

Knowledge Management Practices and Intellectual Capital: A Case from Jordan

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ABSTRACT

This study attempts to study how Jordanian pharmaceutical firms adopt Knowledge Management Practices (KMPs) and recognize the importance of Intellectual Capital (IC). It also examines KMPs influence on IC in the targeted firms. A survey strategy was applied through a self-administered questionnaire. Thirteen pharmaceutical companies that were registered in the Jordanian Association of Pharmaceutical Manufacturers (JAMP) in 2016 were targeted through 220 managers who participated in this study. Results show a strong statistical significant effect of KMPs (communication and knowledge sharing, knowledge management policies and strategies, a culture that encourages knowledge creating and sharing, training and mentoring employees, the ability to create new knowledge, and knowledge capturing and acquisition) on IC in the targeted firms. Findings also indicate awareness of the management in the targeted companies of the importance of KMPs to achieve a superior success; however, KM policies and strategies were the most practices being used by the targeted companies, while the ability to create new knowledge practices was the lowest. The overall mean of IC recognition in the targeted companies was 3.70, reflecting a high degree. The study has made significant contributions to the body of knowledge at academic and practical levels. The study recommends that managers in the targeted companies need to better understand how to evaluate, identify and manage knowledge resources efficiently and effectively to be best utilized for capturing new knowledge and improving employees' skills.

Keywords: knowledge management; practices; intellectual capital; human capital; relational capital; structural capital; pharmaceutical; Jordan

I. INTRODUCTION

Knowledge management (KM) has become a crucial issue as organizations live in the knowledge era, which is likely to have a radically different outlook and which will entail a new business scope to pass through. The knowledge-based view considers knowledge as a firm's most vital strategic resource (Grant, 1996) since potential competitive advantages are derived from this asset. Furthermore, knowledge acquires greater value when it forms part of a knowledge creation or transfer process. In this way, firms will achieve success if they create new knowledge, spread the knowledge throughout the firm and integrate it into new technologies and products (Nonaka and Takeuchi, 1995). Knowledge can lead to innovation, improvement of business processes and overall business performance (Cate, 2006).

Previous researches have shown that the creation and transfer of knowledge, as well as knowledge embedded in the interactions of people, tools, and tasks, provides a basis for success in firms (Argote and Ingram, 2000). Also, the focus on resources that are developed within the organization and difficult to imitate has derived organizational knowledge as a leading source of competitive advantage (Spender, 1996). Studies realized that performance, efficiency and effectiveness in organizations can be improved through the implementation of appropriate KM Practices (KMPs) and Intellectual Capital (IC) rather than physical and finance assets (Chai et al., 2010; Nonaka, 2007). According to Kasim (2008), KMPs appear to be essential factors for any organization to be competitive and to ensure its survival.

Theoretically, the groundwork of the relationship between KM and IC is deeply rooted in the contemporary literature; however, the empirical and experiential evidence on this relationship is still thin and the number of discussions on the relationships between KMPs and IC dimensions is fairly a small number. Therefore, the main objectives of this study are to examine to what extent do Jordanian pharmaceutical firms adopt KMPs and recognize their importance, to examine to what extent are Jordanian pharmaceutical firms aware of the importance of IC, and importantly, to investigate whether KMPs influence IC in the targeted firms. It is important to mention that the Jordanian pharmaceutical industry was targeted in this study because there was a lack of management studies of this important industry. In addition, this industry is considered to be a leading industry in Jordan with a high reputation and occupying a prominent position at home and abroad as an innovative, important, and knowledgeable industry that contributes significantly to the Jordanian economy. Moreover, the knowledge-based industries such as the pharmaceutical industry tend to focus more on IC and KMPs issues. Therefore, it is the appropriate industry to be targeted in this study.

II. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

A. Knowledge Management Definitions

There are many definitions of the notion of KM that have been proposed in the literature. Chawla and Joshi (2010) argue that there is no fixed definition for KM abroad; rather it is a multi-disciplinary concept. Table 1 summarizes the definitions of KM based on literature review.

Table 1
Knowledge management's definitions

Definitions	Author(s)
KM is a set of functions concerned with exploitation and development of the knowledge resources in the organization, taking into account the other objectives.	Davenport et al. (1998)
KM is the “process that creates or locates knowledge and manages the dissemination and use of knowledge within and between organizations.”	Darroch (2003)
KM is any process (formal or informal) that facilitates creating, distribution, and application of for the sake of decision making process.	Walczak (2005)
KM is a function strategy of developing organizational performance and strategic position through getting the accurate knowledge to the right people at the right time in order to make the right decisions and actions.	Halawi et al. (2006)
KM is the effort of an organization improves, communicates and leverages intellectual capital as a fundamental resource for CA.	Chesebrough (2006)
KM is about managing all the information resources via a systematic and integrated approach by means of identifying, sharing and managing all the information related. These information resources might include databases, procedures, policies and documents as well as skills and expertise held by individuals and groups.	Singh et al. (2006)
KM may be defined as a system which provides strategic, process, and technology to share information and experiences and use the min problem-solving and decision-making process more effectively.	Freeze and Kulkarni (2007)
KM is the purposeful and systematic coordination of all elements related to knowledge in terms of people, technology infrastructure, processes and organizational structure.	Dalkir (2007)
KM is about transferring and sharing Knowledge from one entity to another within the organization via a systematic processes, activities and events.	Mu et al. (2008)
KM is a technical methodology that works to improve the company's ability to create, acquire and organize knowledge in order to enhance the ability to make decisions and formulate strategies.	Ooi (2009)
KM is the process through which organization share knowledge among individuals, groups, departments and other stakeholders to develop best practices and create value from their intellectual capital and knowledge-based assets that will improve their competitive position.	Singh and Soltani (2010)
KM is a process of creating, capturing, transforming, sharing, disseminating, and applying knowledge in a systematic approach in order to achieve specific and long-term objectives.	Goel et al. (2010)
KM is about creating, transferring and applying knowledge by developing a set of activities, practices and processes in an organization.	Laudon and Laudon (2010)
KM applies systematic approaches to discover, capture, understand, and utilize knowledge to create value.	Chawla and Joshi (2010)
KM may simply define as “doing what is needed to get the most out of knowledge.”	Fernandez and Sabherwal (2010)

KM is a set of processes, practices, procedures, approaches, and systems used for the generation, development and renewal of the knowledge-resources in to capabilities that organization can take advantage of to avoid threats and seize opportunities quickly and proficiently, to create market value and gain sustainable competitive advantage.

Mostaghfir and Schiuma (2013)

B. KM Practices (KMPs) Dimensions and Measurements

KM is managed through particular practices, so one definition of KM is “a set of practices and activities involved in manipulating the stocks and flows of knowledge in the firm starting from discovering and creating knowledge to how it is harvested, stored and reused in new related situations” (Li et al., 2011, p. 402). There are two main types of KMPs that are generally employed in organizations: the first one is associated with human resources management (HRM), and the second one is related to information and communication technology (ICT). Both of these practices are constructed in two types of business strategies - personalization and codification - but in a different way. In personalization strategy, IT facilitates discussions, chatting, conversations and exchanges of the tacit knowledge among people, thus, people are motivated for directly knowledge sharing. In codification strategy, people are connected with reusable codified knowledge which IT is heavily invested in, thus, people have easy access to use and contribute to document databases (Andreeva and Kianto, 2012).

