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Knowledge Management Infrastructure and Product and Process Innovation: The Role of Trust, Technological Support, and Employee Incentives.

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ABSTRACT: *The purpose of this paper is to investigate the impact of knowledge management infrastructure (KMI) on the development of product and process innovation of Iraqi textile industry and exploring. Literature suggests that organizations must choose the best way to implement knowledge management. However, there has been a lack of an integrated implementation framework for knowledge management infrastructure. The paper uses survey among 399 middle managers in the Iraqi textile industry, the present study empirically tested the hypotheses using structural equation modeling. The main results show that all dimensions of KMI (organizational trust, technological support, and incentives) have direct impact on product and process innovation. There are three limitations for this study. First, because data for this research were collected from middle managers working in the Iraqi textile industry, findings may not be applicable for textile industry innovation in other countries due to the possible knowledge management infrastructure differences. However, in Iraq, where the centralization of power is still common, using multiple informants may be redundant, and is unlikely to result in advantages such as greater accuracy of data. The lessons learned from the research paper is useful for the Iraqi textile industry, the government sector should introduce new KMI for the textile factories to carry out their activities. This study provides new information to policy makers in understanding managers' behaviour associated with KMI in innovation.*

Keywords: *Knowledge Management Infrastructure, Product Innovation, and Process Innovation, Trust, Technological Support, and Employee Incentives.*

I. INTRODUCTION

Nowadays, innovation is the key to an organization's success and sustainable development (Subramaniam & Youndt, 2005). Facing a turbulent and highly competitive business environment, enterprises must now focus on the efficiency stage of quality control in order to attain a more flexible stage. This finally brings the company or enterprise into the innovative stage (Tsai & Liao, 2011). Indeed, innovation is absolutely necessary for firms which are trying to find their place in the market and to ensure their long-term survival. Many noted scholars and practitioners, today, believe that innovation is power for firms and other organizations (Kamasak & Bulutlar, 2010, p.306). However, the process of innovation depends heavily on knowledge which represents something more than simple data, information and conventional logic. Indeed, as Gloet and Terziovski (2004) put it, the power of knowledge lies in its subjectivity, underlying values and assumptions that support the learning process. Similarly, in his research on knowledge creation, Nonaka considered knowledge as a primary requisite for innovation and competitiveness (Nonaka, 1994). The term innovation is defined as the implementation of ideas (Borghini, 2005). Daft (1982) and Damanpour and Evan (1984) defined innovation via its nature, in the form of an element of a unique system, policy, a new plan or program, anew production process, a product or service new to the company, all of which came from an internal source. Innovation is especially poignant in challenging economic times, as it allows a company to mold the market to their respective favor to gain an edge and stimulate growth (Hess, 2010).

Pavesi (2003) suggested that knowledge infrastructure is a basic ability of organization or "preconditions" for an effective KM (Lee & Choi, 2003). Infrastructure that supports KM is imperative to organizations when dealing with challenges associated with their day-to-day operations in improving efficiency and efficacy (Wickramasinghe, Fadlalla & Sharma, 2004). Lee and Lee (2007, p.22) defined knowledge management infrastructure as "organizational mechanism to create knowledge constantly and intentionally in organization", which included the will to generate knowledge, conversation between employees, organizational structure, relationships between employees and human resources. Shaabani, Ahmadi and Yazdani (2012) also described knowledge management infrastructure, encompassing technological, structural, cultural and human factors. Innovation is highly reliant upon knowledge (Gloet & Terziovski, 2004), especially tacit knowledge (Leonard & Sensiper, 1998). Current and useful knowledge will inevitably be converted into products, services, and processes (Choy, Yew, & Lin, 2006), while general knowledge can be narrowed into a more specified informational package. Nonaka regard knowledge as a precursor to both innovation and competitiveness

(Nonaka, 1994). A KM system that enlarges creativity is also assumed to enhance innovation via fast access and movement of current knowledge (Majchrzak, Cooper, & Neece, 2004).

