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## INNOVATIONS IN KNOWLEDGE MANAGEMENT PERSPECTIVES: AN EMPIRICAL STUDY IN THE JORDANIAN COMMERCIAL AND ISLAMIC BANKS

**Abstract.** This research study aims at developing a knowledge management system to enhance Jordanian Banks Performance. The authors developed the system by examining three variables: knowledge processes, knowledge perspectives and balanced scorecard. The research sample included all 327 bank employees (directors, general directors, deputies, assistant managers & chairpersons) working in six commercial and Islamic-commercial Jordanian banks, from which 193 completed the study questionnaire. AMOS software was used to treat and organize the collected data. Path analysis proved that the optimal study model excludes the process of knowledge diagnose from knowledge processes, and considers organizational culture perspective as the best moderating variable through which the system can be applied in Jordanian banks. There is a difference in the effect level of the knowledge management system to enhance performance in the Jordanian commercial and Islamic banks. The obtained results indicate that there is a strong relationship between information technology, knowledge management and high business values. Banks managements were not keen to share knowledge with universities and research centres. They depended on existing knowledge, developed knowledge by experiments, or borrowed it from other financial institutions. This study confirmed that knowledge management practice contributes to increasing efficacy and experience, contributing in turn in enhancing human capital in knowledge-intensive business service in Spain. Knowledge management use in Jordan banks increased employee's satisfaction toward using operating business and the quality of knowledge obtained. As a result, banking services and trust in banks increased. Based on the research results, it is recommended that banks managements develop, equip, and update banks systems, recruit professional employees and to seek experts and researcher's assistance in this regard. Banks managements should adopt models that replace diagnosis from the knowledge processes with organizational culture. Besides, management should develop banking knowledge and pay attention to other knowledge management processes.

**Keywords:** knowledge processes, knowledge perspectives, balanced scorecard.

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**Introduction.** Since the early 90s knowledge management caught scholars' interest, its importance is increasing globally, and it is witnessing rapid developments. The term «knowledge management» emerged due to business organizations practice its tasks in a developed method using techniques like knowledge, organizations assessment of performance is vital and identifying the impact of developments, knowledge and new methods on performance is necessary. Hence, this study aimed to implement a knowledge management system to improve banks performance by focusing on knowledge processes and perspectives, and to demonstrate knowledge importance to develop organizations business such as banks. Knowledge is the past, present, and future that all business organizations hope by owning and implementing to survive and compete. Interest in knowledge management is a result of cumulative creative thinking in dealing with nontangible assets, the first of which is knowledge based on survival and growth of the organization and success toward globalization (Aljawarneh and Atan, 2018). Organizations should be equipped with the knowledge to be able to achieve its goals and targets (Aljawarneh and Al-Omari, 2018). This study highlights the importance of knowledge management, which turned out to be an integral part of modern organizations business, given the globalization demands and the tremendous progress in the technical field. Institutions interest in knowledge management occurred as a response to organizations environments rapid change and various stimuli, but not to satisfy unnecessary needs or the desire to change (Al-Omari et al., 2020). Researchers believe that the changing-business environment that controls banking and banks processes imposes depending on a solid ground of knowledge management. Banks and banking operations are suffering from economic crises such as loans, payments of loans, interest margins and government legislations that control banks operations, bankruptcy, debt scheduling or buying loans with new interests, national economy disturbances, development hindrance, indebtedness and dependence on sovereign funds increased (Mahafzah et al., 2020). Banks survival and contribution in the economic growth in different countries requires an integrated knowledge system that seeks to achieve objectives effectively. This research study aims to develop a knowledge management system to enhance Jordanian banks performance, confirm knowledge management important role to provide the banking-sound environment and confront internal and external job challenges. There is examined Jordan banking processes, researches, and management models since 1995 to develop the model of this study. This study's subject stemmed from the advantages mentioned above of knowledge management systems in supporting Jordanian banks performance, which enhances the national economy, develops it, and facilitate daily life. This study knowledge management includes knowledge processes as independent, knowledge perspectives as a moderator and performance measured by scorecard as the dependent after investigating several previous systems and methods. This study differs as well by comparing commercial and Islamic banks to identify the effects of implementing knowledge systems on each bank type. This study is important due to its interest in an administrative issue on Jordanian banks. It is important to implement knowledge management systems because renovation is a feature of this century. Development of this study's knowledge system is an attempt to enhance employee's performance. This study adds to the field of knowledge management and usages in developing business, especially in banks. Literature review in the study included 25 studies conducted by Arab and foreign scholars in their communities, and the researches cited and listed them in the reference section. The study was the first, as far as I know, to implement and find the impact of the system on commercial banks and Islamic commercial banks, which adds value to the administrative field in general and knowledge management in specific.

