



THE INVESTIGATION OF THE MEDIATING ROLE OF INNOVATION AND ORGANIZATIONAL INTELLIGENCE ON THE RELATIONSHIP BETWEEN KNOWLEDGE MANAGEMENT AND FINANCIAL PERFORMANCE OF THE ORGANIZATIONS ACTIVE IN THE E-BANKING INDUSTRY

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ABSTRACT

Knowledge management is essential for activities such as problem-solving, dynamic learning and decision making, and can improve organizational performance and in particular the financial performance of the organizations by enabling the organization to perform smarter. The main purpose of this study was to investigate the impact of knowledge management on the financial performance of the organizations considering the mediating role of innovation and organizational intelligence in the e-banking industry. The statistical population of the study consisted of senior executives of 31 public and private banks active in the e-banking industry of Iran (n=54). Library and field research (questionnaire) was used to collect research data. In this study, Kolmogorov-Smirnov and Spearman-Bartlett tests were used to analyze the data to determine the normality of the research data and to determine the adequacy of the sample size (using SPSS software). Then, structural equation modeling was used to analyze the conceptual model and to test the hypotheses (using Smart PLS software). The hypotheses test results showed that knowledge management has a positive and significant impact on the financial performance of the organizations active in the e-banking industry and the innovation and organizational intelligence influence the relationship between knowledge management and the financial performance of the organizations.



Thus, the mediating role of these two variables (innovation and intelligence) was confirmed.

Keywords: Knowledge; Management; Organizations'; Financial; Performance; Innovation; Organizational; Intelligence; e-Banking

1. INTRODUCTION

Nowadays, knowledge is considered as the most important factor in competition. Along with knowledge, innovation is recognized as the most important factor for the survival of companies (Hau et al., 2013; Wu & Wang, 2016).

In the post-industrial societies, survival and progress are based on knowledge and physical assets have been replaced by intangible resources, namely knowledge, and information, as major sources of production, improved business processes and increased user and customer satisfaction. Knowledge management is now widely recognized as a competitive advantage (Orenga-Roglá & Chalmeta, 2019).

Most organizations, whether for-profit or non-profit organizations, plan and implement knowledge management strategies (Gordon & Ditomaso, 1992). Contemporary management scholars often emphasize the effectiveness of coming from acquiring, developing, and applying knowledge. Organizational intelligence is recognized as an important factor among organizational development and organizational behavior experts (Ulrich & Brockbank, 2005).

Organizational intelligence ensures long-term excellence for organizations and communities and improves their performance. Organizational intelligence refers to a set of tools and techniques that help convert large amounts of data from multiple sources into meaningful information to support decision making and improve organizational performance. In the last decade, organizational intelligence has emerged as a major driving force for organizational efficiency and effectiveness (Ramakrishnan et al., 2016).

Competition between organizations is intensifying every day and the rate of innovation is increasing. Competition between organizations has led to reduced human resources to reduce costs, forcing organizations to convert tacit knowledge among employees to explicit knowledge (Hercy & Belanchard, 2001). More innovative organizations are also more successful in responding to changing environments and creating new capabilities toward better innovations (Sadeghi & Mohtashami, 2011). Innovation is a critical factor in sustainably creating value and advantage (Yusuf, 2009).



Organizations need to have sustainable innovations that are created through the continuous sharing of knowledge between employees and customers (Gordon & Ditomaso, 1992). Knowledge management helps an organization find, select, organize and disseminate important and useful information (Shujahat et al., 2019). Knowledge management is essential for activities such as problem-solving, dynamic learning and decision making, Improved organizational performance and in particular the financial performance of the organization by enabling the organization to perform smarter (Yolles, 2005).

Kianto et al. (2013) in their research, they found that informed and systematic management of organizational knowledge had an impact on corporate financial performance. Inkinen (2016) In their review of knowledge management and financial performance of organizations, they found that knowledge management practices can have a positive impact on the financial performance of organizations.

Karabulut(2015) In a study aimed at examining the impact of different types of innovation on the performance of manufacturing organizations in Turkey, he found that the innovation capabilities of production organizations are highly influential on the quality of manufactured products.

Shashi et al. (2019) in a study that examined the impact of innovation management on the environmental and financial performance of small and medium-sized enterprises in India found that a variety of innovations could affect the environmental and financial performance of an organization. Soltani et al. (2019) In their research they found that e-learning systems positively affected organizational intelligence. Also, they show that the influence of knowledge management and organizational learning on organizational intelligence is important.

An organization that seeks to implement knowledge management and improve its performance in various aspects learns to manage knowledge intelligently through innovation in its current processes. The main purpose of this study was to investigate the impact of knowledge management on the financial performance of the organizations considering the mediating role of innovation and organizational intelligence in the e-banking industry.

There have been numerous research on the impact of KM¹ implementation on improving organizational performance, the impact of innovation on improving organizational performance, as well as the impact of innovation on the relationship between organizational

¹ KNOWLEDGE MANAGEMENT



intelligence and organizational performance. But, so far no research has been conducted to simultaneously examine the impact of innovation and organizational intelligence on the relationship between organizational knowledge management and financial performance in the e-banking industry.