In the case of Iraq, the country is under the redeveloping stage. It has encountered many crises and hard conditions, such as the first and second Gulf War, economic sanction and lastly the U.S. occupation from 2003 to 2011. These conditions have considerably contributed to the collapse of the infrastructure in various sectors, such as industry, education, electricity (UNESCO, 2004; Hamdani, 2006), in the textile industry, which is comprised of 6 government-owned manufacturers running 20 textile factories. The textile industry in Iraq had along established dominance of the sector, and its importance to the country's economic growth. It contributed 13.9% to the Gross National Product (GNP) in 1979. However, the industry's contribution decreased tremendously in 1998 to 6%. This downwards trend continued in the following years (1990, 3.8%), (2001, 3 %), and (2007, 1.9%). There was, nevertheless, a dramatic increase in contribution from 1.90% in 2009 to 3.4% in 2010 (The Ministry of Planning and Development Cooperation, Technical Committee for Preparation of the five-year plan 2010-2014; Annual Economic Report of the Central Bank of Iraq, 2009).

Nour (2011) showed weakness in the innovation system and poor performance of R&D in the ICT industry. These shortcomings have meant that the Arab region is far behind the rest of the world in terms of knowledge, skills, technological capabilities, spending on ICT, competitiveness, integration in the world economy, and average growth rate. Mohammed (2006) and Marane (2012) similarly noted that knowledge management in the Iraqi industry is still in its earliest stage, but its possibility of acceptance is high because knowledge management is strongly related to industry organizations. Furthermore, the factories were wrought with low salary and lacked incentives (Al-Hamdani, 2006).

II. LITERATURE REVIEW

Damanpour (1991) regard innovation as the creation of new ideas or behaviors pertaining to organizational members. Similarly, Drucker (1985) assumed that innovation is the incorporation of enhanced abilities and utilities. Furthermore, Abdi and Ali (2013, p.55) defined innovation as "an ongoing process of leaving, searching, and exploring which results in 1) new product, 2) new techniques, 3) new form of organization, and 4) new market". Schumpeter (1934) detailed multiple kinds of innovation in the form of new products, production, and supply, exposure of fresh markets, and unique business orientation. For Kogut and Zander (1996), this includes both existing and created knowledge. Hence, knowledge and learning are two of the main mechanisms linked to innovation. For de Oliveira Cabral and Costa (2010, p.3), based on Nonaka and Takeuchi (1995), an organization should be understood as a "system based on knowledge, a system through which circulate information and basic knowledge (explicit and tacit), knowledge acquired from the outside (absorptive capacity), or existing knowledge in the organization (knowledge used and knowledge slack".

Innovation influences corporate performance by enhancing the position of the market in a way that results in both competitive advantage and superior performance (Abdi, & Ali, 2013). Barney (1991, p. 102) stressed the fact that a firm has a competitive advantage when it act to ''not simultaneously being implemented by any current or potential competitors and when these other firms are unable to duplicate the benefits of this strategy.'' Innovation can be viewed from the prism customers and businesses. From the perspective of customers, innovation involves obtaining products and services that are superior, which ultimately translate into better standards of living, while from a business perspective, innovation translates to achievable growth, development, and profit. Gunday, Ulusoy, Kilic and Alpkan (2011) argued both product innovation and process innovation as organizational innovation. Dibrell, Davis, and Craig (2008) are of the opinion that there are some variations to innovation, ranging from little changes to products, processes, services, to major changes to the aforementioned features. Most of the established literature and the corresponding research have focused on the first two areas of innovation, namely product and process innovations (Inauen & Schenker-Wicki, 2011). In the literature, there are two types of innovation namely process and product innovation. Therefore, the focus of innovation in this study is both product and process innovation.

2.1. Product Innovation

Product innovation is crucial to the **success** of a company, as it increases market share and performance (UI Hassan, Shaukat, Nawaz, & Naz, 2013). The studies showed that new product development has positive impact on the performance of the firm (UI Hassan, Shaukat, Nawaz and Naz, 2013). Product innovation is made up of many dimensions. From the view of the customers, the product is regarded as being new, while from the view of the firm; the product is regarded as new. Any modification to the product means infusing variation of an existing product (Atuahene-Gima, 1996). Products are innovated for the purpose of encouraging efficiency (Polder, Leeuwen, Mohnen, & Raymond, 2010). The innovation of a product is linked to technological developments, as they are capable of utilizing current knowledge or technologies, or use, as its bases, combined knowledge/technologies (Gunday, Ulusoy, Kilic & Alpkan 2011).