Within the literature there are no constant dimensions identified to measure KMPs. Recently, Zack et al. (2009) defined KMPs as all the knowledge management-related activities and functions within the organization. They identified four dimensions of KMPs to measure their relationship with organizational performance: organizational culture that encourages knowledge sharing and creation; the ability to locate and share existing knowledge; the ability to generate and create new knowledge; and regards for the strategic value of knowledge and learning. Table 2 summarizes the literature review on KMPs.

For the purpose of this study, six dimensions of KMPs were identified, namely, communication and knowledge sharing, KM policies and strategies, a culture to encourage knowledge creating and sharing, training and mentoring employees, the ability to create new knowledge, and knowledge capturing and acquisition. The following sections briefly describe these practices:

- **Communication and knowledge sharing:** Knowledge must be shared among individuals to be more valuable to the organization. According to Fitz (2000), most of the organizations invest in technology infrastructure such as hardware, software and network. However, to justify their investments, employees should have the abilities to use these systems and tools for knowledge sharing and use the stored knowledge and information for problem solving, decision making and other related activities. It is the role of KM to assure that effective communication channels are in place to facilitate the process of knowledge sharing.

- **KM strategies and policies:** Knowledge management strategies and policies play a crucial role in unlocking and leveraging different types of knowledge. Implementing KM strategies enables an organization to learn from its corporate memory, capture knowledge, share knowledge, and to identify competencies in order to

become a forward thinking and learning organization (Robinson et al., 2005). KM strategies should serve corporate strategies, and help an organization to achieve its goals and objectives.

Table 2
KMP's dimensions

Author(s)	KMPs Dimensions
Li et al. (2012)	Generating knowledge; Storing knowledge; Disseminating knowledge; Applying knowledge
Zack et al. (2009)	The ability to share existing knowledge; The ability to create new knowledge; A culture that encourages knowledge creation and sharing
Ramachandran et al. (2013)	Generating knowledge; Codifying knowledge; Transferring knowledge
OECD (2002)	Communication; Training and mentoring; Policies and strategies; Knowledge capturing and acquisition; Leadership; Incentives
Edvardsson and Oskarsson (2011)	Knowledge capturing; KM strategies; Knowledge sharing
Baquero and Schulte (2007)	Knowledge sharing; KM policies and strategies; Ability to capture knowledge; A culture that encourages knowledge; Capturing and sharing; Employees involvement in the work place
Chawla and Joshi (2010)	A culture that encourages knowledge creation and sharing; Leadership in KM; KM processes; KM technology
Schiama et al. (2012)	Utilizing information and communication; Technologies (ICT) practices for managing; Knowledge; Utilizing human resources management (HRM) practices for managing knowledge
Kasim (2008)	Knowledge capturing and acquisition; Knowledge dissemination; Knowledge responsiveness
Comican and O'Sullivan (2003)	Knowledge generation; Knowledge storage; Knowledge representation; Knowledge access; Knowledge transfer
Islam et al. (2008)	Knowledge acquisition; Knowledge sharing
Gunasekaran and Nagi (2006)	Creating knowledge repositories; Facilitate knowledge transfer between users

- **A culture that encourages knowledge creating and sharing:** Organizational culture has considerable contributions on the success of a KM project, and “perhaps the most difficult constraint that knowledge managers must deal with” (Davenport et al., 1998). Therefore, in order to encourage employees to share their knowledge and ideas, knowledge managers must create a friendly organizational culture (Tahir et al., 2013).

- **Training and mentoring employees:** For a superior management of human resources, a successful organization invests in their employees to increase their skills, capabilities, knowledge, and experiences (Ulrich, 1997). Training and mentoring employees, according to OECD (2003), can be defined with five items: providing informal training programs that are related to KM; providing formal training programs that are related to KM; using formal and informal practices of mentoring; encouraging employees to continue their education for successfully completed courses related to

their work by reimbursing tuition fees; and offering training programs for workers in order to develop their skills and to be updated with what is new.

- **Ability to create new knowledge:** Creating new knowledge is a process of adding value to existing knowledge through innovation. Egbu et al. (2005) declare that for the purpose of survival, organizations need to create new knowledge, new skills and competences of the employees. Knowledge creation is a learning curve for the individual, as well as the organization. Knowledge creation and transfer can be developed through a four-mode model as follows:

- **Socialization** which is related to the transferring of tacit knowledge through social contact such as formal and informal discussions, simulations, skills, experience sharing, observations, and so on, among individuals within an organization. Externalization in which tacit knowledge is transformed into explicit knowledge in different forms, such as documents, symbols, metaphors, descriptions, hypotheses and models. Combination in which explicit knowledge is combined, categorized, and reclassified to create new explicit knowledge. Internalization -In this process, creating tacit knowledge from explicit knowledge through a process in which theoretical ideas change into concrete ones.

- **Knowledge capturing and acquisition:** Despite the rising interest in transferring and sharing knowledge, organizations may obtain no benefits unless they apply knowledge accurately in their work. However, knowledge acquisition practice may work as a base for knowledge sharing, and may serve as a linkage between knowledge sharing and knowledge application (Pacharapha and Ractham, 2012). Knowledge capturing is the practice of searching, finding, extracting knowledge from several resources and reusing the organizational goals and objectives that are knowledge related, and storing this knowledge for future use.

C. Importance of KMPs

Effective KMPs help organizations to achieve higher productivity, to improve sharing knowledge by supporting high quality communication networks, to have good customer relations, and to increase the ability of capturing and acquiring knowledge from the third parties. KMPs enhances organizational performance and effectiveness by leveraging, creating, acquiring and applying knowledge within all the organizational activities (Wiig, 1999). In the same vein, Dalkir (2007) argues that KM is the purposeful systematic coordination of all elements related to knowledge in terms of people, technology infrastructure, processes and organizational structure. Newell et al., (2009) argue that KM improves the ways and strategies an organization can use to face environmental challenges and changes. KM helps organizations to mobilize their knowledge base or leverage their knowledge resources and intellectual capital in order to guarantee continuous innovation and competitive advantage. Indeed, KM approach aims primarily to improve knowledge while stimulating their creation and dissemination without neglecting the importance of knowledge implementation in the company functioning (Radding, 1998; Daft, 2001; Skyme, 2001; Singh and Soltani, 2010; Edvardsson and Durst, 2013).

D. Intellectual Capital

Intangible assets are increasingly becoming important to determine organizational success. According to Bontis (2004), this success is credited with having coined the term, "Intellectual Capital" (IC), to refer to these assets and used it to emphasize the importance of general knowledge as essential to growth and development. Successful and competitive organizations tend to be those that are continually concerned and aware of the importance of IC. IC capital is the collective knowledge of individuals in organizations and who have most significantly improved the organizational competitive position by adding value to customers. This knowledge can be used to produce wealth, increase the output of physical assets, enhance the value of other types of capital, and gain sustainable competitive advantages.

