

## **Mediating Effect of Intellectual Capital on the Relationships Between Information Technology for Human Resource, it for Market Information and it for Marketing Communication on Performance of Banking Sector in UAE**

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**Abstract:** The performance in the competition world is the logo, the banks make their existence anywhere supported through the information technologies. The banks need to communicate with their customers in any market that they target and organizations have the potential to do business. Keeping in touch with customers wherever in the world, the use of the advanced technology to enhance and develop the activities as an important requirement for the bank. The incorporation of some factors dedicated to IS research studies into the organization's especially banks have become a necessity today. However, this century is known as "information technology century", the information used in market can be handled only with the help of the information technology and clearly, they are most frequently collected via technologies. In this study, the researcher will proceed to study, analyze, present and discuss the effects of IT for human resource, IT for market information, IT for marketing communication and intellectual capital on bank performance which are being used in the IS research field.

**Key words:** IT for human resource, IT for market information, IT for marketing communication and intellectual capital, bank performance, UAE

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### **INTRODUCTION**

**Time to change:** Many banks face challenges in cost, operational, market, customer and regulatory so, they struggle to respond and growth. The managers of banking sector are starting to sense those challenges related to growth targets and they must win in two important battles: gaining customer trust, defending against the new means of payment that used through new entrants such as iPay, PayPal and google wallet. To solve these dilemmas, the banks should mobilize the core business processes to improve the performance efficiency in other words "doing the basics right". Whereas some banks may outperform simply through enhancing and upgrading the basics and others need to meet new business operating models to grow and compete in the future. Therefore, the Next generation of banks need to keep one eye on the present and another eye on the future. Regardless of how difficult the world in which we live may be and obstacles faced by banks in the path of their development and performance, there are permanently effective solutions to be in the top. The solution that the researcher wants the analysis in this study is IS research an important step in the development of the businesses to the top.

Notably, IT applications and technology advanced have highest impact on the world economy which are

creating a new environment of business and improving the business processes. Good use of these applications and technologies have facilitated to implement business transactions in a manner unprecedented in previous centuries (Oluwatolani *et al.*, 2011). In other words, critical uses of IT lead to experiment and develop the new models of business. Currently, IT has become the main factor for enhancing the competitiveness and improving the efficiency of both local and foreign banks. To do that, the capabilities is help to exploit the business, technology and human. However, gain and use these technologies are still very uneven (Oluwatolani *et al.*, 2011). Therefore, this study seeks to investigate how IT related to some dimensions such as human resource, market information, marketing communications can effect on performance on banking sector. According to that this study will examine the effects of Information Technology for Human Resource (ITHR), IT for Market Information (ITMI), IT for Marketing Communications (ITMC) and Intellectual Capital (IC) on Bank Performance successfully. Additionally, several studies have been done individually on ITHR or ITMI and ITMC but the relationship between ITHR, ITMI and ITMC and also IC as mediating factor affecting this relationship have not been investigated yet. This study has three objectives.

First, this study presents and develops model by employing Intellectual Capital (IC) as a mediating variable. Consequently, this study seeks to find out how every variables effect on bank performance through IC. Second, the study aims to analyze which capabilities (ITHR, ITMI, ITMC) are the most impactful on bank performance. Third in addition, the current study defines the banking sector in UAE according to their economic developments Abu Dhabi economic vision 2030 which refers to the banking sector as one of most important of diversification choices. The following sections give research model, theoretical background; develop hypotheses and conclusions and future research.

### **Theoretical background and hypotheses**

#### **Structure of the UAE financial system and balanced scorecard:**

The banking sector in the UAE is dominated in general on the financial sector which is relatively concentrated with local players dominating the market. In recent years, the banks have grown to be important source of financial intermediation in the Global and Gulf countries especially (Hassan *et al.*, 2010). Besides, increasing competition in the banking sector leads to focus on products and services that are achieved a value for customers and enhancing their satisfaction. Since, the banking sector in the UAE includes from 23 banks which competing with 3 each other to get a larger share of the market through identifying factors that motivate customers to deal with the bank.