The objective of product innovation is to present to the customers enhanced product/services and introduce the meaningful effect of such improvements to their lives (Rowley, Baregheh and Sambrook, 2011). The innovation of a product, which is also known as product development, involves a rigidly defined process that relies on current knowledge from previous work and experiences from producing something new (Hage & Hollingsworth, 2000). Alegre, Lapiedra, and Chiva (2006) believes that product innovation encompasses technical design, R&D, manufacturing, management, and commercial activities, all of which are a part of marketing an improved product.

2.2. Process Innovation

Process innovation is regarded as being unique, complex and difficult to control (Gerybadze, Hommel, Reiners, and Thomaschewski, 2010). It also includes the activities done during each stage of innovation (Ortt & van der Duin, 2008). The literature implied that process innovation is reliant on factors such as level, driver, direction, source and locus (Crossan & Apaydin, 2010). Levels describe the differences between individual, group, and firm's processes. Driver includes internal and external drivers, where internal drivers are defined as currently available knowledge and resources. Prajogo, Power and Sohal (2004) regard process innovation as the improvement of the production and logistic methods and supporting activities, such as purchasing, accounting, maintenance, and computing. A similar study by Inauen and Schenker-Wicki (2011) showed that process innovations detail the production process of products and services via current technology and innovations. Literature showed that automated production increased both the efficiency and productivity of a company (Ettlie & Reza, 1992).

III. KNOWLEDGE MANAGEMENT INFRASTRUCTURE

Infrastructure of KM is crucial for companies when trying to deal with challenges associated with current business practices in increasing both efficiency and efficacy while maintaining the progress on innovation (Wickramasinghe et al., 2004). Von Krogh, Nonaka and Aben (2001, p.11) defined knowledge management infrastructure as "organizational mechanism to create knowledge constantly and intentionally in organization". Lambe (2006, p.2) notes that knowledge and information infrastructure "mean all the things that combine to facilitate the flow of information and knowledge in support of the myriad tasks and actions and decisions that comprise organizational activity". According to previous studies, knowledge management infrastructure encompasses all functional elements in the firm that support and facilitate KM (Dana, Korot & Tovstiga, 2005). Wong (2005) indicated that the knowledge management infrastructure results, if they are satisfactory, will ensure successful competitive innovation and performance for the organization. Sok and O'Cass (2011) demonstrated the positive link between innovation and resource-capability.

Some scholars like Gold, Malhotra and Segars (2001); Shaabani, Ahmadi and Yazdani (2012) categorized KM capabilities to infrastructural and process, and introduced similar and different subsets. From the point of view of resource-based and knowledge-based, Gold et al. (2001) and Smith (2006) were the pioneers in the opinion that technology, culture, and structure are quite scarce and defined resources are most likely representative of organizational capability. Lee and Choi (2003) determined the influence of KM enablers, such as structure, culture, people, and technology upon organizational performance.

Similarly Khalifa and Liu (2003), Gimenz and Rincon (2003) identified a number of factors as the primary sources of organizational effectiveness. Those include strategy, culture, structure, leadership, and technology as infrastructure capabilities. Generally, literature on strategic management was mainly on intangible resources acting as sources of sustainable competitive advantage. The advantages are mainly intangible, and are also regarded as a company's strategic asset (Amit and Schoemaker, 1993; Barney, 1991; Michalisin and Acar, 1994) (Michalisin et al., 1997). These resources are simultaneously valuable, rare, inimitable, non-substitutable (Barney, 1991), heterogeneous, immobile, ex-post limits to competition and ex-ante limits to competition (Peteraf, 1993). In short, extensive work has been done on this subject (Joia, 2000; Carmeli, 2004).