**Literature Review.** Business scholars made several definitions and concepts of knowledge. Applehans et al. (1999) defined knowledge as information that gains legitimacy by tests and evidence, or it is the ability to transform data and information into an effective activity. Kubaisi (2002) defined knowledge as the power in today's business organizations and the key to solving ambiguous business problems. According to Drucker (1999) knowledge as information that changes someone or something to enable individuals and organizations to practice different and more effective activities. According to the

researcher, knowledge is the new foundation of competition in the post-capitalist age (Al-Da'abseh et al., 2018; Al-Bdareen and Khasawneh, 2019). Bi and Zhang (2010) classified organizations interests into three types: data, intellectual capital, and experience. While, Tiwana (2000) said that knowledge benefit business through services plan and design, it helps in directing and spreading business, this is achieved by the conditions created by knowledge management to develop, acquire, transfer, and follow business management in addition to setting proper strategies to manage knowledge. The processes include human resource management, develop knowledge control systems, and construct knowledge experience networks. Malkawi (2007) said that knowledge has a positive reflects on the organization and employees. Thus, their skills increase and reflect on performance. In turn, this leads to more speed, and accuracy resulted in product or service quality in less time, manner and cost. Besides, it reflects on sales, revenues, and achieves the organizations' competitive advantage. Many communities of organizations are influenced because of the interchangeable relationship between the organization and the community (Alwagfi et al., 2020; Sh and Albdareen, 2015). According to the concept of system theory, the organization takes raw materials and employees from the community and gives it back services and products. The practices of knowledge management in business organizations are urgent for the survival and development of the organization. Alavi (1997) revealed the targets achieved by using knowledge management in business organizations according to a group of scholars and researchers (Table 1).

**Table 1. Goals of using knowledge in business organizations**

<b>Goal</b>	<b>Reference</b>	<b>Goal</b>	<b>Reference</b>
Decision making supporting	Dargham and Abo Fadah (2009);	Providing new job opportunities	Anantatmula & Kanungo (2006)
Promoting and enhancing employees cooperation	Singh, et al. (2006), Dalkir (2005)	Developing basic skills at work	Beijerse (1999)
Learning reinforcement	Dalkir (2005)	Enhancing flexibility	Singh, et al. (2006), Chase (1997)
Communication enhancement	Chase (1997),	Enhancing administrative processes	Anantatmula & Kanungo (2006)
Enhancing employees skills	Dalkir (2005),	Accelerating the development of new products	Beijerse (1999)
Increasing job satisfaction	Dalkir (2005), Tashkandi, (2008)	Enhancing response to change	Dalkir (2005), Chase (1997)
Creating business new methods	Chase (1997)	Reducing risks	Beijerse (1999)
Sharing best administrative practices	(2006), Dalkir (2005), Chase (1997)	Enhancing relationships with customers	Dalkir (2005)
Reinforcing organization continuity	Saudi (2010)	Enhancing products or services quality	Chase (1997), Dalkir (2005)
Enhancing employees loyalty and retaining them	Anantatmula & Kanungo (2006),	Enhancing customers satisfaction	Dalkir (2005)
Enhancing efficiency/ productivity	Singh, et.al. (2006),	Enhancing management of intellectual capital	Demarest (1997)
Increasing employees empowerment	Anantatmula & Kanungo (2006)	Increasing innovation pack	Davenport (1998), Dalkir (2005),
Sales increase	Cheng-Wu, et al., (2009);	Improving revenue through patent licensing	Singh, et.al.(2006), Anantatmula
Reducing business turnover	Singh, et al. (2006)	Reusing of information and knowledge	Singh, et.al.(2006)

Sources: developed by the authors.

This study confirmed that changing to practice knowledge management in organizations business is absolute. Thus, the organizations cannot work, develop, or achieve targets, without this change. Organizations will not be able to survive, particularly while facing fierce competition. Therefore, using knowledge management in the organization’s business helps them to achieve targets in less time, with lesser cost and effort (Rokaya and Al-Ghazzawi, 2018). This study focuses on knowledge management processes because the subject of the study correlates directly with applying knowledge management processes through knowledge management system as a part of independent variables implemented. Moreover, it represents the practical part experimented in different situations, unlike other aspects of theoretically based knowledge management. The study emphasizes that knowledge management processes are the translation and practical result of other aspects of knowledge science in general and knowledge management in specific. Therefore, the knowledge management processes, representing the practical and experimental aspects of knowledge and its perspectives, considered to be the main components of the knowledge management system. Pan and Scarbrough (1999) examined knowledge practices from a socio-technical perspective and found three perspectives as follows: 1) the technological or infrastructure perspective refers to the software and equipment facilitating communication between the organizations and individuals; 2) the structural informational perspective or info-structure perspective refers to the formal and informal rules that control exchange and access knowledge processes and its usage; 3) the informational, cultural or info-culture perspective refers to the stored knowledge background, which individuals consider as facts found in social relations in the work environment. Fernandez et al. (2004) considered knowledge management practices necessities to facilitate and support knowledge techniques usage, systems development, and finding foundations on the long-term. These necessities or what scholars term knowledge perspectives are composed mainly of Organizational Culture; Organizational Structure; Information; Technology Infrastructure; Common Knowledge; Physical Environment and Information. These perspectives are considered as one of the domains of knowledge management perspectives implemented to examine its impact on performance development in Jordan banks.

**Table 2. Knowledge management infrastructure**

Perspective	Character
Organizational Culture	Understand the importance of knowledge management Incentives for sharing knowledge Encourage interaction to generate new knowledge and share it
Organizational Structure	Administrative support of knowledge management Decentralization practice Knowledge practising groups Leadership practice rather than technical Administrative unit concerned with knowledge
Information	Accuracy Expressing the possibility Availability Comprehensiveness Convenience
Information Technology	Provide convenient technology to practice knowledge management processes
Physical Environment	Design workspace to facilitate communication, interaction and sharing knowledge

Sources: developed by the authors on the basis of (Fernandez et al., 2004)

This study focused on three perspectives that supposedly influence the implementation of the knowledge management system to improve performance according Karasneh and Al-Khalili (2009), as a moderator variable. The three perspectives are technology, information, and organizational culture. It is expected this research would encourage other studies to examine these perspectives as independent, dependent, or moderating variables.

