).

Some studies' findings suggest that knowledge, generated by organisational learning, plays an essential role in enabling organisations to achieve speed and flexibility in the process of artistic innovation (Salim and Sulaiman, 2011; Raj and Srivastava, 2016; Brix, J. 2014).

Organisational learning, artistic innovation and performance are positively linked to each other. However, few studies have examined simultaneously the ships of the three concepts. Previous studies' findings focus typically on company innovation. This is about the degree to which organisational culture promotes and innovation is supported (Song and Lee, 2010) or about innovation generally (Geniuniene and Jurksiene 2015). Therefore, previous studies' findings provide only a partial explanation of the phenomenon of artistic innovation.

Similarly, most organisational learning studies measure this concept by adopting a cultural perspective . Very few studies (Tippins and Sohi, 2003; Sánchez, Vijande et al. 2011; Sánchez, Vijande et al.. 2011; Flores, Zheng et al., 2012; Soomro, Mangi et al., 2020; Alegre, J. & R. Chiva 2008) have analysed an organisational learning process. Since cultural values are more difficult to change than specific actions, the focus on the process may be more beneficial to practitioners. This study attempts to address the weaknesses of previous literature and to analyse together in a single model the relationships between, on the one hand, organisational learning and organisational performance, and, on the other hand, artistic innovation and organisational performance (Campos, and P. O. 2004; Chang and Cho 2008).

## Literature Review

### Organisational Learning

Senge, 1990 identifies organisational learning as a dynamically balanced relationship through which organisations obtain external knowledge to regulate their activities. This is done through

the establishment of knowledge rules of organisations into an organisational culture that generates organisational effectiveness by changing and improving human skills (Hung et al., 2011). Hu 2014 defines it, also, as an important and fundamental organisational process that embraces information, knowledge and changing features, the employees' behaviours and capabilities and organisational performance (Hu 2014).

Easterby-Smith, Araujo and Burgoyne (1999) see organisational learning as both a technical and social process. On the one hand, the technical process revolves around effective processing, interpretation, and responding with qualitative and quantitative information. On the other hand, the social process revolves around the way people understand their knowledge, skills and their explicit and implicit experience at work. In the same context, Song and Lee (2010) see organisational learning as the process of transforming organisational knowledge into action that helps to change individual and organisational behaviours. Both Franco and Haase (2009) and Van Grinsven and Visser (2011) see organisational learning as the operational process of obtaining and transforming information into knowledge as a disclosure and correction of error whereby error is a conflict between what the organisation aims to achieve and what the organisation achieves in real terms.

Pérez López, Manuel Montes Peón and José Vazquez Ordás (2005) see organisational learning as a dynamic process of the creation, the acquisition and the integration of knowledge. This process is used to develop resources and capacities to enable organisations to perform better. In this regard, the fundamental assumptions are that an organisation needs to integrate knowledge into all its activities.

In this study, we use Templeton, Lewis and Snyder's (2002) definition. It contains a combination of 78 clear definitions of organisational learning. Templeton, Lewis and Snyder have identified organisational learning as a set of organisational processes (acquisition of information and knowledge, distribution of information and knowledge, interpretation of information and knowledge, organisational memory) that influence either intentionally or inadvertently organisational performance.

Based on the above and in pursuit of this study's objectives, the researchers have relied on organisational learning dimensions as defined by Tippins and Sohi (2003), Sánchez, Vijande et al. (2011) and Flores, Zheng et al. (2012). The four dimensions are: information acquisition; information dissemination; information interpretation; organisational memory.

### **Organisational Performance**

It can be said that organisational performance is the most important building block in management research (Dharmadasa 2009) The study of organisational performance is complex, given the stakeholders' different expectations, the nature of the organisation and the impact of time on performance. According to Marshall (2010), performance in academic and

applied literature suffers from two major problems. The first problem is the definition of the concept and the second problem is how to measure it (Eisenbeiss, S. A., et al. 2015).