3.1 Organizational Trust

Organizational trust is not easy to understand, as it requires multiple factors. Smith (2005) is of the opinion that organizational trust implies the presence of confidence in managements and the conviction that they will do what it takes for the betterment of the people in the organization. Organizational trust, especially between leaders and followers (like accounting management and departmental employees), is vital, as most relationships in an organization are an ongoing nurturing work (Smith, 2005). In the same context, several researchers such as Lau (2010) and Maguire and Phillips (2008) proposed that the primary source of organizational trust refers to the employees' faith in the corporate's ability to realize goals and the organizations' leadership. Therefore, several researches have been done, and a manifold of definitions for "trust" has been developed from different perspectives, in order to cater to the needs of different disciplines (Sahay, 2003). The willingness for employees to share their respective knowledge relies upon their own

satisfaction in assisting others and their own self-confidence in their knowledge. An employee who finds this enjoyable will engage in it more (Danish, Munir & Butt, 2012). The high levels of trust between employees will compel them to share their experience with each other, which will lead to increased outcome (Yang, Moon & Rowley, 2009).

Mishra (1996), via his model of organizational trust, posited that there is only a small amount of organizational trust: competence, openness and reliability. Another factor that were lately touted as the fourth factor is identification, i.e. measurement of the level of individual relations of employees towards common objectives, norms, values and beliefs, joint with organizational culture (Shockley - Zalabak, Ellis & Winograd, 2000). Sankowska (2013) pointed out that interestingly enough; only some researchers analyzed the link between trust and innovation despite the fact that trust is a crucial factor towards innovations. It is assumed that organizational trust might be indirectly linked to innovation, mostly via the creation of new knowledge (Darroch & McNaughton, 2002).

Savage (1982) discussed some elements that are characteristic of organizations where trust is low or lacking: the atmosphere is morbid, there is also a lack of conflict, sacking is rampant, and employees are indifferent to changes, management is top-to-bottom, decision making is hierarchical, and people are overall dissatisfied with their tasks. Möllering (2001) is of the opinion that trust within an organization is its trustworthiness from the perspective of its employees. It is also viewed from the context of the opinion that employers will perform actions that are beneficial to both themselves and the organization. Additionally, sociological research confirmed that trust involves both an individuals' beliefs in others, as well as their behavior and willingness in using their acquired knowledge to take actions for future outcomes. It is generally regarded as the ultimate form of human communication, and is the lifeblood of any organization or corporate entity (Akgun, Keskin, & Gunsel, 2007). As such, the first and second hypotheses are:

H1: Organizational trust positively impact product innovation.

H2: Organizational trust positively impact innovation.

3.2 Technological Support

With strong KM technology support, public organizations are likely to be able to capture, share, apply, and create knowledge more efficiently and effectively (Gold et al., 2001). Huang, Li and Chen (2009) are of the opinion that innovation can be enhanced by both information synergy and IT capability. However, demography and management seems to have been studied at depth as opposed to technology and innovation related issues (Nassimbeni, 2001). Sher and Lee (2004) agreed that current method and IT facilities (such as groupware, on-line databases, intranets, etc.) helps organizations improve, resulting in competitive advantage and increased profit. It does this by its assistance to the KM processes (Handzic, 2003).

Schumpeter (1942) recognized the fact that firms have to constantly improve if they are to survive. Competitive advantage in this context is of two natures: cost leadership and differentiation (Porter, 1985). From these two sources, IT might be a source of competitive advantage, as it reduces costs and differentiates, but from the perspective of fundamentals of the competitive advantage concept, it becomes more complicated. This subject has received a great deal of advantage in recent years. Some scholars regard IT as a source of competitive advantage with a direct or indirect impact (Neirotti and Paolucci, 2007), while others think otherwise, as it lacks the requirements required in this case (e.g. Carr, 2005), and there also some who argued that the complete opposite is true, where the negative impact of IT will result in a negative impact on competitive advantage (e.g. Warner, 1987).

Carr (2003) is of the opinion that both economic and IT influences are derived from IT innovation. He also posited that quite a number of firms have created advantages for themselves via the innovative utilization of IT. From that perspective, Wade and Hulland (2004) posited that RBV can help differentiate IT and IS, as IT is resource-based, while IS is a combination of resources and capabilities, allowing productive exploitation. Bharadwaj (2000) adopts Grant's classification (1991) and arranges IT resources in three classes: (1) IT infrastructure, (2) human IT resources; and (3) intangible IT resources such as knowledge or customer orientation. This led to the conclusion that the combined synergy of IT and other resources lead to the advent of better capabilities that is a source of competitive advantage. Therefore, this study's third and fourth hypotheses are:

H3: Technological support positively impact on product innovation.