This research is dedicated to filling this research gap. Research gap related to knowledge management, a financial performance about variables of organizational intelligence and organizational innovation of banks active in the Iranian banking industry. Addressing this issue can provide ways for the banks in question to take appropriate measures to improve their financial performance.

2. LITERATURE REVIEW

2.1. Knowledge Management

Today, knowledge management is recognized as an important factor for maintaining competitive advantage and improving the financial and non-financial performance of the organizations. The results of numerous researches around the world indicate the direct impact of knowledge management on performance, so if the quality of organizational knowledge is desired, it can be expected that the performance of the organization in different aspects can be significantly improved (Zaied et al., 2012).

Researchers have found that knowledge management is not fleeting, but it has lasting effects. The survival of the organization and maintaining the competitive advantage and with the help of knowledge management is possible if the organization can continually create new knowledge (Yang, 2010). Finding a universally agreed definition for knowledge management is difficult. This has led to various definitions of knowledge management.

Yang et al. (2010) define knowledge management as a set of processes that use knowledge as a key factor for value creation (including the most important components of knowledge: creation, acquisition, registration, transfer, and application).

Rouse (2014) considers knowledge management as consciously and comprehensively collecting, organizing, sharing and analyzing the resources, documents, and skills of individuals by the organization. In fact, it can be said that knowledge management is an approach to achieve organizational goals through better application of knowledge (Fadia & Kamel, 2014). Knowledge management involves the process of optimally combining knowledge and information in an organization (Hajimohammadi et al., 2019).



The knowledge management system is a system for applying the principles of knowledge management through the process of creation, transfer, and application of knowledge in an organization (El Said, 2015). There is no consensus on knowledge management processes. Different researchers have identified different processes for knowledge management.

For example, Spender (1996) suggested knowledge management processes as: knowledge creation, knowledge transfer, and knowledge application (Trivella & Nasiopoulos, 2015). Probst et al. (2000) introduced identification, acquisition, development, sharing/dissemination, transfer and application of knowledge as knowledge management processes.

Alawi and Leidner (2001) identified four processes for knowledge: creation, storage/retrieval, transfer, and application. In this study, knowledge management processes were: knowledge creation, knowledge acquisition, knowledge organization, knowledge dissemination, and knowledge application.

The following describes each component: Knowledge creation: Knowledge creation is the first step in knowledge management. Knowledge in the organization is created in two distinct cycles: personal and group cycles. Personal Knowledge When used in the organizational context leads to new knowledge which is called organizational knowledge (Bose, 2004).

Knowledge Acquisition: knowledge acquisition involves acquiring external knowledge to be used within the organization (Gabriel & Navarro, 2015). Knowledge acquisition includes explicit knowledge as well as tacit knowledge (Fadia & Kamal, 2014). Knowledge organization: Knowledge created must be stored in its original form in databases.

Many organizations use different types of resources to acquire and maintain knowledge (Lin, 2007). Knowledge storage: Maintaining the knowledge assets of an organization in an effective database (Lawson, 2003). Dissemination of knowledge: Dissemination of knowledge requires two steps: sending or delivering knowledge to a potential recipient and being absorbed by the individual.

Knowledge dissemination is about increasing the ability of the organization to do things and ultimately enhancing its value (Obeidat et al., 2016). Knowledge Application: Knowledge application ensures that the organization correctly utilizes the acquired knowledge. On the



other hand, knowledge application represents the collection of problem-solving instructions and processes used in decision making (Gabriel & Navarro, 2015; Shujahat et al., 2018).

By using knowledge management practices, organizations can maintain their long-term competitive edge and enhance their performance in a variety of financial and non-financial areas. Banks are no exception (Yun,2013). Studies show that organizations in different industries have been able to improve their financial performance by implementing and implementing knowledge management processes (Xu & Quaddus, 2012). In addition to the performance of organizations, knowledge management practices can affect different categories such as innovation and organizational intelligence. Accordingly, the first to third hypotheses of this study are formulated.

2.2. Innovation

The need for innovation in service organizations is an important factor for competitive advantage in different areas (Bazrkar et al, 2017). Innovation is one of the most important factors for the company's success, survival and competitive advantage (Jimenez & Sanz, 2011). Innovation is defined by Schumpeter as a driving force for development: the willingness of the company to adopt new ideas that lead to the development of new products (Rubera & Kirca, 2012).

Innovation has a significant impact on organizational outcomes and can encourage the organization to present new ideas, inventions, and discoveries that lead to the production of new products and services (Chahal & Bakshi, 2015). According to the findings of Ali Hakim and Hassan (2016), innovation may be divided into radical and incremental, technological and administrative innovations.

Researchers now know that the speed of innovation and the quality of innovation for organizations in a complex and evolving business environment is very important. The speed of innovation reflects the ability of the organization to rapidly achieve processes that lead to the production of new products and services compared to competitors so that it takes very little time from idea generation to final commercialization (Wang et al., 2016).

The quality of innovation is related to the process and the end result of innovation (Haner, 2002). The quality of innovation can be measured through customer added value, features, cost, reliability and flexibility of products and services and process effectiveness. (Wang & Wang, 2012).