Kaplan and Norton (1996) searched the main reasons behind the success of the best 12 American companies. They studied the methods used in performance assessment in these companies. The results

published in the Harvard University Journal of Management in 1992. The study found that successful companies do not depend only on financial measures in performance assessment. Thus, they assess it from three different perspectives (customers, internal processes, and learning and growth). In turn, Kaplan and Norton (2007) identified the balanced scorecard as a model to measure performance in an organized way through translating the strategies into specific goals that suit performance assessment, by performance standards to achieve goals. The balanced scorecard is one of the fifteen specific effective tools that have a low percentage of errors used by managers in 22 different countries (Al-Da'abseh, 2018). Research indicates that 70% of American companies have used it or intends to do. Al-Khatatneh and Al-Sa'aydeh (2009) said that conventional financial analysis tools are insufficient to introduce the process of assessment to long and short term strategic planning of the organization. That led to the development of performance assessment methods and incorporated the strategic dimension in the processes of organizational performance measurement and evaluation to know if it consists of the strategic goal or not. Kaplan and Norton (1996) posit that managers identify the customer's category and competitive markets. Therefore, they determine the performance size suitable for the category of customers targeted. These measures include, in general: customer's satisfaction, customer's retention, new customers acquisition and customer's profitability. They also explained that customer's satisfaction is one of the important measures set by companies. Herewith, it determines and expresses business results accomplished. However, alone it is insufficient to identify customers and measure their satisfaction. Customer's retention is important as well. It measures the detainment of customers through controlling the number of times the customers repeat buying a certain company product or service (Alshare et al., 2020). Executive managers seek to perform processes in the market to give their organizations a competitive advantage. Based on study Kaplan and Norton (2007), these processes include innovation, renewal, operational processes, and after-sale processes. These processes associate with the customer's perspective (Al-Badarin and Al-Azzeam, 2017). The current study used banking operations implemented in Jordan banks (Abualoush et al., 2018). Al-Khatatneh and Al-Sa'aydeh (2009) indicated that internal processes performance proficiency reflects on customers. In turn, management focus on internal processes that create an additional value and impacts customer's satisfaction achieve the financial institution targets, they also referred to the concepts of internal processes. Organizations business internal processes vary (productivity, service, financial and control), the performance dimension is adjusted in the balanced scorecard in the study because of the processes nature of banks. Learning and growth identify infrastructure that organizations should establish to achieve development in the long run. Indeed, the balanced scorecard dimension may not be capable of achieving long terms targets that are determined in the dimensions of customers and internal processes. Universal competitiveness requires growing to deliver value or benefit to customers (Kaplan and Norton, 2007). The researchers believed that earning and growth of organizations is important to measure and assess performance. It describes learning, growth, and intangible assets of organizations and their role in the strategy. The organizations grow and innovate when they could develop skills, leadership, and learn from their mistakes and other organizations behaviour. Intangible assets may be categorized into 1) human capital, including skills, acquaintances, and gifted employees; 2) information capital including database, information system and information networks; 3) organizational capital including culture, leadership, coordination between employees and teamwork.

This dimension is concerned with the financial status of the organization. Thus, it refers to the measures and sub-indices; measures the growth of income; determines management cost; and declares assets usage (Bahiri, 2004; Obeidat, 2019). Many financial organizations consider financial indicators critical and try to increase revenues and productivity, decrease costs and risks by effective assets use. Achieving good financial results in organizations is very important for their growth and continuity while measuring and analyzing financial results is very important in studying organizations strength or weakness

(Al-Jawarneh, 2016). Kaplan and Norton (1996) confirmed that the balanced scorecard model is one of the best methods to assess organizations performance. It includes four dimensions, according to scientists. The current study is adopting them as dependent variables referring to measuring performance in Islamic and commercial banks in Jordan by correlating the dimensions with independent variables represented by knowledge management processes and perspectives.

**Table 3. Balanced scorecard dimensions measurement and partial targets**

Dimension	Partial targets	Measures
Financial status perspective	<ul style="list-style-type: none"> <li>Improving financial revenue</li> <li>Expanding the variation of clients and customers</li> <li>Reducing cost</li> </ul>	<ul style="list-style-type: none"> <li>Revenues of investments</li> <li>Increase of revenues</li> <li>Reduce deposits cost</li> </ul>
Customers perspective	<ul style="list-style-type: none"> <li>Increase satisfaction before and after selling</li> </ul>	<ul style="list-style-type: none"> <li>Increase and develop market shares</li> <li>Maintain customers</li> </ul>
Internal business processes perspective	<ul style="list-style-type: none"> <li>Reduce problems</li> <li>Invent new products</li> <li>Reduce cost for customers</li> <li>Rapid responses for changes</li> </ul>	<ul style="list-style-type: none"> <li>Get revenues from new products</li> <li>Diversify distribution channels</li> <li>Manage mistakes of resulting from services performance</li> </ul>
Learning & growth perspective	<ul style="list-style-type: none"> <li>Develop employees skills</li> <li>Provide needed information</li> <li>Approximate employees private goals and the banks' general goals</li> </ul>	<ul style="list-style-type: none"> <li>Reduce the rate of time response</li> <li>Increase employees satisfaction</li> <li>Maximize revenues for employees</li> </ul>

Sources: developed by the authors on the basis of (Kaplan and Norton, 1996).