There are different philosophies about organisational performance. (Vermeeren 2014; Reschka, Bagschik et al., 2015; Giniuniene and L. 2015) The organisation's ability to achieve defined profit retention objectives, competitiveness, increased market share and long-term survival all depend on the use of established organisational strategies and action plans.

In dealing with a variety of organisational performance definitions, the literature makes repeated reference to the organisation's efficiency and effectiveness in using its resources to generate planned economic outcomes (Barney 2014). According to Hamon (2003), organisational performance is an indicator that measures the achievement of the organisation's objectives (Ho, 2011). Both Daft & Marcic (2009) show that organisational performance is the procedure through which the organisation determines the degree to which its objectives are achieved.

Heinrich and Fournier (2004) suggest that there is no optimal way to measure and study organisational performance, and that organisational performance is a result of the organisation's accumulation of knowledge. Boyne (2003) identifies performance indicators in both quantity and quality of output, efficiency, financial performance and client satisfaction. The findings of Popovich and Brizius' (1998) study reveals that high-performance organisations are clear about their tasks, their desired outcomes, the need to empower workers, and the need to motivate workers to succeed. Dharmadasa (2009) considers that, according to business literature, there are two types of prevailing thinking about the determinants of corporate performance. One is based on factors in a company's external environment, and the other is based on internal regulatory factors. In the same vein, Brewer and Selden (2000) proposed cognitive measures of organisational performance. These are based on a theoretical classification that distinguishes between the organisation's internal and external performance and defines cognitive values of performance in terms of efficiency and effectiveness.

Boyne (2003) considers that, in the absence of objective data to evaluate organisational performance, an appropriate tool is the cognitive measurement of organisational performance. Some evidence shows that cognitive organisational performance measures have strong correlations with objective organisational performance measures. In this regard, Selden and Sowa (2004) argue that observational measures are based on a workers' beliefs about actual performance. Delaney and Huselid (1996) propose that organisational performance be assessed by either studying the quality of the products and services or by studying labor relations, customer satisfaction and sales growth (Jiménez-Jiménez and Sanz-Valle, 2011). Based on the above, the researcher relied on the cognitive concept of performance for this study.

## **Innovation**

In 1934, Shumpeter became the first researcher to define artistic innovation as either products, new processes, new sources of supply, new markets or new ways of organising business (Geniuniene and Jurksiene, 2015). Both Verganti and Norman's (2012) findings show that current scientists stress that artistic innovation is a process that can be constantly replicated and that can appear in many forms (Bilan, Hussain et al., 2020). The purpose of artistic innovation is to use modern conditions and opportunities that have been formed in the environment to frame new values and to gain a competitive advantage (Lady 2013). Hung et al. (2011) suggest that artistic innovation can take place in three areas of "products, processes, and organisations.". These combine the development and implementation of either new ideas or systems or products or techniques (Salavou 2002).

Based on the above and in pursuit of this study's research objectives, the researchers have adopted the same two dimensions of artistic innovation as Subramanian and Nilakanta (1996) namely, product innovation and process innovation.

## **Theoretical Development of This Study's Hypotheses**

### **Relationship of Organisational Learning with Organisational Performance and Innovation**

Several studies indicate a positive relationship between organisational learning and artistic innovation. For example, Allegre and Chiva (2008) illustrate the link of artistic innovation to organisational learning capacity. Also, it is one of the pre-innovation factors. Similarly, Forrester's (2000) and Yeung, Lai and Yee's (2007) findings show organisational learning's direct impact on innovation.