Innovation is defined as the application of knowledge to deliver a new product or service demanded by customers. Here, knowledge refers to technology or market knowledge. Technological knowledge is the knowledge of the components; the link between the components; and methods, processes, and techniques used for delivering a product or service. Market knowledge means understanding the distribution channels, product applications, and needs and demands of customers.

Innovation performance refers to a presented innovation with regard to market knowledge and technological knowledge (Li et al., 2009). Accordingly, in the present study, the innovation variable is measured on the basis of two criteria (quality and speed) to study the relationship between knowledge management, organizational innovation, and organizational financial performance.

Rajapathirana and Hui (2018) examined the relationship between innovation capability, type of innovation, and corporate performance, including innovation, market, and financial performance, in a study entitled Relationship between Innovation Capability, Type of Innovation, and Corporate Performance. The results showed that there is a positive and significant relationship between innovation capabilities, innovation efforts and performance of the companies studied.

Innovation demonstrates the desire to support creativity in introducing new products and services, technological leadership, and research and development into new processes, and this demonstrates the need for R&D that enables organizations to adapt to their innovation capabilities. Provide conditions for performance improvement (Shan & Song, 2016).

Achieving organizational innovation by enhancing innovation capabilities can empower an organization to utilize innovation production and technological processes to better respond (Cozzarin, 2016). Innovation can bring benefits to the organization. Processes related to product innovation and new product development, on the other hand, increase flexibility and, on the other hand, reduce the time required to market the product to a significant extent, thereby enhancing organizational performance.

The fourth hypothesis of the present study is formulated on this basis and seeks to investigate how the impact of innovation on the financial performance of banks operating in the e-banking industry.

2.3. Organizational Intelligence



Organizations need smart staff to survive and function so they can perform their tasks more effectively (Mousavi et al., 2016). According to Jang (2014), organizational intelligence is a combination of knowledge and skills (both about tangible and intangible assets) that organizations can develop to achieve their goals. Organizational intelligence is one of the social consequences of teamwork (Ahadinezhad et al., 2012).

The importance of organizational intelligence in business stems from the fact that individual intelligence alone is not capable of overcoming the issues ahead; so it is important to build collective intelligence within the organization as a necessity to overcome problems. (Maries & Scarlat, 2012).

Promoting organizational intelligence is one of the undeniable requirements for most organizations to enhance their capabilities through acquisition and analysis of information, as well as increased knowledge and awareness (Dealtry, 2005). Increased organizational intelligence enables organizations to quickly and accurately analyze their surrounding information and to make it available to decision-makers when needed (Travica, 2015).

Today, the advent of technology, innovative adaptive methods, virtual reality, improved markets, and alternative business models have accelerated changes. For success in business, according to Albrecht, having intelligent human agents, smart teams, and intelligent organizations are needed (Albrecht, 2003).

In 1995, Glynn published three models of organizational intelligence: Aggregation or accumulation model, confluence model, and distributive or dispersive model. Glynn also classified organizational intelligence into three categories: 1) the accumulation of personal intelligence 2) the interconnection and intertwining of personal intelligence 3) organizational intelligence as a larger system (Polat, 2009).

In this study, the organizational intelligence was evaluated based on seven components proposed by Albrecht (2003) and Travica (2015): strategic vision, shared destiny, desire for change, morale, unity and agreement, knowledge utilization and performance pressure. Organizational intelligence can be considered as one of the types of cognitive intelligence that is related to emotional intelligence (Law et al., 2014).

An accurate and accurate understanding of employee emotions facilitates interpersonal coordination and action, which in turn improves organizational performance in various areas including financial performance. Accordingly, the fifth research hypothesis has been



formulated to investigate the impact of organizational intelligence on the financial performance of the e-banking industry.

2.4. Financial Performance of the Organization

Oxford dictionary defines performance as "the act or process of performing a task, an action, etc". This definition, in addition to being related to inputs and outputs, indicates that performance is closely related to performance and outcomes. Therefore, performance can be regarded as behavior (Busi, 2006).

Organizational performance shows how an organization achieves its mission and goal; organizational performance refers to starting from a given situation and achieving a specific goal, which may include several objectives such as market share, sales volume, Employee motivation, customer satisfaction, quality level, etc. (Liu & Wu, 2010).

Organizational performance is a complex phenomenon that may be the simplest phrase to describe as a set of activities aimed at achieving the organization's goal. Like function, the targets should be studied from different perspectives (Rus et al, 2012). Organizational performance refers to how the tasks, works, and activities are accomplished and the results of their accomplishment (Busi, 2006).

Organizational performance is a very important measure in evaluating the success of an organization and is always one of the most important variables in performance management research (Iqba, et al., 2018). According to Kuhang et al., optimal Organizational performance indicates the growth and development of an organization. Organizational performance has many dimensions. Many researchers focus more on the financial aspect of evaluating and measuring the performance of organizations.

This study also emphasizes on the financial performance of the organization. Based on researches of by Zhao et al. (2018) and Gandhi et al. (2011) three Indicators were selected: profitability, market share and sales volume and sales growth (all of them compared to competitors).