Different scholars provided different terms and indicators of the balanced scorecard, or disagreed on its dimensions. The current study accounted for the indicators measured by implementing the knowledge management system and recognized its impact on improving banks performance. This study measured these indicators as independent variables. Based on theoretical literature and from previous studies, the researcher has reached the following hypotheses:

- H<sub>1</sub>: Information mediates the relationship between NMPs & performance.
- H<sub>2</sub>: Technology mediates the relationship between NMPs & performance.
- H<sub>3</sub>: Culture mediates the relationship between NMPs & performance.
- H<sub>3</sub>: NMP mediates the relationship between NMPs & bank type.

**Methodology.** This study used the descriptive-analytical method in addition to hypothesis testing to analyze the collected data. The method depends on meaningful analyses, comparisons, and assessments correlated with the subject of the current research, to reach important and original results. The data is collected, organized, categorized, and presented in tables and graphs using the descriptive statistics. That involves analyzing and explaining, used the inferential statistics to arrive at conclusions. Methods of SPSS and AMOS 18 analyzed the data. The population of the study included all managers in 16 Islamic and commercial banks in Jordan. They hold positions of general managers, general manager deputies, general manager assistants and managers. Herewith, the overall number (327) participant. The study selected the sample following two phases. In the first phase, the researchers included the three Islamic banks working in Jordan. Then he selected randomly three commercial banks for comparison reasons. In turn, the participants completed the questionnaire. Therefore, 193 answers retrieved. He retrieved 121 questionnaires of 181; this number necessitated distributing another patch of the 100 questionnaires. Table 4 illustrates the actual number of questionnaires valid for analysis.

**Table 4. Distribution of participants valid questionnaires**

Bank name	Type	General manager	General manager deputy	General manager assistant	manager	Overall	No. of valid questionnaires for analysis
The Housing Bank	Commercial	6	5	23	15	49	43
Arab Jordan Investment Bank	Commercial	5	4	9	7	25	21
Jordan Kuwait Bank	Commercial	9	8	15	11	43	39
Jordan Islamic bank	Islamic	8	12	18	16	54	41
Islamic International Arab Bank	Islamic	11	12	13	8	44	32
Jordan Dubai Islamic Bank	Islamic	6	4	8	4	22	17
Total		45	45	86	61	237	193

Sources: developed by the authors.

The researchers selected the sample by a stratified random method, where the population is classified into two or more categories based on several characteristics, as Saunders, Lewis and Thornhill (2007) mentioned. The categories of the study are commercial banks and Islamic commercial banks. There is selected a similar comparison sample by the same method. The selected commercial banks are The Housing Bank, Arab Jordan Investment Bank and Jordan Kuwait Bank. The Islamic commercial banks included Jordan Islamic bank, Islamic International Arab Bank, and Jordan Dubai Islamic Bank. According to Sekaran and Bougie (2010), the participant's number is suitable to measure the purpose of the study. The development of the study model relied on measures of previous literature; the researcher modified and developed different items to agree with the study. Table 5 illustrates the studies reviewed.

**Table 5. Previous literature reviewed in the study**

Scholar	Variable type	Dimension
Knowledge diagnose	independent / processes	(Arora, 2002) (Nonaka & Takeuchi, 2004)
Knowledge generating	independent / processes	Bawaneh (2011);
Knowledge acquisition	independent / processes	Hawajrah, et al. (2010); Marjani and Arabi (2011)
Knowledge storage	independent / processes	Karasneh & Al-Khalili (2009)
Knowledge development	independent / processes	Hawajrah et al. (2010)
Knowledge distribution	independent / processes	Karasneh & Al-Khalili (2009)
Knowledge application	independent / processes	Karasneh & Al-Khalili (2009)
Information	moderator / perspectives	Al-Jedaiah (2008); Dasi (2007)
Technology	moderator / perspectives	Shorofa (2009); Laudon & Laudon, (2009)
Organizational culture	moderator / perspectives	Kumari (2011)
Customers	Dependent/ scorecard	Dargham and Abo Fadah (2009)
Learning & growth	Dependent/ scorecard	Al-Jedaiah (2008); Kumari (2011)
Banking operations	Dependent/ scorecard	Dargham and Abo Fadah (2009);
Financial status	Dependent/ e scorecard	Dargham (2009); Dodeen (2009)

Sources: developed by the authors.

The demographical variables are bank type, gender, education, duration of working in the current bank, expertise, and job title.

**Table 6. Demographical characteristics of the participants**

Dimension	Categories	No.	%	Dimension	Categories	No.	%
Bank type	Commercial	103	53.3	Duration of working in the current bank	(1-4) years	26	13.4
	Commercial (Islamic)	90	46.7		(5-9) years	25	13
	Total	193	100		(10-15) years	81	42
Gender	Male	156	80.8	Experience	More than 16 years	61	31.6
	Female	37	19.2		Total	193	100
	Total	193	100		years(4-1)	21	10.9
Education level	High school	0	0	years(9-5)	14	7.3	
	Diploma	0	0	years(15-10)	76	39.3	
	Bachelor	102	52.8	More than 16 years	82	42.5	
	Higher education (master, doctor of philosophy, higher diploma)	91	47.2	Total	193	100	
Job title	Total	193	100	Job title	General manager assistant	79	41
	General manager	27	14		Manager	48	24.8
	General manager deputy	39	20.2		Total	193	100

Sources: developed by the authors.