H4: Technological support positively impact on process innovation.

3.3 Incentives

Incentives are regarded as effective pull for employees; however, its effectiveness can only be maximized when the system is itself useful (Lee, Lee & Kwon, 2005). According to Meng and Gallagher (2012), the proper use of incentives has a direct effect on project performance and can boost the motivation of the employees to work harder and produce more innovative solutions. Incentives, in the form of rewards, are: 1)

monetary rewards, such as bonuses, and 2) non-monetary rewards, such as public recognition (Zhang, Chen, Vogel, Yuan & Guo, 2010). Incentives, such as monetary bonuses, can motivate employees and cause a paradigm shift from knowledge-hoarding tendencies based on internal competition, to a general willingness to share, apply, and create knowledge, especially at the early stages of KM's implementation (Kulkarni, Ravindran & Freeze, 2007). Similarly study by Stajkovic and Luthans (2001) monetary incentives include money, promotions, suitable gifts, bonuses, and anything that costs organizations financial resources. Non-monetary incentives include social recognition, acknowledgement from colleagues, improved reputation, performance feedback, and the possibilities of professional or personal development (Cho, 2011). Arzi, Rabanifard, Nassajtarshizi and Omran (2013) highlighted the vital role of incentives in increasing knowledge sharing, and thereby innovation performance. Teece (2003) opposes this view, and posited that minimal minimum supervision and high-powered performance incentives are perfect catalyst to innovation within an organization.

Amabile, Hennessey and Grossman (1986) and Hennessey and Amabile (1998) pointed out that the extrinsic rewards and concrete tangible rewards, such as bonuses, pay increases, and awards negatively affects innovation. Mehr and Shaver (1996) are also of the opinion that rewarding innovation might actually be detrimental. Moreover, there is a lack of a system of incentives and incentive bonus for employees in the Iraqi textile industry (Al- Hamdani, 2006). Veldman and Gaalman (2013) noted that incentives could possibly be performed between product and process enhancement incentives leading to elevated profits at the expense of the gains of other firms. It is also found that when both firm owners have the possibility to offer incentives for product quality and process improvement, they will both achieve it. Kankanhalli, Tan, and Wei (2005) posited that organizational incentives, such as promotion, bonus, and higher salaries are positively related to the frequency of knowledge contribution made to KMSs; this is especially the case when employees are loyal to the organization. Hence, the fifth and six hypothesis of this study are:

H5: Incentives positively impact on product innovation.

H6: Incentives positively impact on process innovation.

IV. RESEARCH MODEL

KMI and innovation has been developed based on the resource-based view of the firm (RBV). Both detailed the nature of resources possessed by organizations and the quality that these resources need to have for them to possess sustainable competitive advantages over time (Barney, 1991; Wernerffelt, 1984). An organization must also be able to maximize the utilization of its resources to be able to keep abreast of any advantages gained from these resources (Barney, 1997). The current works on RBV theory note pointed out that competitive advantages were not realized via the strategic utilization of a single resource, but through the usage of multiple resources (Black & Boal, 1994). Resources can be defined as assets, capabilities, processes, attributes, knowledge, and know-how that are possessed by a firm, all of which are usable as a stage to conduct competitive strategies (Rivard, Raymond & Verreault, 2006).

On the other hand, the link between KMI and innovation was developed using KBV as a basis. From theoretical KBV, knowledge is the main strategic significant source for all successful organizations instead of land, labor, capital or the production of other elements. Organizational success is said to rely upon the efficient management of internal and external knowledge sources in adapting to environmental changes. This capability is said to enhance innovation (Kiessling, Richey, Meng & Dabic 2009; Pathirage, Amaratunga, Haigh, 2007). Figure 1 shows the theoretical framework of the links between the study's variables.