Numerous definitions and classifications of IC can be found in literature (Bontis, 1999; Stewart, 1997; Walsh et al., 2008; Seleim and Khalil, 2011; Kamukama et al., 2011). For example, Roos et al. (2005) indicate that IC is all the resources that are not shown on the balance sheet and all the intangible assets which are considered by the contemporary accounting methods such as brands, patents, and trademarks. IC includes the sum of its members' knowledge. According to Roos et al. (2005), there are four dimensions for IC: human capital, organizational capital, renewal capital, and relational capital. Organizational or structural capital is everything that remains in the company after employees go home. Human capital is about generating intellectuality through employee attitudes, competences and intellectual agility.

Moreover, Brooking (1996) defines IC as the combined intangible assets of market, intellectual property, and human-centered and infrastructure assets, which enable the firm to function. According to him, IC is divided into four components, namely, market assets, intellectual property, human capital, and infrastructure assets. In addition, Stewart (1997) states that IC is the intellectual materials including knowledge, intellectual property, information, and experience that can be utilized to create wealth. There are four components for IC according to Stewart: structural capital is about IT, where it can be embedded; human capital is about anything related to employees in terms of skills, knowledge and experience, and views employees as the most important assets in the organization; intellectual property includes trademarks, plans and all patents; and customer capital which is about all the market information used to captured and retain customers.

Furthermore, Bontis (2003) defined IC as the pursuit of effective use of knowledge as a finished product to be opposed to information as the raw material. Bontis also identifies three dimensions to measure the IC: human, relational and structural capital. Human capital represents the organizational knowledge stock as represented by its employees. He adds that human capital is a foundation of innovation and strategic renewal, whether it is from reengineering new processes, throwing out old files, improving individual skills, or from brainstorming in the research lab. Structural capital, according to Bontis (2003), includes all the stocks of knowledge that create value to the organization and not related to humans such as processes, manuals, databases, strategies, routines and organizational charts. He also argues that if an organization has poor systems, policies and procedures, the overall IC will not reach its complete potential.

As mentioned before, IC cannot be measured via traditional accounting methods, which are mostly based on tangible assets. There are many important non-financial items included with the measurement of IC, such as innovation, knowledge, human skills and experiences, and customer and employee satisfaction. Chen et al., (2004) categorize IC measurements into four elements, namely, human, structural, innovation, and customer capital.

- **Human capital:** a mixture of an employee's attitude, competence and creativity. An Employee's competence includes skills, experiences and talents. An employee's attitude includes motivation and satisfaction. An employee's competence refers to the employee's learning ability, qualities and strategic leadership. On the other hand, an employee's attitude might be identified by corporate value, employee turnover rate, and the degree of employee satisfaction. An Employee's creativity allows them to use their knowledge in flexible ways and to make innovations constantly. An Employee's creativity indicators could be creative ability and their ability to create new ideas.
- **Structural capital:** includes organizational culture, business routines, organizational structure, informational systems, organizational learning, and operational processes. Corporate culture is the way a company acts in terms of values, beliefs, faith and behavior shared by all the staff. Organizational structure includes both a formal and informal organizational relationship which consists of the power relationship, authority and responsibility positions, and the control system. Organizational learning is the result of the regular learning, accumulating knowledge, and coping with changes.
- **Innovation capital:** presents new products, services, materials, markets and technologies. Innovation capital is the competences and abilities used to bring new technology, new product, or new service in order to meet and satisfy customers' needs and wants. Innovation capital has become a significant driver for a continuous improvement. There are three categories for innovation capital: innovational mechanism, innovational achievements, and innovational culture.
- **Customer capital:** is the value rooted in the relationships with the key stakeholder that a company develops when it conducts business. According to Chen et al. (2004), customer capital can be categorized into the following: the basic abilities of marketing; customer loyalty; and intensity of the market. The basic ability of marketing helps an organization to increase its market strength, a customer's loyalty and competitiveness. Market intensity refers to the current status of the market and its potential, while a customer's loyalty can be built up through customer satisfaction.

Moreover, Delgado et al. (2011) classified IC into three major components, namely, human, organizational and relational capital. Human capital includes the experiences, skills, knowledge, abilities and attitudes possessed by organizational members. Organizational capital consists of all the intangible assets that shape the organizational structure, culture and all the internal organizing principles. Organizational capital, according to them, enhances the flow of knowledge, provides consistency and guidance, and improves organizational effectiveness through coordination because it combines different functions of the company. Finally, relational capital is about the intangible assets that an organization captures when it obtains and maintains successful relationships with certain stakeholders such as suppliers and customers. Relational capital emphasizes relationship processes the organization can maintain with the external stakeholders.

For the purpose of this study, it can be concluded that IC is intangible assets that create value for the organization separately and jointly with tangible assets. It includes three elements, namely, human capital, organizational or structural capital, and relational capital. Human capital is about the value generated from knowledge, innovation, innovative skills, employee satisfaction, employee loyalty, organization know-how, skills, creativity, and experiences that employees take home when they leave the organization after work. Relational capital is defined as the knowledge resources linked to the external relationships with the firm's stakeholders such as customers, suppliers, investors, creditors, or other organizations. Structural capital is defined as the value of the knowledge assets that stays within the firm when people have left their workplace. It comprises organizational routines, procedures, systems, cultures, intellectual property, information systems, and databases.

Based on the above reviewed literature, the following hypotheses are developed for the purpose of this study:

The main hypothesis **H1**: There is no significant effect of knowledge management practices (communication and knowledge sharing, knowledge management policies and strategies, a culture that encourages knowledge creating and sharing, training and mentoring employees, the ability to create new knowledge, and knowledge capturing and acquisition) on intellectual capital in the Jordanian pharmaceutical companies.

The main hypothesis is divided into six sub-hypotheses:

- H1-1:** There is no significant effect of communication and knowledge sharing on intellectual capital in the Jordanian pharmaceutical companies.
- H1-2:** There is no significant effect of knowledge management policies and strategies on intellectual capital in the Jordanian pharmaceutical companies.
- H1-3:** There is no significant effect of a culture that encourages knowledge creating and sharing on intellectual capital in the Jordanian pharmaceutical companies.
- H1-4:** There is no significant effect of training and mentoring employees on intellectual capital in the Jordanian pharmaceutical companies.
- H1-5:** There is no significant effect of the ability to create new knowledge on intellectual capital in the Jordanian pharmaceutical companies.
- H1-6:** There is no significant effect of knowledge capturing and acquisition on intellectual capital in the Jordanian pharmaceutical companies.

III. METHODOLOGY AND STUDY DESIGN

The current study is considered as a quantitative explanatory study which aims to examine the relationship between KMPs and IC in Jordanian pharmaceutical companies. A survey strategy was applied through a self-administered questionnaire as the data collection method.

A. Population and Sampling

Thirteen pharmaceutical companies that were registered in the Jordanian Association of Pharmaceutical Manufacturers (JAMP) in 2016 were targeted in this study. The entire population was chosen and surveyed, thus, the need for sampling was negated. The analysis unit was top and middle managers in the pharmaceutical firms. The total

number of all general managers, deputy managers, heads of departments and heads of divisions in the 13 companies was 220. All were targeted; however, 207 questionnaires were returned with a response rate of 94%, and two questionnaires were excluded as they were incomplete.