Jiménez-Jiménez and Sanz-Valle's (2011) findings show that organisational learning is the backbone of innovation and the core of knowledge creation and processing whereby innovation supports and inspires new knowledge and ideas that have a potential impact on it. Keskin's (2006) findings indicate a positive relationship between knowledge acquisition and product innovation. Similarly, Cefis and Marsili's (2005) and Salim and Sulaiman's (2011) findings indicate that, as a process of organisational learning, information acquisition is a strategic variable for companies seeking either to introduce new products or to create new markets. This is because of the need to innovate to remain competitive in the market where there is intense competition. Usahawanitchakit's (2008) findings show, also, that organisational memory, namely the use of external information and formal procedures for retaining knowledge, promotes innovation (Ussahawanitchakit 2008).

From their study's findings, Pérez López et al. (2005) analysed the relationship between organisational learning and performance of a sample of 195 Spanish organisations. Their

findings show that organisational learning contributed positively to these companies' economic and financial outcomes. Vargas' (2015) findings show that there is a direct link between organisational learning and performance and, more especially, in unstable situations where there is strong competition. Similarly, Tippins & Sohi's (2003) findings show that stages of the organisational learning process have a positive impact on the organisation's performance.

Brockman and Morgan's (2003) findings reveal, also, that organisational learning is the basis of a sustainable competitive advantage and a key variable in enhancing organisational performance. Companies, which can learn, have a better chance of sensing events and trends in the market. Consequently, learning organisations are usually more flexible and faster in responding to new challenges from competitors and, therefore, enables them to maintain long-term competitive advantages. Jonathan's (2015) findings show that 60% of the change in organisational performance is due to organisational learning. Song's (2008) findings show that knowledge creation is linked closely to the organisation's performance and is an alternative measure of business outcomes. Similarly, Grundhoefer's (2013) findings show that organisational learning improves individual and organisational performance when information and knowledge are disseminated and interpreted effectively throughout the organisation.

The findings of Coats' (2015) study, which sought to compare the performance of companies that had regulatory learning cultures with those that did not, show that there is no difference in performance between organisations that have an organisational learning culture and those that do not.

According to Zahra, Ireland and Hitt's (2000) findings, technical innovation enables companies to deliver a variety of products that improve organisational performance. Salim and Sulaiman's (2011) findings show that product innovation and processes most influence organisational performance. The same findings were supported by Van Auken, Madrid-Guijarro and Garcia-Perez-de-Lema's (2008) findings from examining 1,091 Spanish small and medium-sized enterprises. California and de Pablos' (2004), Jiménez-Jiménez and Sanz-Valle's (2011) and Abdiaziz and Yassin's (2014) findings show that artistic innovation has a strong impact on the organisation's performance in terms of profitability, market share and sales growth. Similarly, from examining 333 South Korean companies, Rhee, Park et al.'s (2010) findings show that artistic innovation has a strong positive impact on company performance .

Despite the positive relationship between artistic innovation and organisational performance found in previous studies, there are no conclusive results about the link between the ability of artistic innovation and organisational performance. For example, from examining Dutch companies, Kemp et al.'s (2003) findings show that, while artistic innovation is associated with turnover and employment growth, it has no impact on their profits and productivity. Similarly, from, also, examining Dutch companies, Uhlaner, Zhou and Tan's (2007) findings reveal that innovation has no positive impact on their new products and services. (Simpson, Siguaw and Enz's (2006) findings show that artistic innovation is an expensive activity with negative

consequences such as: increased exposure to market risks, increased costs, staff dissatisfaction or unjustified changes.