However, financial institutions especially banking sector is a tool to develop economic in the country. The existing financial environment has witnessed integration processes and rapid changes in IT field to ensure the accuracy of the performance through considering to external and internal environmental conditions (Secme *et al.*, 2009). Banks seek to reduce the competitive distance by increasing their competitiveness and the most important ways to increase the competitiveness is improving and assessing performance in appropriate ways (Rostami *et al.*, 2015; Secme *et al.*, 2009). To analyze and assess the performance, the banks require a specific framework. Many tools use to analyze and evaluate the performance for example delphi analysis, regression analysis, data envelopment analysis, total production analysis, analytic hierarchical process and balanced score card which the bank can select it according to its size and type (Wu, 2012). One of the most famous models Performance Appraisal System (PAS) models is the "Balanced Scorecard (BSC)" that has been developed by Kaplan and Norton (1996) and then improved. BSC is considered on financial and non-financial aspects which driving them to assist and achieve banks strategies (Rostami *et al.*, 2015). This model suggests to use set of

indicators to evaluate the performance. So, according to Kaplan and Norton (1996), these four indicators are: financial aspects, customer aspects, Internal business aspects and learning and growth aspects.

According to above, UAE banking sector is strong. According to data released by Central bank of UAE for 2014 reaffirms that growth of the global economy affected by the deterioration of oil prices, the accumulation of debt, higher US dollar exchange rate and low key exports commodity prices. As for the Gulf Cooperation Council (GCC), they have been slightly affected by these issues but they were able to overcome through the use of their foreign reserves accumulated during the oil boom in the form of reserves with central banks and the savings of Sovereign Wealth Funds (SWFs). In 2015, UAE banking sector was still faced these issues. As a consequence, banks have forced to increase their ability to cope with the indirect effects on the domestic economy. To achieve this purpose, the central bank of UAE has been observing development in the banking sector to make sure continued resilience. Although, the decline in government deposits, local banks have taken advantage of increasing in deposits of non-residents as well as, used their investments and reserves in the Central Bank in order to absorb the demand for credit which has become stronger in 2015 to support the growth in the non-hydrocarbon sector. However, with the continuation of these issues related to the global economy, central banks must ensure the right balance between financial stability and effective intermediation across improving performance of the banking sector. The purpose of this study therefore is to study major factor of IT that related to the functions of bank such as (IT for human resource, IT for market information, IT for marketing communication) and how to influence on performance of banks in the UAE.

#### **Information Technology for Human Resources (ITHR):**

Technology development has increased the degree of competitive and changed the market environment which make the banks to use IT to meet and analyze the complexity of environment, observe how rivals use IT and achieve business environment. IT applications has enhanced the role of human resources (Wen, 2013). The combining between IT and human resources are known as IT for Human Resources (ITHR) in other words, ITHR is the capabilities of employees to use IT applications (Pereira and Reis, 2011). Therefore, ITHR could improve the capabilities, competencies and the performance of bank (Mishra and Akman, 2010) and it should be managed effectively to become more important (Choi *et al.*, 2012). According to Choi *et al.* (2012), Mishra and Akman (2010), ITHR is as critical management issue.

ITHR has included two indicators that are IT technical skills and IT management skills. However, in IT

field, the banks challenge some difficulties in to manage HR and the skills of employees (Mishra and Akman, 2010). Therefore, the banks use ITHR to reduce the time of HR processes and activities and use free time of these activities well to accomplish a strategic value for them (Thite and Kavanagh, 2009). In addition, ITHR uses technology to expect and required level to reach a suitable strategy (Jourdain and Oiry, 2009) which create the competitive advantage (Choi *et al.*, 2012). Therefore, ITHR plays an important role on IT infrastructure which build intellectual capital, meets current and future needs and increase the whole value of HR (Choi *et al.*, 2012).

However, the empirical studies found in inconsistent results on the relationship among ITHR and the performance. Jiao *et al.* (2008) showed a positive relationship between ITHR and performance but Qingfeng and Daqing found insignificant relationship between ITHR and performance while Haiping and Yongming found ITHR effect negatively on performance.

Moreover, some studies were conducted different regions and studied on different industries. For example Plickebaum examined the relationship between the ITHR and performance in United States. Kim *et al.* (2011) addressed how ITHR effect on performance in Korean companies. Likewise Dan-Ming *et al.* (2009) examined ITHR impact on bank performance in china. Moreover, Jiao *et al.* (2008) focused on Zhejiang University and Fudan University in China. According to previously, there are the lack of studies to investigate how ITHR effect on the performance in banking sector such as Mohlala *et al.* (2012) in South African. Besides, most of studies focused on East Asia and the Pacific areas and ignored gulf countries until now. Therefore, the researcher is interested to contribute in this field. Thus, the hypothesis of this study is.