B. Data Collection Method

A self-administered questionnaire, which was built based on the previous related studies, was the main primary data collection method, however, the item scales were modified to better fit the context of this study. The questionnaire consists of two parts. The first part includes the demographic information about the participants such as age, gender, work experience, academic levels and their positions in the company. The second part measures the variables' dimensions. A five points Likert Scale was used as follows: (1): Strongly disagree, (2): Disagree, (3): Uncertain, (4): Agree, and (5): Strongly agree. KMP's construct was measured through six dimensions:

- **Communication and knowledge sharing** (four items were adopted from Hamza (2008) and Singh and Sultani (2010)).
- **KM policies and strategies** (four items were adopted from Earl (2003), Hamza and Ismail (2008), and Seleim and Khalil (2011)).
- **Culture that encourages knowledge creating and sharing** (four items were adopted from Singh and Sultani (2010) and Saini (2013)).
- **Training and mentoring employees** (three items were adopted from Earl (2003), Bozbura (2007), and Seleim and Khalil (2011)).
- **The ability to create new knowledge** (four items were adopted from Zack et al. (2009), and Seleim and Khalil (2011)).
- **Knowledge capturing and acquisition** (three items were adopted from Earl (2003), Bozbura (2007), Seleim and Khalil (2011), Lopez and Alegre (2011), and Saini (2013)). IC was measured through three main dimensions:
 - **Human capital** (three items were adopted from Bontis (2004), and Seleim and Khalil (2011)).
 - **Relational capital** (three items were adopted from Bontis (2004), Seleim and Khalil (2011), and Suraj and Bontis (2012)).
 - **Structural capital** (four items were adopted from Bontis (2004), Sharabati et al. (2010), Suraj and Bontis (2012), and Biri et al. (2013)).

IV. RESULTS AND HYPOTHESES TESTING

A. Sample and Organizational Background Results

Results in Table 3 show that 139 of the participants were males with a percentage of 67.8% and 66 were females shaping a percentage of 32.2%. This indicates that the number of males in the managerial levels of Jordanian pharmaceutical companies is almost double the number of females. It shows also the age of the largest group of the sample was 30-40 years old with the percentage of 36.1%. It can be figured out from Table 3 that most of the people who occupied managerial levels were young people with good work experience. This is an indication that the majority of workers in the managerial levels were a young age which is characterized by the ability to tender and innovate like the pharmaceutical industry.

Table 3
Sample background's results

		Frequency	Percent
Gender	Male	139	67.8
	Female	66	32.2
	Total	205	100
Age	Less than 30 years	60	29.3
	30 < 40 years	74	36.1
	40 < 50 years	56	27.3
	50 years and above	12	5.9
	NA	3	1.5
	Total	205	100
Educational Level	Bachelor Degree	150	73.2
	Master Degree	30	14.6
	PhD	3	1.5
	Others	22	10.7
	Total	205	100
Work Experience	Less than 5 years	43	21.0
	5 to < 10 years	51	24.9
	10 to < 15 years	51	24.9
	15 years and above	60	29.2
	Total	205	100
Respondents' Job Titles	Manager	51	24.9
	Deputy Manager	16	7.8
	Head of Department	72	35.1
	Head of Division	66	32.2
	Total	205	100

Table 3 also shows that the education of 150 participants was reported as bachelor degree with the percentage of 73.2%. However, 30 participants were reported as master degree with 14.6%, indicating that Jordanian pharmaceutical companies seek to recruit a high degree of qualification for top management levels. In terms of work experiences, the table shows that the largest group of participants with a frequency of 60 and a percentage of 29.2%, indicates that their years of experience was 15 years and above. The second largest groups were the participants with (5 < 10) years and (10 < 15) years of experience, with a frequency of 51 and the percentage of 24.9% for each category. This result indicates that Jordanian pharmaceutical companies attract and maintain good experienced employees. 72 or 35.1% of the participants indicated that their job title was head of department, 66 or 32.2% indicated that their job title was head of division. Manager was the third frequent job title with the frequency of 51 and percentage of 24.9%.

B. Analysis of the Knowledge Management Practices' (KMPs) Constructs

Table 4 indicates the values of means, standard deviations and relative importance for the KMPs constructs in the Jordanian pharmaceutical companies. The KM policies and strategies were the practices being most used as it is ranked the first by a mean of 3.88, while the ability to create new knowledge practice was the lowest practice addressed, as

its mean was the least at 3.65. The overall KMPs in the Jordanian pharmaceutical companies mean is high with a mean of 3.73 and relative importance of 74.6. The following tables describe the means, standard deviations (SD) and relative importance (RI) for the items of each construct.

Table 4

Means and standard deviations and relative importance for KMP's constructs

KMP's Constructs	Mean	SD	RI	Level	Rank
1 Communication and knowledge sharing	3.75	0.70	75.0	High	2
2 KM policies and strategies	3.88	0.74	77.6	High	1
3 Culture that encourages knowledge creating and sharing	3.68	0.82	73.6	High	5
4 Training and mentoring employees	3.74	0.87	74.8	High	3
5 The ability to create new knowledge	3.65	0.82	73.0	Moderate	6
6 Knowledge capturing	3.69	0.77	73.8	High	4
Knowledge management practices	3.73	0.65	74.6	High	

(1 – 2.33) low; (2.34 – 3.67) moderate; (3.68 – 5.00) high.

Table 5 describes the values of means, SD and RI for the communication and sharing knowledge practices in the Jordanian pharmaceutical companies arranged decently. As indicated in Table 5, item number 4, which states that “Company encourages the active participation in business conferences and other discussion forums in order to share ideas and experiences with others,” was the practice being most used as addressed by the study sample as it ranked the first by a mean of 3.85 with the high degree of importance. While item number 2, which states that “Informal dialogues and meetings are important methods for knowledge sharing” was ranked the lowest practice being used, as its mean was the least with 3.68 and the least RI with 73.60. The overall communication and knowledge sharing was recognized by the mean of 3.75. The table indicates that there was a high agreement of all the items related to communication and knowledge sharing.

Table 5

Means and standard deviations for the items of communication and knowledge sharing constructs

Items	Mean	SD	RI	Level	Rank
1 Knowledge is shared in organized and codified forms like manuals or documents.	3.72	0.93	74.40	high	3
2 Informal dialogues and meeting are important methods for knowledge sharing.	3.68	0.97	73.60	high	4
3 Communication channels (intranet, e-mail, suggestion box and face-to-face) are widely used in the company.	3.76	0.94	75.20	high	2
4 Company encourages the active participation in business conferences and other discussion forums in order to share ideas and experiences with others	3.85	0.95	77.00	high	1
Communication and knowledge sharing	3.75	0.72	75.00	high	

(1 – 2.33) low; (2.34 – 3.67) moderate; (3.68 – 5.00) high.