2.5. Conceptual Research Model

According to the purpose of the research and the variables studied in this study, the conceptual model of this research is presented in figure 1.



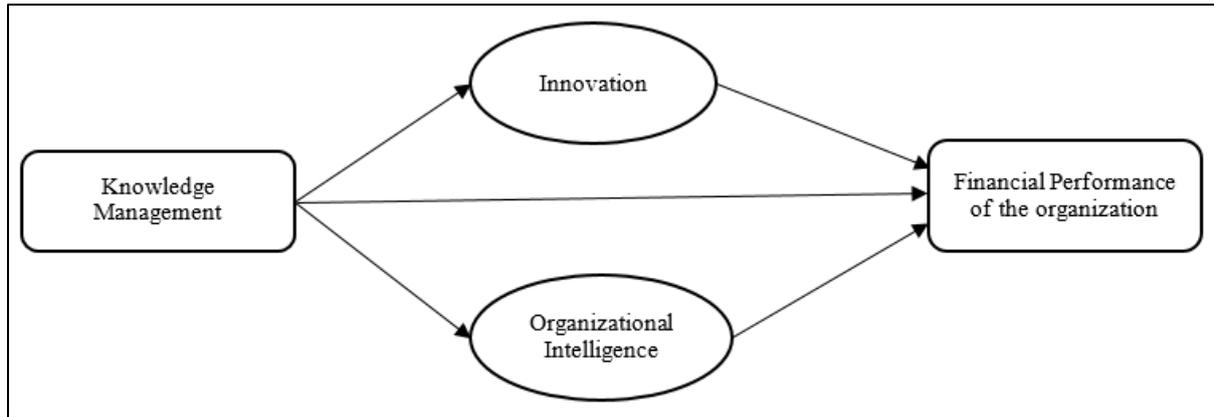


Figure 1: Conceptual model of research

Given the conceptual model and purpose of the research, the research hypotheses are as follows:

- H₁: Knowledge management has a positive impact on the financial performance of the organizations active in the e-banking industry.
- H₂: Knowledge management has a positive impact on the innovation of the organizations active in the e-banking industry.
- H₃: Knowledge management has a positive impact on organizational intelligence in the e-banking industry.
- H₄: Innovation has a positive impact on the financial performance of the organizations active in the e-banking industry.
- H₅: Organizational intelligence has a positive impact on the financial performance of the organizations active in the e-banking industry.
- H₆: Knowledge management has a positive impact on the financial performance of the organizations active in the e-banking industry due to the mediating role of innovation.
- H₇: Knowledge management has a positive impact on the financial performance of the organizations active in the e-banking industry due to the mediating role of organizational intelligence.

3. RESEARCH METHODOLOGY

Since the results of this study will be used by managers and decision-makers in the e-banking industry to improve the financial performance and solve existing organizational problems, therefore, this study is applied research in terms of its purpose. In addition, it is survey research in terms of data collection and in terms of the method is descriptive-

correlational research. The statistical population of this study was senior executives of 31 public and private banks active in the e-banking industry of Iran (n=54). Due to the small statistical population, the statistical sample size was considered equal to the statistical population. Library and field research methods (questionnaires) were used to collect research data.

Questionnaires used were based on Lawson (2003), Obaidat et al. (2016) and Shajat et al. (2018) researches on knowledge management, Wang and Wang (2012) and Wang et al. (2016) researches on Innovation, Albrecht (2003.) and Travika (2015) researches on organizational intelligence, Zhao et al. (2018) and Gandhi et al. (2011) researches on financial performance management. The answers were based on a Likert scale ranging from 1 (very weak) to 5 (very strong). The number of questionnaire questions based on the variables studied and the components of each variable along with the sources are presented in Table 1.

Table 1: Questionnaire components and questions

Variable	Components	Source	Number of questions	Abbreviation
Knowledge management	knowledge creation	LAWSON (2003) OBEIDAT et al. (2016) SHUJAHAT et al. (2018)	1	KNC
	knowledge acquisition		1	KND
	knowledge organization		1	KNO
	knowledge storage		1	KNS
	Knowledge dissemination		1	KNP
Innovation	knowledge application		1	KNA
	Speed of innovation	WANG & WANG (2012)	1	INS
Organizational intelligence	Quality of Innovation	WANG et al. (2016)	1	INQ
	Strategic vision	ALBERECHT (2003) TRAVICA (2015)	1	STV
	Common destiny		1	COD
	The desire to change		1	DTC
	Mood		1	MOO
	Unity and agreement		1	UAG
	Applying knowledge		1	APK
Performance pressure	1		PEP	
Financial performance	Profitability	ZHOU et al. (2018) GÜNDAY et al. (2011)	1	PRO
	Market share		1	MAS
	Sales volume		1	SAV
	Sales growth		1	SAG

3.1. Defining research variables

The components of each of the main variables of the study are described:

3.1.1. Knowledge Management

- Knowledge Creation: The process of creating new knowledge is about changing and transforming skills and knowledge. People are fortified with knowledge. In this study, the amount of knowledge creation over a one-year period was considered.