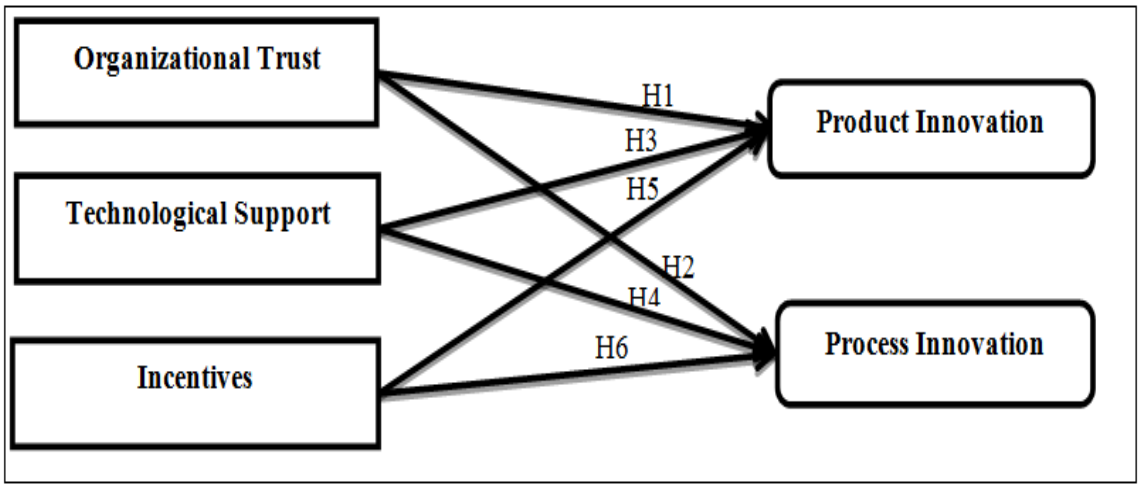

Fig 1: Proposed Research Hypotheses.

V. METHODOLOGY

Population and Sample

A total of 399 questionnaires were distributed personally to participants (middle managers) within twenty factories of public sector in the Iraqi textile industry. Out of 399 responses, authors received 361 responses that gave a response rate of 90.47%. Research was done by the questionnaire method among the middle managers of Iraqi textile industry**.** There was an adaptation of survey items from the existing instruments that had been used in the past research. The following six sections consisted of a 5-point Likert-type agreement scale with 1 being "Strongly disagree" and 5 being "strongly agree".

For measuring responses, there were 38 items on a five- point Likert scale were used. This study measures organizational trust adapted from (Seba, Rowley & Lambert, 2012; Ho, Kuo & Lin, 2012; Casimir, Lee & Loon, 2012).The items of the technological support which adapted from (Gold, Malhotra, & Segars, 2001), the items of incentives measurement adapted from (Cho, 2011). Product innovation and process innovation respectively. Both research variable items were adapted from Hung et al. (2011). It was analyzed according to confirmatory factor analysis and structural equation model by using SPSS-22 and AMOS-22 version.

VI. DATA ANALYSIS

Measurement Model

Tests for Confirmatory Factor Analysis (CFA)

The CFA was conducted on the using five factors indices Normed Chi-Square and RMSEA are to be less than 5 and .080 respectively, while CFI values are to be above .90 (Hair, Black, Babin, and Anderson, 2010). The process of evaluating the measurement model resulted in deleting terms based on the factor loadings of less than .40 (Field, 2009). Based on the CFA tests, all five dimensions had adequate model-to-data fit: Normed Relative Chi-square (χ^2/df) below 5; CFI value above .93; and RMSEA value less than .080. This test also evaluated the reliability and construct validity. Cronbach's Alpha measures the reliability coefficient, which indicates the consistency of the entire scale (Hair, *et al*., 2010), or the overall reliability of the questionnaire (Field, 2009). The results from this study showed all five dimensions had reliability values above .70 which indicated that the questionnaire was reliable and consistent (see Table 2 below). According to Hair *et al.* (2010), a standardized factor loading should be .40 or higher, ideally .70 or higher, and provides strong evidence of convergent validity. In this study, all the items had significant factor loadings, most of them greater than 0.60, which indicates adequate convergent validity.