Table 6 indicates that item number 2, which states that “The company has a permanent maintenance program for knowledge resources such as computers, communication networks and databases,” was the practice being used most as addressed by the study sample as it ranked the first by a mean of 3.97 with SD of 0.93, while item number 3, which states that “The Company acquires new knowledge through collaboration and alliances with external institutions, suppliers, distributors or other organizations,” was the lowest practice being used, as its mean was the least at 3.82 and 0.91 for SD. The overall KM policies and strategies items were recognized by the mean of 3.88 with the high degree of relative importance.

Table 6
Means and standard deviations for the items of KM policies and strategies constructs

	Items	Mean	SD	RI	Level	Rank
1	The company adopts employment policies designed to retain experienced employees.	3.85	1.04	77.00	high	3
2	The company has a permanent maintenance program for knowledge resources such as computers, communication networks and databases.	3.97	0.93	79.40	high	1
3	The company acquires new knowledge through collaboration and alliances with external institutions, suppliers, distributors or other organizations.	3.82	0.91	76.40	high	4
4	The company is constantly pursuing competitors' strategies, products and services in order to gain new knowledge.	3.87	0.95	77.40	high	2
	KM policies and strategies practices	3.88	0.74	77.60	high	

(1 – 2.33) low; (2.34 – 3.67) moderate; (3.68 – 5.00) high.

Table 7
Means and standard deviations for the items of culture that encourages knowledge creating and sharing constructs

	Items	Mean	SD	RI	Level	Rank
1	Decentralized structure helps the company to create new knowledge and improves interactions and communications skills.	3.49	1.06	69.80	moderate	4
2	The company encourages teamwork in order to exchange experience.	3.91	1.04	78.20	high	1
3	The company discusses work problems, failures and doubts openly with employees.	3.63	0.99	72.60	moderate	3
4	The company has an encouraging environment to develop and implement ideas, express opinions and share knowledge.	3.67	1.00	73.40	moderate	2
	Culture that encourages knowledge creating and sharing	3.68	0.82	73.60	high	

(1 – 2.33) low; (2.34 – 3.67) moderate; (3.68 – 5.00) high.

Table 7 indicates item number 2, which states that “The Company encourages teamwork in order to exchange experience,” was the practice being most used as addressed by the study sample as it ranked the first by a mean of 3.91 with high degree of importance, while item number 1, which states that “decentralized structure helps the company to create new knowledge and improves interactions and communications skills,” was the lowest practice being used, as its mean was the least at 3.49 and 1.06 for SD and with moderate degree of agreement as addressed by the respondents. The overall culture that encourages knowledge creating and sharing items were recognized with a high degree of agreement as its mean was 3.68.

Table 8 shows that item number 1, which states that “The company encourages employees to enroll in jobs related academic programs,” was the practice being most used as addressed by the study sample, as it ranked the first by a mean of 3.62 with moderate degree of importance, while item number 2, which states that “Employees may engage with training programs outside the company to remain informed with any new things related to knowledge,” was the lowest practice being used, as its mean was the least at 3.53. The overall training and mentoring employees practice mean becomes in a moderate degree of agreement as its mean was 3.58.

Table 9 indicates that item number 2, which states that “The employees are rewarded for developing new ideas,” was the practice being most used to verify the construct as addressed with the high agreement by the study sample, since it ranked the first by a mean of 3.81 and 0.98 for SD. While item number 1, which states that “The Company appraises employees' performance based on their knowledge competences,” was the lowest practice being used, as its mean was the least at 3.37. The overall KM ability to create new knowledge practice was recognized by a mean of 3.57 and 0.71 for SD, reflecting a moderate degree of importance as addressed by the respondents of the study.

Table 10 indicates that item number 2, which states that “The Company benefits from published researches in the field of pharmaceutical industry in order to acquire new knowledge,” was the practice most being used to verify the construct as addressed by the study sample since it ranked the first by a mean of 3.76 with high degree of importance. While item number 1, which states that “Knowledge can be acquired easily from official documents, manuals and databases in the company,” was the lowest practice being used, as its mean was the least at 3.56 and a moderate degree of agreement. The overall knowledge capturing and acquisition practice was recognized with the mean of 3.69 and 0.77 for SD, reflecting a high importance level as addressed by the respondents of the study.

C. Analysis of the IC Constructs

Table 11 shows the values of means, standard deviations and relative importance for the IC in the Jordanian pharmaceutical companies. As indicated in Table 11, structural capital was the IC being addressed most by the study sample as it ranked the first by a mean of 3.73, while the relational capital was the lowest as its mean was the least at 3.67 reflecting a moderate importance level. The overall IC in the Jordanian pharmaceutical companies, recognized by a mean of 3.70, reflects a high degree of importance level as addressed by the respondents of the study.

Table 8
Means and standard deviations for the items of training and mentoring employees constructs

	Items	Mean	SD	RI	Level	Rank
1	The company encourages employees to enroll in jobs related academic programs.	3.62	0.98	72.40	moderate	1
2	Employees may engage with training programs outside the company to remain informed with any new things related to knowledge.	3.53	0.95	70.60	moderate	3
3	The company assigns mentors to the new hires so they can perform their jobs correctly.	3.59	0.94	71.80	moderate	2
	Training and mentoring employees	3.58	0.81	71.60	moderate	

(1 – 2.33) low; (2.34 – 3.67) moderate; (3.68 – 5.00) high.

Table 9
Means and standard deviations for the items of the ability to create new knowledge constructs

	Items	Mean	SD	RI	Level	Rank
1	The Company appraises employees' performance based on their knowledge competences.	3.37	0.98	67.40	moderate	4
2	The employees are rewarded for developing new ideas.	3.81	0.93	76.20	high	1
3	The company facilitates access to the data that might help employees to create knowledge and new ideas.	3.50	1.08	70.00	moderate	3
4	The company invited experts from outside the company to participate in workshops, seminars and lectures related to knowledge.	3.61	1.08	72.20	moderate	2
	The ability to create new knowledge	3.57	0.74	71.40	moderate	

(1 – 2.33) low; (2.34 – 3.67) moderate; (3.68 – 5.00) high.

Table 10
Means and standard deviations for the items of knowledge capturing and acquisition constructs

	Items	Mean	SD	RI	Level	Rank
1	Knowledge can be acquired easily from official documents, manuals and databases in the firm.	3.56	1.00	71.20	moderate	3
2	The company benefits from published researches in the field of pharmaceutical industry in order to acquire new knowledge.	3.76	0.92	75.20	high	1
3	Your firm captures Knowledge from other stakeholders such as competitors, suppliers, customers and industrial associations.	3.75	0.94	75.00	high	2
	Knowledge capturing and acquisition	3.69	0.77	73.38	high	

(1 – 2.33) low; (2.34 – 3.67) moderate; (3.68 – 5.00) high.

Table 11
Means, standard deviations and relative importance for the intellectual capital constructs

	Intellectual Capital Constructs	Mean	SD	RI	Level	Rank
1	Human Capital	3.71	0.73	74.20	high	2
2	Relational Capital	3.67	0.85	73.40	moderate	3
3	Structural Capital	3.73	0.81	74.60	high	1
	Intellectual Capital	3.70	0.68	74.00	high	

(1 – 2.33) low; (2.34 – 3.67) moderate; (3.68 – 5.00) high.