- **Knowledge Acquisition:** The extent to which information and knowledge are acquired from interactive networks within and outside the organization over a period of one year.
- **Knowledge Organization:** Through this action, the necessary knowledge is easily organized for everyone to use. In this study, the amount of knowledge organized over a one-year period was considered.
- **Knowledge Storage:** Through this action, the necessary knowledge is easily stored for use at the right time. In this study, the amount of knowledge storage over a one-year period is considered.
- **Knowledge Dissemination:** In doing so, the organization disseminates information to its members, thereby enhancing learning and creating new knowledge. In this study, the amount of knowledge distributed over a one-year period was considered.
- **Knowledge Application:** Knowledge sources in organizational operations and decisions define the application of knowledge. This study considers the utilization of knowledge produced over a one-year period.

3.1.2. Innovation

- **Speed of Innovation:** The speed of innovation refers to the extent to which process and product innovation are used. In this study, the rate of application of innovation in the implementation of processes and production of new products over a one-year period was considered.
- **Quality of Innovation:** The quality of innovation refers to how the process and product innovation is applied. This study focused on how to effectively apply innovation to successfully execute processes and produce new quality products over a one-year period.

3.1.3. Organizational intelligence

- **Strategic Vision:** It refers to the extent to which employees perceive the organization's strategic vision. In this study, people's awareness of the strategic plans of the organization was considered.
- **Common Destiny:** To the extent that the employees of the organization are aware of their effectiveness in achieving the goals of the organization.



- The Desire to Change: Indicates the extent to which employees accept organizational change.
- Mood: Indicates the extent to which employees understand organizational goals. In fact, it refers to the degree to which the spirit of employee engagement in the organization is high.
- Unity and Agreement: Employee perception refers to organization collaboration and alliance. In fact, the degree of unity and empathy of employees for researching the goals of the organization.
- Applying Knowledge: The extent to which the knowledge produced in the organization is used by the staff. In this study, the rate of staff utilization over a one-year period was considered.
- Performance Pressure: Indicates the amount of stress that employees experience when performing organizational processes.

3.1.4. Financial Performance

- Profitability: The profitability index is the rate obtained by dividing the present value of the cash inflows by the present value of the costs in this study, net profit margin was considered as the main basis of profitability index over a period of one year.
- Market Share: It is the ratio of the number of sales of a brand in a product to the total sales of that product in seasonal and annual time periods. In this study, this index was also based on the measurement of banking services over a period of one year, which resulted in attracting customers.
- Sales Volume: This refers to the extent to which the goals of selling products and services have been met and in this study refers to the extent of banking services offered over a one-year period.
- Sales Growth: The rate of sales of products and services over the previous period is the basis for measuring this indicator.

3.2. Data Analysis Methods

In order to determine the normality of the research data and to determine the adequacy of the sample size, Kolmogorov-Smirnoff and Spearman Bartlett tests were used (using SPSS software). Structural equation modeling was used for analyzing data and conceptual model of

research and testing research hypotheses (using Smart PLS software, the reason for using this software is that there is no need for normal distribution and also its ability to solve models with fewer items and fewer samples than other available software (Hair, Ringle & Sarstedt, 2011).

The structural equation modeling method is not solely a statistical method; it refers to a family of related processes and different equivalents have been used in the literature for it: covariance structure analysis, covariance structure modeling and causal modeling (Klein, 2011).

The reason for the widespread use and popularity of this technique among researchers is its ability for providing a quantitative method for testing the theory and overcoming the difficulty of analyzing the relationships between variables in human research (Harrington, 2009). This method is the best tool for analyzing research involving the relationships between complex variables, small sample sizes, and abnormal data distributions. In this study, structural equation modeling with partial least squares approach was used to analyze the model.

This algorithm consists of two main steps, namely: 1. Model fitting study; 2. Testing research hypotheses. The first part, namely model fitting, is done in three parts: fitting measurement models, structural mesh fitting and general model fitting. It should be noted that the research uses Sobel and VAF tests to investigate the sixth and seventh hypotheses. The Sobel test of the multiplicative approach is also called the Delta method or the normal theory approach.

The Sobel test is used to deduce the indirect effect coefficient of the mediating variable on the relationship between the independent and dependent variables. In general, the Sobel test can be used to estimate the normality of the relationship. By estimating the standard error of the indirect effect, one can test the null hypothesis against the opposite hypothesis. In addition to the Sobel test, a VAF statistic with a value between 0 and 1 is used to determine the intensity and indirect effect of the mediator variable. In fact, this value measures the ratio of the indirect effect on the total effect calculated by the VAF formula.

4. RESEARCH RESULTS

In this research, prior to testing the research hypotheses, we examined the distribution normality (normal or abnormal) of the research data using the Kolmogorov-Smirnov test to ensure the correct application of the tests appropriate to the hypotheses and the data.

4.1. Kolmogorov-Smirnov Test



The confirmation of the null hypothesis indicates the normal distribution of the research variables, and confirmation of the alternative hypothesis indicates the non-normality of distribution (Table 2).