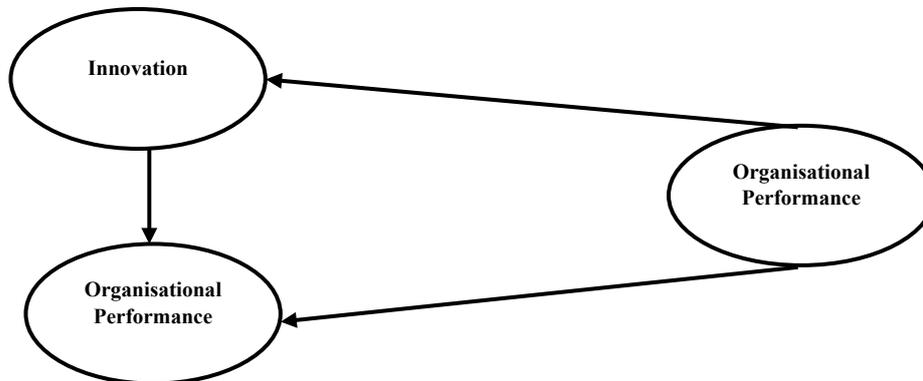
Although researchers recognise organisational learning's positive impact on organisational performance, it is said, also, that innovation mediates this relationship. Many studies' findings suggest that organisational learning affects organisational performance both directly and indirectly through artistic innovation (Darroch and R. 2002; Weerawardena, O'Cass et al. 2006; Jiménez-Jiménez and Sanz-Valle, 2011; Škerlavaj, Song et al. 2010; Çömlek, O., et al. 2012; Bolívar-Ramos, García-Morales and García-Sánchez, 2012; Liddle 2013; Gomes and Wojahn 2017).

According to Baker and Sinkula (2002), organisational learning allows the organisation to leverage its capabilities that foster artistic innovation and, in turn, this reflects positively in its performance. Similarly, organisational learning helps: to improve staff capacity in expanding the process of systemic innovation, and boosts organisational productivity (Husain, Dayan and Di Benedetto (2016). Salim and Sulaiman's (2011) findings reveal that organisational learning generates new knowledge. This is relevant to established innovation capacity that contributes to improved organisational performance. In this context (Jiménez-Jiménez and Sanz-Valle 2011), artistic innovation requires that workers generate and share new knowledge if this is to be reflected in affirmative organisational performance.

Baker and Sinkula's (2002) findings show that organisational learning allows the organisation to develop capacities that foster artistic innovation, and that artistic innovation is what positively affects performance. Jyoti, Chahal and Rani's (2017) findings show that artistic innovation does not mediate the relationship between organisational learning and organisational performance.

Mol and Birkinshaw's (2009) findings show that organisational memory is an internal source of knowledge; contributes strongly to the introduction of artistic innovation; and the knowledge, available to a company regarding either its customers or competitors can inspire organisational innovation (Birkinshaw and Mol. 2006). Camisón and Villar-López's (2011) findings reveal that knowledge, stored in regulatory memory about customers and markets, can lead to early identification of changes in consumer preferences and can facilitate the introduction of new marketing tools that distinguish the company's products from those of its competitors.

**Figure 1: Research Framework**



The researcher formulated the following hypotheses:

Hypothesis 1: Organisational Learning influences Innovation.

Hypothesis 2: Innovation influences Organisational Performance.

Hypothesis 3: Organisational Learning influences Organisational Performance.

Hypothesis 4: Innovation mediates Organisational Learning in Organisational Performance.

## **Methodology**

The researchers analysed the influence of organisational learning on organisational performance and the role of innovation in mediating this relationship. This is a quantitative research study whereby the researchers used a questionnaire as a survey method to test the hypotheses. For each part of the relevant literature, the researchers adapted the measurement instrument by using a 5 Likert scale from 1 (strongly different) to 5 (strongly approved). He used the validity and reliability test to analyse the accuracy of the tools used. The technique, which the researcher used to test the hypotheses, was Structural Equation Modelling (SEM) with the assistance of AMOS software as a statistical package.

The study sample is the employees of Egypt's public sector spinning and weaving companies. In this study, the researchers used a probability sampling method, and the cluster sampling method sampling technique. The sample size consisted of 337 respondents and the researchers used a questionnaire consisting of 53 questions to collect the data from them.

In the pilot study with 50 respondents, the researchers distributed first a questionnaire containing 58 questions. However, after we confirmed the validity of the questions, there were five questions that needed to be deleted and excluded from the questionnaire. Consequently, we distributed to the participants the questionnaire consisting of 53 questions.