Table 12
Means, Standard Deviations and Relative Importance for the Items of Human Capital Constructs

	Items	Mean	SD	RI	Level	Rank
1	The company is keen to attract the human resources who have adequate skills and experience in various areas of its work.	3.68	0.96	73.60	high	2
2	The company devotes more time and effort to improve and develop employees' knowledge and skills.	3.44	0.99	68.80	moderate	3
3	The company relies on the specialized research competencies of new product development.	4.02	0.92	80.40	high	1
	Human Capital	3.71	0.73	74.20	high	

Table 13
Means, standard deviations and relative importance for the items of relational capital constructs

	Items	Mean	SD	RI	Level	Rank
1	The company adopts the alliance strategies with other companies to benefit from their expertise.	3.73	0.98	74.60	high	1
2	The company maintains a long-standing relationship with suppliers.	3.69	1.06	73.80	high	2
3	The company gets customers' feedback to the final product before final release.	3.57	1.00	71.40	moderate	3
	Relational Capital	3.67	0.85	73.40	moderate	

Table 12 shows that item number 3, which states that “The company relies on the specialized research competencies of new product development,” was the item being most used as addressed by the study sample since it ranked the first by a mean of 4.02 with the high level of importance as 80.40 for RI, while item number 2, which states that “The company devote more time and effort to improve and develop employees' knowledge and skills,” was the lowest item being used as its mean was the least at 3.44. The overall human capital recognized by a mean of 3.71, reflects a high level of importance as addressed by the respondent of the study.

Table 13 indicates that item number 1, which states that “The Company adopts the alliance strategies with other companies to benefit from their expertise,” was the

item most used as addressed by the study sample as it ranked the first by a mean of 3.73 with 74.60 for the RI, while item number 3, which states that “The company gets customers' feedback to the final product before final release,” was the lowest used item as its mean was the least at 3.57 with the least importance as its RI was 71.40. The overall relational capital recognized by a mean of 3.67 reflects a moderate level of importance as addressed by the respondent of the study.

Table 14 reflects that item number 3, which states that “The company owns the mechanics of techniques for the exchange and sharing of knowledge among all parties inside and outside the company,” was the item being most used as addressed by the study sample, as it ranked the first by a mean of 3.87 with 0.99 for SD and 77.40 for RI, while item number 2, which states that “The systems and procedures in the company support innovation and new ideas,” and item number 1, which states the “The company is keen to document the knowledge in manuals and easily accessible databases,” were the lowest items used as their mean was the least at 3.67 with the same level of importance as 73.40 for the RI. The overall structural capital recognized by a mean of 3.73 reflects a high level of importance as addressed by the respondent of the study.

Table 14
Means, standard deviations and relative importance for the items of structural capital constructs

	Items	Mean	SD	RI	Level	Rank
1	The company is keen to document the knowledge in manuals and easily accessible databases.	3.67	1.11	73.40	moderate	3
2	The systems and procedures in the company support innovation and new ideas.	3.67	1.12	73.40	moderate	3
3	The company owns the mechanics of techniques for the exchange and sharing of knowledge among all parties inside and outside the company.	3.87	0.99	77.40	high	1
4	The company develops clear strategies and procedures are clear to the management of intellectual property rights (talent, patents, and brand) as a major asset for the company.	3.71	1.05	74.20	high	2
	Structural Capital	3.73	0.81	74.60	high	

Table 15
Multiple linear regressions for testing the effect of KMPs on intellectual capital

Variable	R	R ²	F	F	Sig(f)	
KMPs	0.890	0.792	125.66	2.14	0.000	
Constructs			β	t	Sig(t)	Decision
Communication and knowledge sharing			0.211	3.97	0.000	reject
KM Policies and strategies			0.142	3.08	0.002	
Culture that encourages knowledge creating and sharing			0.345	6.81	0.000	
Training and mentoring employees			0.196	4.44	0.000	
The ability to create new knowledge			0.013	0.27	0.788	
Knowledge capturing and acquisition			0.177	4.03	0.000	

D. Testing Hypotheses

Study's main hypothesis is **H1**: There is no significant effect of knowledge management practices (communication and knowledge sharing, knowledge management policies and strategies, a culture that encourages knowledge creating and sharing, training and mentoring employees, the ability to create new knowledge, and knowledge capturing and acquisition) on IC in the Jordanian pharmaceutical companies.

Table 15 summarizes the results of multiple linear regressions for testing the effects of KMPs and KMPs' constructs on IC capital. The value of calculated f value 125.66 is greater than the tabulated f as 2.14. This result suggests a statistical effect of KMPs on IC as the related probability (sig. f = 0.000) was ≤ 0.05 . According to the results included in the table above, the value of R^2 expresses the percentage of variation in the dependent variable (IC) that could be referred to the independent variables. According to this idea, KMPs explains a percentage of 79.2 %.

The t statistics tests the linearity significance of each KMPs constructs in relation to the dependent variable. Communication and knowledge sharing, KM policies and strategies, a culture that encourages knowledge creating and sharing, training and mentoring employees, and knowledge capturing and acquisition showed a significant linearity importance in the prediction model, the magnitude of effect of these constructs on the dependent variable reflected from beta (β) coefficient as 0.211, 0.142, 0.345, 0.196 and 0.177, respectively, they were statistically significant because the related probability values (sig. t) were ≤ 0.05 .

As a result, the null hypothesis is rejected and the alternative one is accepted which indicates that there is significant effect of KMPs (communication and knowledge sharing, KM policies and strategies, a culture that encourages knowledge creating and sharing, training and mentoring employees, the ability to create new knowledge, and knowledge capturing and acquisition on IC). This fact is justified based on the probability value of f test included in the table which was ≤ 0.05 . This finding provides evidence to managers as decision makers in the Jordanian pharmaceutical companies about the importance of KMPs as a tool for enhancing and improving intellectual capital. The above Table 15 also includes the test of each sub-hypothesis related to the first main hypothesis as shown next.

H1-1: There is no significant effect of communication and knowledge sharing on intellectual capital in the Jordanian pharmaceutical companies.

The t test value mentioned in Table 15 was 3.97 with a probability (sig.t = 0.000) suggesting a significant effect of communication and knowledge sharing on IC in the Jordanian pharmaceutical companies as the probability value was less than 0.05. The effect magnitude was expressed by the standardized beta (β) coefficient 0.211 to reflect how much communication and knowledge sharing affect IC. This value means that there is a positive significant effect of the communication and knowledge sharing practice on IC capital, thus, if the IC has increased by one unit, the magnitude effect of the communication and knowledge sharing practice will be 0.211, with the constant of other constructs.

According to the result, the null hypothesis is rejected and we accept the alternative one which indicates that “there is a significant effect of communication and knowledge sharing on IC in the Jordanian pharmaceutical companies.” This finding provides evidence for managers in the Jordanian pharmaceutical companies about the importance of the communication and knowledge sharing practice to improve IC.

H1-2: There is no significant effect of KM policies and strategies on intellectual capital in the Jordanian pharmaceutical companies.