Table 2: Kolmogorov-Smirnov test results

		KM	IN	FP	OI
N		54	54	54	54
Normal Parameters	Mean	3.0103	2.9055	2.9649	2.9690
	Std. Deviation	.20774	.35410	.37579	.17307
Asymp. Sig. (2-tailed)		.038	.046	.011	.035

The results of this test show that the significance level of the variables of this study is less than 0.05. So with the probability of 0.95%, we can confirm the non-normality of the distribution of the research variables.

4.2. Sample Size Adequacy Test (KMO):

The sample size adequacy test and the Bartlett Spearman test determine that factor analysis is applicable to the data collected or no. The value of the KMO statistics is in the range of zero to one and the majority of experts consider the minimum acceptable value to be 0.6 (Table 3).

Table 3: KMO statistics and Bartlett's Spearman test results

Kaiser-Meyer-Olkin measure of sampling adequacy		0.775
Bartlett's test of sphericity	Approx..chi-square	8921.198
	df	171
	sig	0.002

Based on the results regarding the Kmo values and the significance level of Bartlett test, it can be said that factor analysis can be done on the research data.

4.3. Structural Equation Modeling (SEM)

In this study, a three-stage approach (fitting measurement models, fitting structural model, and fitting overall model) was used to investigate the research model and test the hypotheses.

4.3.1. Fitting measurement models

The reliability and validity of measurement models are used to evaluate the measurement models. Reliability was assessed using three items: factor loadings coefficients, Cronbach's alpha, and composite reliability. On the other hand, convergent validity and divergent validity were used to assess validity.

Factor loadings coefficients: Factor loads are calculated by calculating the correlation value of the indices of a structure with that structure. The criterion for the suitability of factor loadings is at least 0.4 (Hulland, 1999). Given that these values are equal to or greater than 0.4, this indicates that the variance between the constructs and their indices is greater than the variance of the measurement error of the construct and the reliability of that measurement model is acceptable. The results are shown in Figure 2 and Table 4.

- Cronbach's alpha: The criterion for the suitability of alpha is at least 0.7. (Nunally, 1978). However, some sources consider 0.6 as sufficient. Table 4 shows the results of this analysis.
- Composite reliability: This criterion was introduced by Wertz, Lin and Jorscog (1974). Values higher than 0.7 indicate the structural reliability of the construct. Table 4 shows the results of this analysis.
- Convergent validity: Fournell and Larker (1981) introduced the mean-variance extracted for measuring convergent validity and stated that its critical value is 0.5. Table 4 shows the results of the evaluation of convergent validity.

Divergent validity: One of the methods for calculating it is the cross-factor load's method. This method compares the correlation of the indices of one construct with that of other constructs. A result of less than .85 tells us that discriminant validity likely exists between the two scales. A result greater than .85, however, tells us that the two constructs overlap greatly and they are likely measuring the same thing. Therefore, we cannot claim discriminant validity between them. As shown in Table 5, divergent validity is confirmed.

Table 4: Validation characteristics of research constructs

constructs	Component	Redundancy values	Communality values	Cronbach's alpha	composite reliability (CR)	average variance extracted (AVE)	Factor load
Knowledge management	KNC	0.000	0.448	0.765	0.825	0.510	0.562
	KND						0.487
	KNO						0.927
	KNS						0.483
	KNP						0.693
	KNA						0.797
Innovation	INS	0.202	0.525	0.750	0.771	0.623	0.857
	INQ						0.565
Organizational intelligence	STV	0.369	0.719	0.803	0.712	0.552	0.627
	COD						0.562
	DTC						0.407
	MOO						0.723
	UAG						0.871
	APK						0.807
	PEP						0.546



Financial performance	PRO	0.325	0.545	0.829	0.829	0.499	0.608
	MAS						0.595
	SAV						0.743
	SAG						0.428

Table 5: Structural Correlation Matrix and Divergent Validity Results

	Knowledge management	Innovation	organizational intelligence	Financial performance
Knowledge management	0.714			
Innovation	0.519	0.789		
organizational intelligence	0.598	0.567	0.743	
Financial performance	0.603	0.473	0.612	0.706

4.3.2. the Fitness of the structural model

Significance level, R^2 , t-values and redundancy criterion was used to evaluate the structural model.

- R^2 : To check the relationships between structures, the R^2 criterion should be used, which is applicable only for dependent structures. CHIN (2010) identified three values of 0.19, 0.33, and 0.67 as weak, moderate, and strong values (figure 2).