The number of participants working in commercial banks was 103 (53.3% of the total employees) and participants working in Islamic commercial banks were 90 (46.7% of the total employees). Thus, the numbers of participants and percentages are close, which is important for results comparison between the two types. Participants working in their banks for 1-4 years were 21 (0.9%); 5-9 years participants were 14 (7.3%); 10-15 years participants were 76 (39.3); those who worked for more than 16 years were 82 (42.5%). The results revealed that 80% of the participants have more than 10 years of experience is an indicator of job stability and keeping experienced employees. Durations of working in the bank was close to the experience the participant have. This result refers to job stability as well as administrations holding of employees. The high percentages of job experience in the bank for more than 10 years scored 80% referring to the banks' interest in giving high administrative jobs to the experienced. The knowledge processes, perspectives, and balanced scorecard dimensions mean and standard deviations are calculated.

**Table 7. Means of knowledge management processes**

Dimension classification	Dimension	Mean	Level	Rank
1 processes / independent	Knowledge development	4.04	High	1
2 processes / independent	Knowledge generating	4.04	High	1
3 processes / independent	Knowledge diagnose	4.03	High	3
4 processes / independent	Knowledge storage	3.97	High	4
5 processes / independent	knowledge acquisition	3.96	High	5
6 processes / independent	Knowledge application	3.96	High	5
7 processes / independent	Knowledge distribution	3.91	High	7
	Mean	3.98		



Continued Table 7

knowledge management perspectives					
1	perspectives / moderator	Technology	4.05	High	1
2	perspectives / moderator	Information	4.03	High	2
3	perspectives / moderator	Organizational culture	3.98	High	3
Mean			4.02		
knowledge management system					
1	performance / dependent		4.03	High	1
2	Knowledge perspectives /moderator		4.02	High	2
3	Knowledge processes /independent		3.98	High	3
Mean			4.01		

Sources: developed by the authors.

Based on table 7 the means of knowledge management system scores range 3.98-4.03, the overall means scored 4.01, approximately 80%. The obtained result reflects banks managements high-interest in variables of knowledge management system having in mind that the level of some variables was less or more than the overall means. Table 8 illustrates the natural distribution of the study dimensions, skewness, and kurtosis coefficients.

Table 8. Natural tests distribution of skewness and kurtosis coefficients

Dimension/ perspective	Sample	Lowest actual value	Highest actual value	Mean	SD	skewness		Kurtosis	
						Coefficient of skewness	Standard error	Coefficient of kurtosis	Standard error
Knowledge distribution	193	1.75	5.00	3.85	0.54	-.369	0.17	0.30	0.34
Knowledge distribution	193	1.71	5.00	3.89	0.54	-.684	0.17	0.75	0.34
Customers	193	2.33	5.00	3.94	0.50	-.570	0.17	-.100	0.34
Knowledge application	193	2.44	5.00	3.91	0.53	-.507	0.17	-.348	0.34
Knowledge storage	193	2.38	5.00	3.87	0.51	-.320	0.17	-.310	0.34
Organizatio nal culture	193	2.08	5.00	3.90	0.54	-.625	0.17	0.38	0.34
Information perspective	193	2.57	5.00	3.93	0.48	-.594	0.17	-.120	0.34
Technology perspective	193	2.43	5.00	4.04	0.47	-.76	0.17	1.23	0.35
Banking operations	193	2.29	5.00	3.97	0.54	-.620	0.17	0.04	0.34
Knowledge generating	193	1.82	5.00	3.95	0.55	-.927	0.17	1.15	0.34
Knowledge diagnose	193	2.11	5.00	3.94	0.53	-.582	0.17	0.07	0.34
Learning & growth	193	2.00	5.00	3.97	0.57	-.648	0.17	0.22	0.34

Continued Table 8

Financial status	193	2.00	5.00	3.89	0.57	-0.461	0.17	-0.316	0.34
Knowledge developme	188	2.00	5.00	4.02	0.46	-0.964	0.18	2.48	0.35

Sources: developed by the authors.

Calculations of the skewness and kurtosis coefficients followed the natural distribution, as Table 8 illustrates. The skewness values scored less than 1.00, and kurtosis coefficients scored less 3.00, as Wuensch (2005) indicated. These values refer to the variables natural distribution referring to the test validity. Thus study calculated the internal consistency of the dimensions to identify the consistency between the items of the test by Cronbach's alpha formula. In administrative research, if  $\alpha$  scores  $\geq 0.6$ , the consistency is acceptable, according to Sekaran (2003). Table 9 illustrates the internal consistency scores of the test.

Table 9. Internal consistency coefficients of the test items

Dimension	Cronbach's Alpha	Items No.	Dimension	Cronbach's Alpha	Items No.
Knowledge diagnose	85.7	9	Information perspective	86.5	14
Knowledge generating	90.2	11	Technology perspective	89.2	14
knowledge acquisition	84.1	7	Organizational culture perspective	90.2	13
Knowledge storage	84.6	12	Customers	85.9	15
Knowledge development	87.3	10	Banking operations	80.7	7
Knowledge distribution	83.6	8	Learning & growth	90.0	12
Knowledge application	91.5	19	Financial status	82.2	7

Sources: developed by the authors.