The t test value mentioned in Table 15 was 3.08 with a probability (sig.t = 0.002) suggesting a significant effect of KM policies and strategies on IC in the Jordanian pharmaceutical companies as the probability value was less than 0.05. The effect magnitude was expressed by the standardized beta (β) coefficient 0.142 to reflect how much KM policies and strategies affect IC. This value means that there is a positive significant effect of KM policies and strategies practice on IC, thus, if the IC has increased by one unit, the magnitude effect of the KM policies and strategies practice will be 0.142, with the constant of other constructs. As a result, the null hypothesis is rejected and we accept the alternative one which indicates that “there is a significant effect of KM policies and strategies on IC in the Jordanian pharmaceutical companies.” This finding provides evidence for managers in the Jordanian pharmaceutical companies about the importance of KM policies and strategies practice to improve IC.

H1-3: There is no significant effect of a culture that encourages knowledge creating and sharing on intellectual capital in the Jordanian pharmaceutical companies.

The t test value mentioned in Table 15 was 6.81 with a probability (sig.t = 0.000) suggesting a significant effect of a culture that encourages knowledge creating and sharing on IC in the Jordanian pharmaceutical companies as the probability value was less than 0.05. The effect magnitude was expressed by the standardized beta (β) coefficient 0.345 to reflect how much a culture that encourages knowledge creating and sharing affect IC. This value means that there is a positive significant effect of a culture that encourages knowledge creating and sharing practice on IC, thus, if the IC has increased by one unit, the magnitude effect of a culture that encourages knowledge creating and sharing as a KM practice will be 0.345, with the constant of other constructs. Therefore, the null hypothesis is rejected and we accept the alternative one which indicates that “there is a significant effect of a culture that encourages knowledge creating and sharing on IC in the Jordanian pharmaceutical companies.” This finding provides evidence for managers in the Jordanian pharmaceutical companies about the importance of the culture that encourages knowledge creating and sharing practice to improve IC.

H1-4: There is no significant effect of training and mentoring employees on intellectual capital in the Jordanian pharmaceutical companies.

The t test value mentioned in Table 15 was 4.44 with a probability (sig.t = 0.000) suggesting a significant effect of training and mentoring employees on IC in the Jordanian pharmaceutical companies as the probability value was less than 0.05. The

effect magnitude was expressed by the standardized beta (β) coefficient 0.196 to reflect how much training and mentoring employees affect intellectual capital. This value means that there is a positive significant effect of training and mentoring employees practice on IC, thus, if the IC has increased by one unit, the magnitude effect of the training and mentoring employees as a KM practice will be 0.196, with the constant of other constructs. Therefore, the null hypothesis is rejected and we accept the alternative one which indicates that “there is a significant effect of training and mentoring employees on IC in the Jordanian pharmaceutical companies.” This finding provides evidence for managers in the Jordanian pharmaceutical companies about the importance of training and mentoring employees practice to improve IC.

H1-5: There is no significant effect of the ability to create new knowledge on intellectual capital in the Jordanian pharmaceutical companies.

The t test value mentioned in Table 15 was 0.27 with a probability of ($\text{sig.t} = 0.788$) suggesting no significant effect of the ability to create new knowledge on IC in the Jordanian pharmaceutical companies as the probability value was greater than 0.05. The effect magnitude was expressed by the standardized beta (β) coefficient 0.013 to reflect how much the ability to create new knowledge affects IC. This value means that there is a positive non-significant effect of the ability to create new knowledge practice on IC, thus, if the IC has increased by one unit, the magnitude effect of the ability to create new knowledge practice will be 0.013, with the constant of other constructs, and this value is too low compared with the other constructs. As a result, the null hypothesis is accepted and we reject the alternative one which indicates that there is a significant effect of the ability to create new knowledge on IC in the Jordanian pharmaceutical companies. This finding provides evidence for managers in the Jordanian pharmaceutical companies that present the ability to create new knowledge practice is less important than other factors for enhancing and improving IC.

H1-6: There is no significant effect of knowledge capturing and acquisition on intellectual capital in the Jordanian pharmaceutical companies.

The t test value mentioned in Table 15 was 4.03 with a probability ($\text{sig.t} = 0.000$) suggesting a significant effect of knowledge capturing and acquisition on IC in the Jordanian pharmaceutical companies as the probability value was less than 0.05. The effect magnitude was expressed by the standardized beta (β) coefficient 0.177 which reflects how much knowledge capturing and acquisition practice affect IC. This value means that there is a positive significant effect of knowledge capturing and acquisition practice on IC, thus, if the IC has increased by one unit, the magnitude effect of the knowledge capturing and acquisition as a KM practice will be 0.177, with the constant of other constructs. Therefore, the null hypothesis is rejected and we accept the alternative one which indicates that “there is a significant effect of knowledge capturing and acquisition on IC in the Jordanian pharmaceutical companies.” This finding provides evidence for managers in the Jordanian pharmaceutical companies about the importance of knowledge capturing and acquisition practice to improve IC.

V. FINDINGS AND DISCUSSIONS

A. Findings Related to KMPs Adoption in Jordanian Pharmaceutical Firms

This study aims first to determine to what extent pharmaceutical firms in Jordan adopt KMPs and recognize their importance. In order to achieve this objective, the researchers have recognized the means, standard deviations and the relative importance related to KMPs constructs in the Jordanian pharmaceutical companies as addressed by the participants of the study. As shown in Table 4, the overall KMPs in the Jordanian pharmaceutical companies mean is high 3.73 with standard deviation of 0.65 and relative importance of 74.6. These results are true since pharmaceutical companies are knowledge-based intensive companies. This shows the awareness of the management in these companies to the importance of KMPs to achieve a superior competitive position in the domestic and global market.

The results indicated that KM policies and strategies were the practices being most used as addressed by the respondents' answers as it ranked the first by a mean of 3.88. These results showed the agreement of all participants about the relative importance of KM strategies and policies. Most of the pharmaceutical companies in Jordan formulate effective KM strategies to improve their knowledge prosperity. Also, these results indicate that many pharmaceutical companies take into account the importance of the alliance strategies in order to gain more knowledge and experience. Moreover, many Jordanian pharmaceutical companies have clear work policies to retain experienced people and track competitors' strategies.

The ability to create new knowledge practice was the lowest practice addressed by the participants of the study as its mean was the least at 3.65 and 73.0 for SD ranked with a moderate level of importance. This result can be justified from the relative importance of the item number one related to this construct which states that "The Company appraises employees' performance based on their knowledge competences" as the lowest practice being used as its mean was the least at 3.37 with 67.40 for the relative importance as addressed by the respondents of the study. Employees were less motivated to come up with new knowledge.

B. Findings Related to IC Awareness in Jordanian Pharmaceutical Firms

The study's second aim was to find out to what extent the Jordanian pharmaceutical companies are aware of the importance of IC. In order to achieve this objective, the researchers had recognized the means, standard deviations and the relative importance related to IC constructs (human capital, relational capital, and structural capital) in the Jordanian pharmaceutical companies as addressed by the participants of the study, as shown in Table 11. The overall IC in the Jordanian pharmaceutical companies, recognized by a mean of 3.70, reflects a high degree importance level as addressed by the participants of the study. These results are true since pharmaceutical companies are knowledge-based intensive companies, and these types of companies need to have high skilled and educated people with good experience. This can be figured out for the personal information analysis in Table 3 which indicates that the majority of workers in the managerial levels concentrated mainly in the categories that are still of a young age, which is characterized by the ability to tender and innovate, as the pharmaceutical

industry is a knowledge-based industry. Also, Jordanian pharmaceutical companies seek to recruit a high degree of qualification for top and managerial levels, such as bachelor and master degree and above at 89.3%, with 79% of the participants having more than five years of experience. This shows the awareness of the management in these companies to the importance of managing IC effectively to achieve a superior competitive position in the domestic and global market.