Results from the confirmatory factor analysis demonstrated that all of the scales used in the study formed adequate measurement models and thus provided evidences for the construct validity of the measures. Table 1 shows the fit indices of the measurement models whereas Table 2 shows the descriptive statistics of the constructs.

Table 1. Evaluation of Measurement Models

Variables	χ^2	df	p	CFI	GFI	CMIN/df	RMSEA
Organizational Trust (OT)	17.68	7	.01	.99	.99	2.53	.07
Technological Support (TS)	31.75	11	.001	.98	.98	2.89	.07
Incentives (IN)	5.18	4	.27	.99	.99	1.29	.03
Process innovation (PSI)	12.59	5	.028	.99	.99	.2.52	.07
Product Innovation (PI)	16.85	6	.01	.99	.99	2.81	.07
Overall Measure Model	238.18	158	.000	.98	.94	1.51	.04

Table 2. Descriptive Statistics (N=361)

Variables	Mean	Std. Deviation	OT	TS	IN	PI	PSI	Composite Reliability	AVE
OT	46.52	7.06	1					.82	.78
TS	36.03	6.73	.498**	1				.89	.82
IN	16.66	4.22	.310**	.541**	1			.93	.87
PI	19.39	4.82	.381**	.552**	.497**	1		.90	.80
PSI	15.76	4.12	.342**	.550**	.440**	.794**	1	.88	.87

**. Correlation is significant at the .01 level (2-tailed).

Test for Structural Equation Modeling (SEM)

Structural equation modeling (SEM) is used to test the causal effect among the main constructs of a hypothesized model (Kline, 2010). For testing the hypotheses that organizational trust, technological support, and incentives are positively related to product and process innovation, we employed SEM with maximum likelihood estimation. Figure 2 shows sstandardized path coefficients from the analysis. On the basis of results in Table 3, organizational trust, technological support, and incentives cast an impact in product and process innovation. The model had an adequate fit to the data: chi square per degree of freedom = 3.058, less than 5;

CFI = .93, greater than .90; p = .000, less than p ≥ .001; and RMSEA = .077, less than .080 (Hair et al., 2010). All of the hypotheses were examined through the investigation of the path coefficients and the statistical significance. Based on the results in Table 3 organizational trust, technological support, and incentives have an impact in product and process innovation, indicate that support (p≤.001, p≤.005). These results indicate that for organizations to be successful in developing new products they need to foster organizational trust, technological support, and incentives that encourages employees to exert maximal effort, and makes them comfortable in dealing with unfamiliar situations and expressing their opinions.

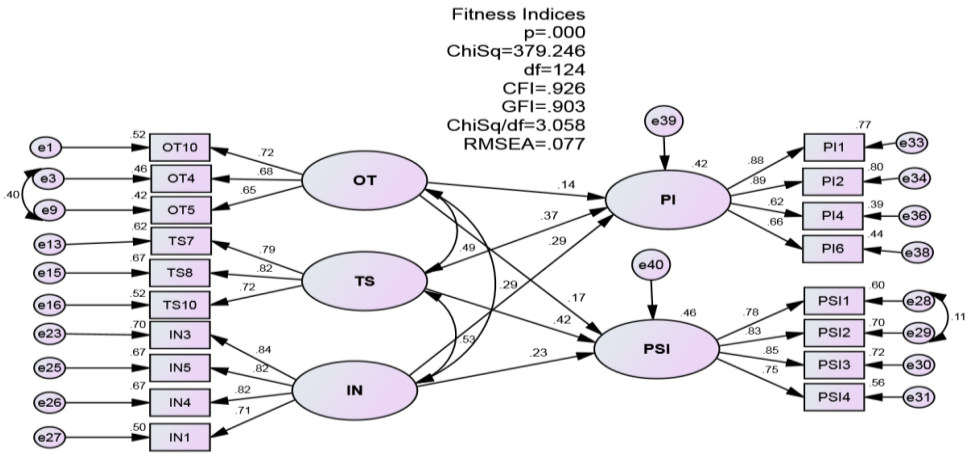

Fig 2: Structural Model

The goodness of fit indices show that the hypothesized model fit the data well .The path coefficients in Figure 2 was used to test the effects of the variables in the six hypotheses.