**Results.** The first four hypotheses test results analyses used path analysis, Amos 18, and SPSS software. Three selected hypothetical, theoretical systems models that represent the first three hypotheses that correlate knowledge management processes and its dimensions with the balanced scorecard dimensions moderated by each knowledge management perspective (information, technology, and organizational culture). There is tested each model by the AMOS system. In turn, the statistical significance of Chi-squared test scored more than (0.05), the scores rate compared with freedom value scored more than (3) indicating that the proposed models disagree with Kelven (2001) study. Hence, indicators of model revision were examined and considered to make the model compatible with the study. Researcher modified the models then retested them again. Direct paths between knowledge generation and performance represented by balanced scorecard are established. A direct path between knowledge storage and banking operations in the balanced scorecard is established. Knowledge diagnose is excluded from knowledge management processes because its path indicator is weak, causing a high rate of standard errors. Errors indicators connect in each variable to consider interrelations of knowledge management processes and performance through the balanced scorecard. The model's tests results answered the proposed hypotheses. The results of path analysis of knowledge management processes impact on performance (balanced scorecard) moderated by information perspective. Chi-squared value scored 19.4. Thus, the result is significant, chi-squared rate to freedom degree scored 3.01. Therefore, this result is acceptable and close to Kelvens (2001) acceptance rate. The goodness of fit index scored 0.934, according to Browne and Cudeck (1993). Thus, this result is close to the perfect fit. In the same

context, the comparative fit index scored 0.972. In turn, this score is close to the perfect fit. The root-mean-square error of approximation scored 0.025. This score (Hu and Bentler, 1999) is less than significant value. All the results indicate that the fit indices scores are fit that means rejection of the null hypothesis and accepting alternative hypothesis, the impact of knowledge management processes on performance moderated by information perspective. Table 10 illustrates the values of direct and indirect path coefficients of independent variables impact on dependent variables moderated by knowledge perspectives (information).

**Table 10. Direct and indirect path coefficient values of knowledge management processes moderated by information perspective**

	Path	Dimension/ perspective	Non- standard regression coefficient	Standard regression coefficient	Standard error	Critical value	Sign.
Knowledge application	→	Information perspective	0.16	0.174	0.055	2.936	0.003
Knowledge distribution	→	Information perspective	0.097	0.108	0.065	1.488	0.137
Knowledge generation	→	Information perspective	0.151	0.172	0.066	2.291	0.022
Knowledge storage	→	Information perspective	0.168	0.177	0.057	2.965	0.003
Knowledge acquisition	→	Information perspective	0.146	0.163	0.065	2.26	0.024
knowledge development	→	Information perspective	0.09	0.113	0.046	1.954	0.051
Information perspective	→	Financial statu	0.378	0.322	0.078	4.853	***
Information perspective	→	Learning & growth	0.331	0.282	0.065	5.064	***
Information perspective	→	Banking operations	0.395	0.36	0.064	6.118	***
Information perspective	→	Customers	0.909	0.887	0.127	7.141	***
Knowledge generation	→	Learning & growth	0.612	0.595	0.057	10.683	***
Knowledge storage	→	Banking operations	0.322	0.308	0.058	5.539	***
Knowledge generation	→	Financial statu	0.477	0.464	0.068	6.986	***
Knowledge generation	→	Customer	0.08	0.089	0.088	0.911	0.362
Knowledge generation	→	Banking operations	0.25	0.26	0.057	4.398	***

Sources: developed by the authors.

The impact of knowledge management processes on performance moderated by technology perspective. Chi-squared value scored 7.52. Thus, this result is significant. Chi-squared rate compared to freedom degree scored 3.05. Therefore, that is acceptable based on Kelven (2001) accepted rate. According to Browne and Cudeck (1993) study, the result of the goodness of fit index scored a perfect fit (0.943). The comparative fit index scored 0.972. This result is the perfect fit, as well. The root-mean-square error of approximation was 0.025. Thus, this result (Hu and Bentler, 1999) study is less than the significance value. All previous fit indices results indicate that the null hypothesis is rejected and the

alternative hypothesis is accepted. The impact of knowledge management processes on performance moderated by technology perspective. Table 11 values of direct and indirect path coefficients of the impact of the independent variables on dependent variables moderated by knowledge perspective (technology).

**Table 11. Direct and indirect path coefficient values of knowledge management processes moderated by technology perspective**

	Path	Dimension/ perspective	Non- standard regression coefficient	Standard regression coefficient	Standard error	Critical value	Sign.
Knowledge application	→	Technology	0.114	0.098	0.064	1.788	0.074
Knowledge distribution	→	Technology	0.109	0.096	0.077	1.418	0.156
Knowledge generating	→	Technology	0.288	0.262	0.073	3.959	***
Knowledge storage	→	Technology	0.339	0.283	0.068	5.012	***
Knowledge acquisition	→	Technology	0.12	0.106	0.076	1.583	0.113
Knowledge development	→	Technology	0.115	0.115	0.054	2.122	0.034
Technology	→	Financial status	0.348	0.373	0.067	5.171	***
Technology	→	Learning & growth	0.281	0.301	0.057	4.923	***
Technology	→	Banking operations	0.243	0.279	0.062	3.943	***
Technology	→	Customers	0.729	0.89	0.096	7.57	***
Knowledge generating	→	Learning & growth	0.58	0.564	0.063	9.233	***
Knowledge storage	→	Banking operations	0.328	0.314	0.063	5.173	***
Knowledge generating	→	Financial status	0.418	0.406	0.074	5.64	***
Knowledge generating	→	Customers	0.028	0.031	0.089	0.318	0.751
Knowledge generating	→	Banking operations	0.284	0.296	0.062	4.549	***

Sources: developed by the authors.

The results of processes path analysis of knowledge management impact on performance moderated by organizational culture perspective. Chi-squared value scored 3.74, which is significant. Chi-squared rate to freedom degree scored 2.98, which is acceptable, according to Kelven's (2001) accepting rate. The goodness of fit index scored 0.95. According to Browne and Cudeck (1993), this result is a perfect fit. The comparative fit index scored 0.972. Thus, this score is close to the perfect fit. The root-mean-square error of approximation scored 0.015. In turn, this result (Hu and Bentler, 1999) is less than the significant value.