To analyse the data, we operated a normal statistical procedure, which first involved the following steps: (a) assessment of sample characteristics; (b) determination of data normality; (c) analysis of confirmation factors; (d) proposal of a measurement model and building health; and (e) development and estimation of a structural model.

## Results

In conducting this study, we began by examining the respondents in the sample. With regard to the participants' descriptive statistics, the details are as follows: (a) 74.2% are male and 25.8% are female ;(b) 64.16% are married and 35.84% are unmarried; (c) 22.55% are aged 20-30 years,29.08% are aged 30-40 years, 32.94% are aged 40-50 years, 15.43% are aged 50-60 years; and (d) 22.85% have Diplomas, 62.61% have B.A. degrees, 12.17% have M.A degrees and 2,37% are Ph.D students.

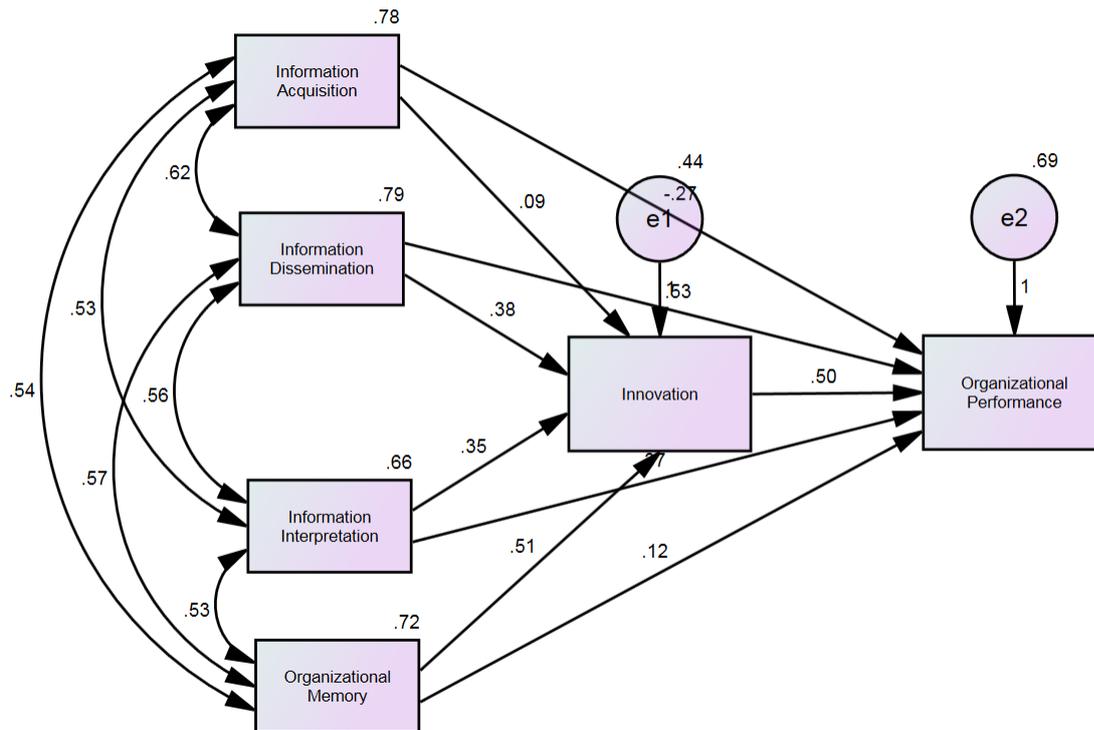
By using the kurtosis values of this study's three variables, our findings show that they do not exceed the absolute value of 2 for skewness and 7 for the kurtosis index. As did Kline (2011) and Hair et al. (2014), we further consider this study's data as to have normal distribution and the maximum likelihood. The measurement of goodness of fit model, which we obtained by operating Chi-Square, shows the value of 37.205; P-value is 0.141 CCMIN / df value is 1.239 GFI value is 0.998; AGFI value is 0.931; TLI value is 0.984; CFI value is 0.998; NFI value is 0.955; IFI value is 0.973; RMSEA value is 0.040. The results of the indicators have further proven that this study's fit model assessment is in a good position and they can further be used as the basis for testing the hypotheses through the regression analysis.