Table 3. Path Coefficients and Goodness-of-Fit

Path	Standard Path Coefficients (β)	CR	P-value (sig)	Goodness-of-fit
OT→PI	.14	2.06	.04	p =.000
OT→PSI	.17	2.39	.02	DF= 124
TS→PI	.37	4.84	***	CFI = .926
TS→PSI	.42	5.42	***	GFI = .903
IN→PI	.29	4.61	***	CMIN/df = 3.058
IN→PSI	.24	3.75	***	x^2 = 379.246 246RMSEA=.077

β: Standardized Regression Weights; CR.: Critical Ratio *: p ≤ .05, ***: p ≤ .001.

VII. IMPLICATIONS

This study highlighted the contribution of KMI to innovation in the textile industry under the government. The results suggest that a policy maker (i.e., the Iraqi government) should introduce and encourage new knowledge infrastructure for the textile factories to carry out their activities. Subsequently, these factories may have to adopt and adapt to the knowledge being imposed or introduced. The Iraqi government must provide generous support for private research and development (R&D) activities, along with other aid and support in the form of R&D cooperatives or subsides. This element depends not only on the R&D activities carried out by the company, but also other factors related to knowledge management infrastructure is an important foundation for improving KM activities in industry and is used to realize the maximize value of exploiting organizational knowledge, including organizational trust, technological support, and incentives. It is the government's responsibility to nurture and monitor individual or company level innovation practices so that it may lead to continued economic growth via their applications in public welfare and development (Taherizadeh, Devi & Fees, 2011). This study provides new information to policy makers in understanding managers' behaviour associated with knowledge management infrastructure in innovation. The Iraqi government could provide special plans and programs to educate managers and help them learn strategies for using knowledge management to improve innovation performance. Therefore, the Iraqi government could encourage managers as early adopters to adopt and apply knowledge management infrastructure with knowledge sharing to improve innovation in the Iraqi textile industry.

The present study recommends that the managers in Iraqi textile industry improve the techniques of information system in their factories. Technology in general is expected to facilitate more efficient ways for people and organizations to perform different working tasks. The managers must carefully plan the nature of their TS participation so as to advance the desired types of innovation. In particular, organizations should use

technology to map the location of specific types of knowledge, thereby facilitating the application and sharing of knowledge, as well as enhance communication skills. Moreover, Bartel, Ichniowski and Shaw (2007) explained that investment in new information technology in a manufacturing firm will have a valuable effect, such as increasing productivity growth and product innovation.

As mentioned previously, for knowledge management infrastructure, more attention should be paid to social aspects, especially trust issues, because they have a considerably stronger impact on knowledge sharing than the technical aspects. It is important to get a support from middle management in organization. Organizational managers must fully understand the need of knowledge management infrastructure in their organizations and commit to provide proper changes to facilitate product and process innovation. Furthermore, it is strongly recommended that organizational middle managers attempt to promote formal and informal communities and knowledge oriented practices in the organizations to be enable them interact and share expertise. This strategy also can help to reinforce trust between managers. Incentives play a significant role towards innovation performance, particularly in the Iraqi textile industry. Thus, incentives could be conducted between product and process improvement incentives, resulting in increased profits at the expense of the profits of other firm.

VIII. CONCLUSION

This paper examines the impact of knowledge management infrastructure on product and process innovation in the Iraqi textile industry. Based in the finding and result of the study organizational trust, technological support, and incentives were found to be significant factors affecting product and process innovation in the Iraqi textile industry. This research shows that the textile organizations should improve organizational trust and incentives that are important factors for helping their businesses meet competition. The results of this research strongly emphasize on the importance of organizational reward systems, hence implying that KM implementation would enhance innovation mechanism success in Iraqi textile industry.

Given the increasingly critical role of KM in connection with factor innovation in today's dynamic market place, this study has contributed to the current body of knowledge in KMI and innovation by the RBV blended with knowledge to develop an integrative theoretical model of KM infrastructure-based innovation performance of the firm. While there is a shortage of studies in this area in the context of emerging less developed countries

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