All these results indicate that the fit indices scores are fit. Therefore, the findings reject the null hypothesis and accept the alternative hypothesis; the impact of knowledge management processes on performance moderated by organizational culture perspective. Table 12 illustrates the values of direct and

indirect path coefficients of the impact of the independent variables on dependent variables moderated by knowledge perspectives (organizational culture).

**Table 12. Direct and indirect path coefficient values of knowledge management processes moderated by organizational culture perspective**

Dimension/ perspective	Path	Dimension/ perspective	Non- standard regression coefficient	Standard regression coefficient	Standard error	Critical value	Sign.
Knowledge application	→	Organizational culture	0.117	0.113	0.041	2.838	0.005
Knowledge distribution	→	Organizational culture	0.134	0.133	0.05	2.7	0.007
Knowledge generating	→	Organizational culture	0.336	0.343	0.051	6.532	***
Knowledge storage	→	Organizational culture	0.2	0.187	0.043	4.592	***
Knowledge acquisition	→	Organizational culture	0.165	0.164	0.049	3.356	***
Knowledge development	→	Organizational culture	0.08	0.089	0.035	2.276	0.023
Organizational culture	→	Financial status	0.524	0.499	0.088	5.969	***
Organizational culture	→	Learning & growth	0.555	0.528	0.07	7.902	***
Organizational culture	→	Banking operations	0.399	0.406	0.08	4.963	***
Organizational culture	→	Customers	0.899	0.985	0.127	7.057	***
Knowledge generating	→	Learning & growth	0.362	0.352	0.069	5.27	***
Knowledge storage	→	Banking operations	0.324	0.31	0.063	5.138	***
Knowledge generating	→	Financial status	0.28	0.272	0.086	3.261	0.001
Knowledge generating	→	Customers	-0.101	-0.113	0.113	-0.892	0.372
Knowledge generating	→	Banking operations	0.162	0.169	0.07	2.321	0.02

Sources: developed by the authors.

Table 13 illustrates the values of explained variance of the three models paths on the knowledge management perspectives and dimensions of performance because of using path analysis.

**Table 13. Explained variance values of paths impact using path analysis of the models related to the moderating variable**

Dimension/ perspective	The first model moderated by information	The second model moderated by technology	The third model moderated by organizational culture
Knowledge application	0	0	0
Knowledge distribution	0	0	0
Knowledge generating	0	0	0
Knowledge storage	0	0	0
Knowledge acquisition	0	0	0
Knowledge development	0	0	0
Moderating variable	0.611	0.694	0.809
Customers	0.529	0.583	0.467
Banking operations	0.676	0.642	0.663
Learning & growth	0.664	0.662	0.711
Financial status	0.524	0.53	0.548

Sources: developed by the authors.

Following Table 13 it is apparent that explained variance of independent variables of knowledge management processes is explained by the moderating variables of information, technology, and organizational culture respectively (61.1, 69.4, and 80.9). The first model-independent variables

moderated by information perspective explained the balanced scorecard variables scores (customers, banking operations, learning & growth, and financial status) by the scores (52.9%, 67.6%, 66.4%, and 52.4%) respectively. The second model-independent variables moderated by technology perspective explained the balanced scorecard variables scores (customers, banking operations, learning & growth, and financial status), these results are respectively (53%, 66.2%, 58.3%, and 69.4%). The third model-independent variables moderated by organizational culture perspective explained the balanced scorecard variables scores (customers, banking operations, learning & growth, and financial status), these results are respectively (54.8%, 71.1%, 66.3%, and 46.7%). The values of the ratios (Table 13) allowed concluding that the third model had the highest explanatory ratio compared with the first and second models.

**Conclusion.** Based on the analysis of the data, the findings are as follows. Most of the employees in higher administrative positions in Jordanian banks are males (80.8%). This result agrees with the study of Hofsted (1991), where male's dominant in business communities was considered. The optimal model of the study according to path analysis, was the one that excluded the process of knowledge diagnoses from the suggested model. From an organizational culture perspective, that model was considered to be the best variable through which the system is implemented in the banks in Jordan. Impact of a knowledge management system in performance enhancement attributed to the type of the bank (commercial, Islamic commercial) vary. Levels of knowledge implementing, distribution, generating, and acquisition processes in commercial banks scored high compared with Islamic commercial banks. Transactions level in commercial banks scored high compared with regional and international banks, while the level in Islamic commercial banks score is limited. The level of knowledge storage and acquisition in Islamic commercial banks increase attributed to interest in transactions jurisprudence and fatwa in addition to various laws and legislations. Degrees obtained by high administrative positions distributed between bachelor graduates (52.8%), master, and doctors of philosophy (47.2%). This result refers to banks keenness to hire them or banks to allow them to enhance their educational attainment while working. Banks management's interest focused on knowledge development more than the rest of knowledge processes, because they cared for developing existing knowledge to compete with other banks. That agreed with the study of Marjani and Arabi (2011), that managements to practice knowledge intelligence and use it to perform business more effective.

Finally, results agreed with Palacios-Marques and his colleagues (2011). They recommend implanting knowledge management to develop human capital in knowledge-intensive business services in Spain. Banks managements depended on modern electronic means and smart systems to distribute knowledge on the internal and external levels because of its low cost; ease and speed of spreading; access and modernity; more than traditional means using paperwork like books, magazines, and brochures. This result agrees with Shorofa (2009), who found a strong relationship between information technology, knowledge management and high business values. Banks managements were not keen to share knowledge with universities and research centres. They depended on existing knowledge, developed knowledge by experiments, or borrowed it from other financial institutions. This result agrees with the studies of Palacios-Marques et al., (2011). This researcher recommended conducting more studies on knowledge management. Banks managements confirmed that implementing financial knowledge management contributes to increasing technical efficacy and employee's experience. Palacios-Marques et al., (2011) study confirmed that knowledge management practice contributes to increasing efficacy and experience, contributing in turn in enhancing human capital in knowledge-intensive business service in Spain.