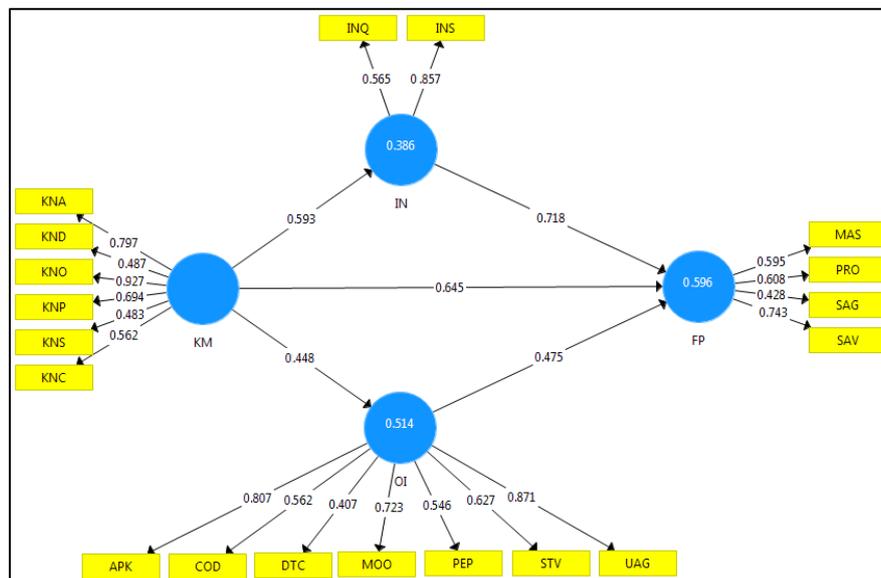


Figure 2: R^2 values, factor loadings, and path coefficients

t-values: the t-values greater than 1.96 with a 95% confidence level, indicates the validity of the relationships between the model constructs and the confirmation of the related hypotheses (Figure 3).

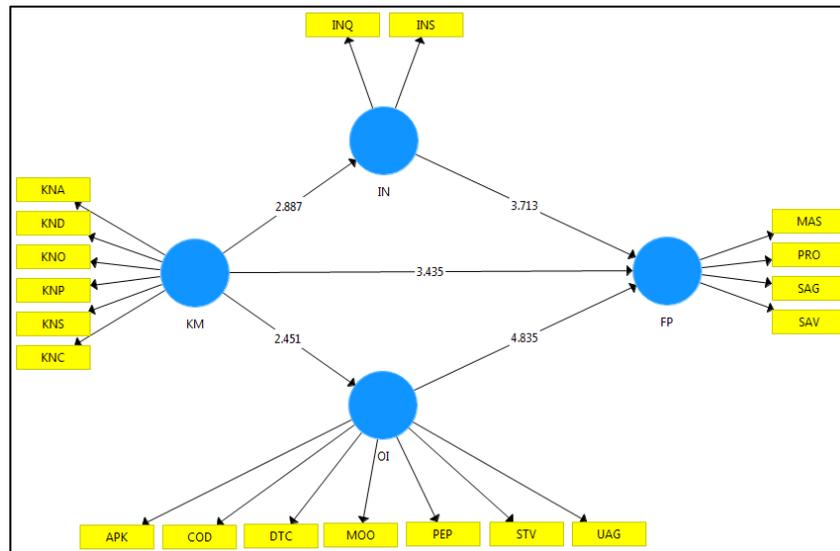


Figure 3: T-values

- Redundancy criterion: This criterion is calculated for all dependent structures and denotes the multiplication of the shared values of the structures by their corresponding R² values and the higher the criterion, the better the structural model fit. The value of this criterion for Innovation equal to 0.220, Organizational Intelligence equals 0.369 and for Organizational Financial performance equals to 0.325 indicating a high fit of the structural model.

4.3.3. Overall Model Fit and Test of Hypotheses

In examining the fit of the overall model, the goodness of fit criterion introduced by Tennenhaus et al. (2004) was used. Three values of 0.1, 0.25 and 0.36 were regarded as weak, moderate and strong values (Weitzel et al. (2009)). This criterion is obtained by multiplying the shared values of the dependent structures by the mean of R².

$$GOF = \sqrt{\text{average(Communality)} \times \text{average R}^2} = \sqrt{0.559 \times 0.497} = 0.527$$

Given the value obtained for this criterion, the fit of the overall model can be considered as quite appropriate.

After examining the fitness of the overall research model, the hypotheses were then examined. The results of the first-to-fifth hypotheses test based on the results of t-values and path coefficients (Figures 2 and 3) are presented in Table 6. It should be noted that because of the mediating role of innovation and organizational intelligence variables in the sixth and seventh hypotheses, the Sobel and Waff tests were used to test these hypotheses.

Table 6: Results of the first to fifth research hypotheses tests

Hypothesis	path coefficient	T-value	Test result
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The Positive Impact of Knowledge Management on Financial Performance of the Organization	0.645	3.435	Confirmed
The Positive Impact of Knowledge Management on Innovation	0.593	2.887	Confirmed
The Positive Impact of Knowledge Management on Organizational Intelligence	0.448	2.451	Confirmed
The positive impact of innovation on the financial performance of the organization	0.718	3.713	Confirmed
The Positive Impact of Organizational Intelligence on Financial Performance of the Organization	0.475	4.835	Confirmed

Results from Table 6. It shows that KM directly predicts 0.645 changes related to the financial performance of the organization, 0.593 changes related to innovation and 0.448 changes related to organizational intelligence. Also, the innovation variable predicts 0.718 and the organizational intelligence variable 0.475 predicts changes in organizational performance directly.