The AMOS and SEM results have further shown us that [a] organisational learning affects the innovation (CR 8.018) at a 0.05 level of significance (\*\*\*) ; [b] the organisational learning affects organisational performance (CR 2.068) at a 0.05 level of significance (P = 0.038\*\*); and [c] organisational learning affects organisational performance (CR 2.936) at the 0.05 level of significance (P = 0.004 \*\*\*).

Based on the results obtained from the four dimensions of organisational learning of four dimensions, namely, information acquisition, information dissemination, information interpretation and organisational memory together is a dimension of organisational learning with a significant level at 0.05 (\*\*\*) . The highest standardised regression weights are in the information acquisition, information dissemination, information interpretation and organisational memory. The innovation dimensions, which consists of marketing innovation and managerial innovation, are dimensions of innovation with a significant level of 0.05 (\*\*\*) . The highest standardised regression weights are in the dimension of marketing innovation and managerial innovation. Dimensions of organisational performance, which consist of inputs, processing, and outputs' dimensions, can be accepted as dimensions of organisational performance at a significant level of 0.05 (\*\*\*) . The size of the standardised regression affects the organisational learning to organisational performance directly at 0.44. However, the

standardised indirect effects of organisational learning to organisational performance through the innovation mediation is 0.22. Those above-mentioned results are further drawn into a model as shown in Figure 2 below.

**Figure 2: Model of Innovation in Mediating the Relationship of Organisational Learning to Organisational Performance**



Source: Data analysis, processed

## Discussion

In this study, the researchers examined empirically the effects of: [a] organisational learning on innovation used by Egypt's spinning and weaving public sector companies; [b] organisational learning on these companies' organisational performance; [c] innovation on these companies' organisational performance; [d] innovation's mediation on the relationships between these companies' organisational learning and organisational performance.

The study's findings are as follows:

[a] Organisational learning# has influenced Egypt's public sector spinning and weaving companies' innovation. Therefore, hypothesis 1 is accepted.

[b] Organisational learning has directly influenced Egypt's public sector spinning and weaving companies' organisational performance. Therefore, hypothesis 2 is accepted.

[c] innovation has influenced Egypt's public sector spinning and weaving companies' organisational performance when the organisational learning is an independent variable. Therefore, hypothesis 3 is accepted.

[d] innovation partially mediates the relationship between Egypt's public sector spinning and weaving companies' organisational learning and organisational performance. Therefore, hypothesis 4 is accepted.

In the new economic era, characterised by uncertainty, changes occur dynamically, and business organisations need to adapt through implementing knowledge management (Ho and Systems 2011; Lyles 2014). In a business context, knowledge management is an activity, and implemented by an organisation, to adapt and sustain its work patterns to face changes that always occur in the external and internal environment (Ho and Systems 2011). Consequently, knowledge management enables businesses to achieve sustainable competitive advantage, to be more flexible and to achieve higher performance (Agha et al., 2012). Lopes et al.'s (2016) findings prove that, by using new knowledge in the form of ideas and practices that can expand business, the implementation of knowledge management affects business sustainability.

In the creative economy, organisational learning is the ability and competency to produce ideas of commercial value (Mahmoud, Blankson et al. 2016). This knowledge is particularly important in producing attractive and unique visual communication design products so that the message can be delivered well and can be received well by the target audience (Saki, Shakiba et al. 2013).