Knowledge management use in Jordan banks increased employee's satisfaction toward using operating business and the quality of knowledge obtained. As a result, banking service and trust in banks increased. In turn, this result agreed with Dasi (2007) study, which found that using knowledge management increased employee's satisfaction and reflected on the competitive advantage between

commercial banks in Syria. Based on the means scores of the study variables, the level of knowledge management systems usage in Jordan was high. Thus, it scored a percentage of 80%. The performance level was high according to the high means scores associated with the performance dimensions. It scored a percentage of 80.6%. Organizations, in general, need to establish and develop systems specialized in knowledge. In particular, banks need to provide requirements for these systems in terms of knowledge strategies, human resources, processes, and technology by interacting with its internal and external environment. Therefore, it helps to perform business and improve performance resulting in goals achievement and strategies related to their vision and mission. Implementing knowledge systems in banks improves business, enhances economic and competitive positions, and maintains a high and stable level of performance. Developing and implementing a knowledge management system on the employees in the selected banks resulted in the following results and recommendations. Based on the obtained results, it is recommended banks managements to ensure hiring qualified employees equipped with banking knowledge with higher education degrees; continue the development and modernization of knowledge systems in banks by specialized employees and get help from researchers and professionals; adopt the current model which have excluded knowledge diagnose process from knowledge management processes, and consider organizational culture as the best moderator variable and use it instead of the proposed model; increase interest in using electronic means in business in general and knowledge management in specific and start dispending paperwork gradually; continue the process of developing and enhancing banking knowledge in parallel with taking care of other knowledge management processes, because these all processes integrate and correlate in performance of various businesses; cooperate with universities and research centres to obtain the required knowledge and update existing knowledge; increase interest in banking knowledge by using modern electronic means due to its low cost and widespread; and use knowledge maps in developing and managing knowledge to increase customer's satisfaction through services provided; increase interest in implementing banking knowledge in all banks business because it increases experience and efficacy among the employees; use the balanced scorecard as one of the effective financial and nonfinancial measurements, and a way to guide the manager's decisions and direct the behaviour to assess performance and implement different strategies. Moreover, the Central Bank of Jordan and the Association of Jordan Banks managements should develop administrative units of knowledge management in the organization structure. In turn, the bank and association should control the knowledge systems applied in banks in Jordan.

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**Інновації в управлінні знаннями: емпіричне дослідження на прикладі комерційних та ісламських банків**

**Йорданія**

Метою статті є аналіз системи управління знаннями з метою викоремлення напрямів підвищення ефективності роботи банків Йорданії. У рамках розробленої системи, авторами проаналізовано блоки показників, що оцінюють процеси пізнання, перспективи використання знань. Емпіричне дослідження проведено на основі панельних даних, сформованих для вибірки з 327 співробітників (директори, генеральні директори, заступники, помічники менеджерів і керівників), які працюють в шести комерційних та ісламсько-комерційних банках Йорданії. При цьому детермінована вибірка дослідження сформована на основі відповідей 193 респондентів. Практичну реалізацію усіх етапів дослідження здійснено з використанням програмного забезпечення AMOS. За отриманими результатами пат-аналізу встановлено, що оптимальна модель дослідження виключає процес діагностики знань з процесів пізнання. Встановлено, що рівень організаційної культури є модеруючою змінною, що опосередковно впливає на ефективність системи управління в банках Йорданії. Враховуючи отримані результати, авторами виявлено відмінності в ефективності системи управління знаннями для підвищення продуктивності в йорданських комерційних та ісламських банках. Таким чином, результати дослідження свідчать про наявність тісного зв'язку між інформаційними технологіями, управлінням знаннями та корпоративними цінностями. У ході дослідження встановлено, що керівництво банків не було зацікавлене в кооперації з університетами та дослідницькими

**K. A. K., Alomari, N. M., Aljawarneh, Z. S., Alomari, R., Albdareen, A., Alawneh. Innovations in Knowledge Management Perspectives: An Empirical Study in the Jordanian Commercial and Islamic Banks**

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центрами. Так, вони поклались на наявні знання, які розробляли на експериментальній основі або переймали досвід інших фінансових установ. Результати дослідження підтверджують, що практика управління знаннями сприяє підвищенню ефективності та розвитку людських ресурсів в наукомістких галузях з надання. Доведено, що ефективна система управління знаннями в банках Йорданії обумовлює підвищення рівня задоволеність співробітників роботою в операційному бізнесі і якістю отриманих знань. У свою чергу, це провокує підвищення якості надання банківських послуг та рівня довіри до банків. За результатами дослідження виокремлено низку рекомендацій для керівництва банків, а саме: розробляти та оновлювати банківські системи; залучати висококваліфікованих професіоналів для підвищення кваліфікації працівників; співпрацювати з експертами та дослідниками у даній сфері; застосовувати моделі, які спрямовані на своєчасній діагностику знань людських ресурсів. Менеджменту банків доцільно приділяти увагу підвищенню рівня банківських знань та удосконалення процесів управління знаннями.

Ключові слова: процеси пізнання, перспективи знань, збалансована система показників.

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