4.3.4. Testing the impact of mediating variables

The Sobel test was used to examine the significance of the mediating role of a variable on the relationship between two variables and values greater than 1.96 at 95% confidence level, indicate that the mediating role of the related variable is significant (Preacher & Leonardelli, 2003). In addition to the Sobel test, which is used to examine the significance of the mediating role of a variable, the VAF statistic can be used to determine the mediating intensity. This value is between 0 and 1 and the greater the value, the greater the intensity of the mediating effect (Lacobucci & Duhachelc, 2003).

Sobel test: In the Sobel test, a Z value is obtained by the following relation:

$$Z - \text{Value} = \frac{a * b}{\sqrt{(b^2 * s_a^2) + (a^2 * s_b^2) + (s_a^2 * s_b^2)}}$$

Which:

- a: path coefficient between the independent variable and the mediator.
- b: Path coefficient between the mediator and dependent variable.
- Sa: path standard error of independent variable and mediator.
- Sb: path Standard error of mediator and dependent variable.

$$Z - \text{Value} = \frac{(0.593 * 0.718)}{\sqrt{(0.718^2 * 0.275^2) + (0.593^2 * 0.480^2) + (0.275^2 * 0.480^2)}} = \frac{0.42577}{0.13739} = 3.0989$$

$$Z - \text{Value} = \frac{(0.448 * 0.475)}{\sqrt{(0.475^2 * 0.312^2) + (0.448^2 * 0.401^2) + (0.312^2 * 0.401^2)}} = \frac{0.2128}{0.06986} = 3.0460$$

According to the results of Sobel test, it can be concluded that at 95% confidence level, the effect of mediating variables (organizational innovation and organizational intelligence) on the relationship between knowledge management and financial performance of organization is significant. Thus, the sixth and seventh hypotheses with test values of 3.989 and 3.0460 are confirmed.

- VAF Test: The value of the VAF test can be obtained by:

$$VAF = \frac{a \times b}{(a \times b) + c}$$

which a is the value of the path coefficient between the independent variable and mediator, b is the value of the path coefficient between the mediator and dependent variable, and c is the value of the path coefficient between the independent and dependent variables. Due to the presence of two mediating variables, this relationship was calculated twice and the values were: 0.39 and 0.25, respectively.

A value of 0.39 means that more than one-third of the impact of knowledge management on the financial performance of an organization is indirectly explained by the innovation variable and a value of 0.25 indicates that a quarter of the effect of knowledge management on financial performance is indirectly explained by the organizational intelligence variable.

$$VAF = \frac{0.42577}{1.07077} = 0.39$$

$$VAF = \frac{0.2128}{0.8578} = 0.25$$

5. DISCUSSION AND CONCLUSION

The purpose of this study was to investigate the mediating role of innovation and organizational intelligence variables in the relationship between knowledge management and financial performance of organizations active in the e-banking industry. Accordingly, structural equation modeling and partial least squares algorithms were used. The findings showed that knowledge management has a significant impact (3.435) on the financial performance of the organizations active in the e-banking industry.

This finding is in line with the results of Zaied et al. (2012). The hypotheses test results showed that knowledge management has positive effects on innovation and organizational intelligence. This result is in line with the results of OBEIDAT et al. (2016). Innovation also

has a positive and acceptable impact (3.713) on the financial performance of the organizations. This finding is in line with the results of Wang et al. (2016) and Li et al. (2009). The results of hypotheses tests showed that organizational intelligence also had a significant positive effect (4.835) on the financial performance of the organizations.

This finding is in line with the findings of Travica (2015). Concerning the mediating role of innovation and organizational intelligence variables on the relationship between knowledge management and organizational financial performance, the results showed that knowledge management through organizational innovation and organizational intelligence variables affect the financial performance of the organization, thus the mediating role of these variables (Innovation and organizational Intelligence) was confirmed.

The results of the research hypotheses showed that knowledge management in general and its components including knowledge creation, knowledge acquisition, knowledge organization, knowledge storage, knowledge dissemination, and knowledge application have a positive and significant impact on the financial performance of organizations active in the e-banking industry. So that the better knowledge management, the better financial performance.

Research findings show that knowledge management can be used to manage and improve an organization's financial performance through innovation and organizational intelligence. In general, it can be said that organizational actions in the field of innovation with an emphasis on two areas of speed and the quality of innovation during e-banking services and the development of organizational intelligence related to the implementation of e-banking service processes positively influence knowledge management practices and components and have a positive impact on the financial performance of the organization.

Based on the results of the present study, regarding the crucial role of knowledge management on the organizations operating in the field of e-banking, it is recommended for Prioritizing knowledge management implementation with regard to its two components (the speed and quality of innovations) to increase the efficiency of the financial performance of the organization and improve the services provided by banks.

The results also show that there is a positive and significant relationship between organizational intelligence/knowledge management with the financial performance of the organizations active in the e-banking industry. Therefore, in order to enhance organizational intelligence and knowledge management of employees and managers in order to improve



performance, it is suggested for organizations to create hardware and software infrastructures for changes in order to improve the financial performance of the organization.

In the meanwhile, to enhance the sense of common destiny between managers and employees, organization are recommended to formulate organizational policies so that managers share employees with important plans and issues and their results. These actions prepare the conditions for achieving continuous improvement in the performance of the organization and in particular the financial performance of the organization in different areas more than ever.

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