The designers' knowledge and creative abilities are not from the process of management activities related to the analysis of the opportunities and potential of the company. This ability is formed from interactions and social relationships outside the company. This ability is obtained through interactions with the outside world (Richard, Devinney et al. 2009; Wujjibudula and Zehir 2016). Consequently, in an idea-based industry's work pattern, organisational learning is an input for the company. Through innovation, organisational learning is directed to bring the company to the achievement of its long-term vision. The owner of knowledge and creative ability integrates with the company's ability to build corporate value (Wujjibudula and Zehir 2016; Oyemomi, Liu et al. 2019).

The profiles of this study's respondents show that many of Egypt's public sector spinning and weaving companies employ people between the ages of 40-50 years who are highly experienced in producing knowledge and organisational learning. Based on our observations, most employees in Egypt's public sector spinning and weaving companies are men.

In general, public sector companies' employees understand innovation in the work environment and are able to conceptualise innovation activities that are based precisely on organisational performance. In addition to profit and non-profit organisational performance, public sector spinning and weaving companies' employees collaborate, also, for in their work engagements to produce products that support their work programs.

In general, Egypt's public sector spinning and weaving companies are managed in traditional and modern ways. Traditionally, these businesses are managed by focusing on individual/business orders that occur accidentally and in a modern way. This is because Egypt's public sector spinning and weaving companies are managed not only to fulfill requests that occur accidentally but, also, through a network of collaboration formed with clients. In addition, because these companies play, also, a very important role in supporting activities related to current innovation, the Egyptian Government is paying greater attention to them.

Different to other business sectors such as plantations, property, and the service industry in accessing capital, Egypt's public sector spinning and weaving companies are generally independent businesses. Based on our observations made, public sector spinning and weaving companies' capital comes mostly from self-owned capital. The Egyptian government has not made great efforts to strengthen this industry. The provision of training, capital, exhibitions and contests has not been carried out and as yet, the Egyptian Government has shown no seriousness to develop the country's public sector spinning and weaving companies. To date, there are no regulations relating to Egypt's public sector spinning and weaving companies. Currently, while Egypt's public sector spinning and weaving companies are very strategic and have the potential to support this sector's economic activities, there are neither building centres for such companies nor any work units tasked with monitoring and helping to develop such businesses.

### **Conclusion and Implications**

From this study's findings, the researchers conclude that organisational learning influences the formation of innovation. The literature has discussed that organisational learning is a key factor in gaining and in maintaining innovation (Corso et al., 2006; Nguyen and Neck, 2008). This applies, also, to idea-based industries such as public sector spinning and weaving companies (Turner and Pennington 2015; Ginting et al., 2019). In the public sector spinning and weaving companies, organisational learning provides the businesses with added value and economic benefits. Organisational learning is the knowledge and the ability, embedded in a person, which is both expressed and used as valuable input to create high-value design products. It is very important that Egypt's public sector spinning and weaving companies embrace organisational learning because of its impact on organisational performance. Collaboration between business owners, business managers, and creative/technical workers about various types of information acquisition, information dissemination, information interpretation and organisational memory held by forms business innovation that can manage the collaboration of creative knowledge to produce competitive public sector companies for spinning and weaving outputs.

This study has studied and discussed organisational learning's influence on innovation. Further research studies can discuss how organisational learning affects business innovation in other sub-sectors of the creative economy (for example sectors related to cultural heritage), where the speed of change tends to be slower because of the commercial elements that are history/fairy tales, habits, values and culture.



Innovation partially mediates the relationship between organisational learning and organisational performance. The implementation of innovation in Egypt's public sector spinning and weaving companies should focus on aspects of information acquisition, information dissemination, information interpretation and organisational memory for organisational learning. By doing so, this will ensure that these companies apply organisational learning freely and independently to each party to achieve their common goal of improving organisational performance. Innovation cannot replace or regulate the abilities and skills of parties involved in business to improve organisational performance. Consequently, in this study, the researchers regard innovation as a knowledge collaboration activity.

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