The results indicated that structural capital was the IC being most used as addressed by the participants' answers as it ranked first by a mean of 3.73. These results showed the agreement of all participants about the relative importance of structural capital (RI = 74.60). Most of the pharmaceutical companies in Jordan formulate effective strategies and procedures to manage their intellectual property rights (talents, patents, and brands) as a major asset for the company. Also, these results indicate that many pharmaceutical companies take into account the importance of having an easily accessible database. Moreover, many Jordanian pharmaceutical companies have clear procedures to support innovation and new ideas.

The relational capital was the lowest IC addressed by the participants of the study as its mean was the least at 3.67 which is too close to the high level as the scale was 3.68 – 5 high. However, the relative importance of the relational capital was the least at 73.40. This result can be justified from the relative importance of item number 3 related to this construct which states that “The company gets customers' feedback to the final product before final release” and was the lowest item being used as its mean was the least at 3.57 with the least relative importance (RI=71.40) as addressed by the participants of the study. This result means that not all the pharmaceutical companies get feedback to the final products before final release.

C. Findings Related to Hypotheses Testing

As a result shown in Table 15, the null hypothesis is rejected and the alternative one is accepted which indicates that “there is a significant effect of KMPs (communication and knowledge sharing, KM policies and strategies, a culture that encourages knowledge creating and sharing, training and mentoring employees, the ability to create new knowledge, and knowledge capturing and acquisition on IC). According to the table, the value of R^2 expresses the percentage of variation in the dependent variable (IC) that could be referred to as the independent variables (KMPs). According to this idea, KMPs explains a percentage of 79.20 % of the variance in IC. The value of calculated F equals 125.66 with the significant F equals 0.000 which is < 0.05 . Therefore, KMPs constructs together have a significant positive effect on the IC capital in the Jordanian pharmaceutical companies. This result could be due to best understanding the benefits and importance of KM and KMPs by the managers of Jordanian pharmaceutical companies as one of the major drivers for improving and enhancing IC (human, relational, and structural capital). This assumption built upon the fact that KMPs plays a vital role and is recognized as essential activities for the processes of creating, improving, growing, enhancing, accumulating, and sustaining intellectual capital in all type of organizations in general and knowledge-based organizations in particular. KMPs is closely linked to the effective management of IC. However, managers of Jordanian pharmaceutical companies understand that effective KMPs contribute to IC gathering, creation and improvement. These findings are

consistent with the studies of Marr et al. (2003), Shih et al. (2010), Bontis (2000), and Saleim and Khalil (2011). They all agree that KMPs have a significant positive effect on IC. Also, they concluded that the strategic purpose of KMPs is to enhance IC and improve organizational performance and competitive position.

Moreover, the findings in Table 15 indicate that each of the KMPs constructs has its own effect on the IC. Communication and knowledge sharing, KM policies and strategies, a culture that encourages knowledge creating and sharing, training and mentoring employees, and knowledge capturing and acquisition, showed a significant positive effect on IC as their significant t was ≤ 0.05 , the magnitude of effects of these constructs on the dependent variable reflected from beta (β) coefficient as 0.211, 0.142, 0.345, 0.196 and 0.177. The only construct that had a positive non-significant effect on IC was the ability to create new knowledge with the results of $\beta = 0.013$, Sig. $t = 0.788$, where Sig. t was greater than 0.05. Therefore, the null hypothesis is accepted and we reject the alternative one which indicates that there is a significant effect of the ability to create new knowledge on IC in the Jordanian pharmaceutical companies at $\alpha \leq 0.05$ level. This finding provides evidence for managers in the Jordanian pharmaceutical companies that presents the ability to create new knowledge practice is less important than other factors for enhancing and improving IC. This could be due to many reasons: not all the companies have a motivation and appraisal system; there is a low investment in the R&D; a lack of the relationships with the universities and research institutions; some of the companies do not have a culture that encourages innovative thinking and creativity; none of the companies have a Chief Knowledge Officer (CKO) in their structure. A CKO encourages employees to create new ideas and knowledge. Another reason is hidden behind the idea that most of the experts resist giving all the tacit knowledge they have in order to retain the power. These assumptions are consistent with the studies of Bontis (2004), Dewhurst and Navarro (2004), and Curado (2008).

VI. CONCLUSIONS

The study aimed to examine the impact of KMPs (communication and knowledge sharing, knowledge management policies and strategies, a culture that encourages knowledge creating and sharing, training and mentoring employees, the ability to create new knowledge, and knowledge capturing and acquisition) on IC (human, relational and structural capital) in the Jordanian pharmaceutical companies. It also aims to examine the adoption of KMPs and IC awareness in the targeted companies.

The study addressed empirical evidence that has not been addressed before in the literature, more especially in the pharmaceutical industry in Jordan. The results showed that KMPs have a significant effect on IC. Accordingly, all the proposed hypotheses verified were accepted. It can be argued that managers at the Jordanian pharmaceutical companies were aware of the importance of KMPs as a tool to create, improve and retain IC in order to gain more success and superior competitive positions in the local and global market.

The main contribution of this research comes from the fact that it provides a better understanding of the concept of KMPs and IC. The research ascertains the importance of KMPs in the organization to enhance IC in order to gain sustainable success. It provides the first glance of how KMPs are best utilized to build and improve all the factors of IC. Moreover, this research adds more contributions through providing

theoretical taxonomies of the research's variables, as KMPs and IC drawn from the related literature review and previous studies. These taxonomies include the dimensions and sub-dimensions for all the variables collected from different related studies. Other contributions to knowledge come from the distinguishing between KMPs and KM processes by reviewing the different definitions and presenting the dimensions KMPs as communication and knowledge sharing, KM policies and strategies, a culture that encourages knowledge creating and sharing, training and mentoring employees, the ability to create new knowledge, and knowledge capturing and acquisition. These dimensions were drawn from different studies related to the topic.

Based on the results, the research provided a set of recommendations that might be useful for managers and help organizations to improve their competitive position. Importantly, managers need to better understand how to evaluate, identify and manage knowledge resources efficiently and effectively to be best utilized for capturing new knowledge and improving employees' skills. Management in the Jordanian pharmaceutical companies should formulate an effective KM strategy. To gain success, these companies must provide effective formal and informal training and mentoring programs to improve employees' skills, experiences, and to provide them with new knowledge. Management should create a friendly culture with a civilized way of doing business to encourage employees to express their thoughts, encourage creativity and innovation, and facilitate knowledge sharing and transferring through formal and informal negotiations that play a crucial role in transferring tacit knowledge into explicit knowledge.

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