- H<sub>1</sub>: ITHR has effect on performance of banking sector in UAE

**IT for Market Information (ITMI):** The changes in the market environment make the banks to be more sensitive to these changes (Harmancioglu *et al.*, 2011), the information is considered as a critical element that assisting banks to respond to these changes in business context and market. Good information that collected timely and efficiently which lead to improve the performance. According to that, the information is an important source and should not be ignored (Song *et al.*, 2010). In other words, the banks have collected this information to adapt with condition of market and improving the performance. Currently banks use IT to collect market information to

adjust their strategy in markets uncertainty more than stabling markets. Therefore, to provide high quality products and services and achieving a superior performance, the banks seek to collect information about competitor's capabilities and customer's needs (Harmancioglu *et al.*, 2011; Keh *et al.*, 2007). In addition, the complex relationships with suppliers, competitors and suppliers lead the banks to identify "comprehensive" market knowledge which required to market information capabilities through using technologies hardware and software.

IT for Market Information (ITMI) is the process and ability related to collect the data about the customers, suppliers, competitors, opportunities and threats in the market by using IT. These capabilities contribute to banks to exploit opportunities in the market (Shin and Damon, 2012) and to develop marketing programs to meet customer's needs (Shin, 2013).

Moreover, ITMI shares political and values in the market-oriented bank to know the behavior of employees and to better understand the bank and market (Harmancioglu *et al.*, 2011). However, many studies agree the successful organizations in markets which have good ITMI to create a competitive advantage and superior performance (Harmancioglu *et al.*, 2011; Cabanero *et al.*, 2012; Shin, 2013; Dalvi and Seifi, 2014). On the other hand, unsuccessful organizations that not depend on ITMI are vulnerable to loss their position in the market because of the managers depending on their own experience (Cabanero *et al.*, 2012).

Based on above, the current study focuses on some aspects that related to ITMI, these aspects are: the ability of bank to collect and providing the information to top managers and staff, the ability of bank to offer the information and data to customer and the ability to provide wide-ranging connectivity and effectively inside the bank and with the market environment. Therefore, the hypothesized of the relationship between ITMI and bank performance is.

- H<sub>2</sub>: IT Market information (ITMI) has effect on the bank performance

**IT Marketing Communication (ITMC):** Rapid response to changes in the market which is characterized by dynamic, information technology and globalization is the proof of the efficiency and success of the business. Continuous development of communication and information technology has had a significant effect on the business functions such as finance, procurement and sales and marketing, research and development and

accounting. Many researchers such as Alghamdi and Bach (2014), Leek *et al.* (2003a, b) pointed out that technologies have an effect on the principal activity of the marketing strategies which is to secure and maintain excellent relationships with consumers. They found technology effects on the organization communication with customers and how they implement their communication activities. Moreover, marketing communications through IT used interactive technologies such as internet to help the customers to interact with service organizations-particularly banks. Due to the entry of technologies in marketing currently, the concept of mass marketing retreat because of e-Marketing revolution which provides personalized and customized marketing services (Alghamdi and Bach, 2014). Besides introducing technologies in the marketing can support the banking sector to improving communications, providing better content for the service and the product, the connection between the banks, customers and competitors. To determine the ideal type of communication in any relationship, it requires that the relationship between the two parties to be active communication with the existence of favorable conditions for effective communication (Finne and Strandvik, 2012). Thus any poor access to information through communication may be due to distortion, misunderstanding, confusion and disabled (Mortensen, 1997). In other words, marketing communications represent a voice that banks can establish a dialogue with customers and stakeholders, about the product and service and other bank issues. The importance of marketing communications has increased lately because of the emergence of information technology and audience fragmentation have led to a radical change in the marketing communications environment (Gabrielli and Balboni, 2010). The traditional and non-traditional media have obliged the organizations-especially banks to leave model of mass communication and to deal with the growing number of marketing communications choices. The information that obtained from the various media represent messages about the bank and its products and services. Contradictory messages from different channels may arise misunderstanding in the mind of the consumer. Because of that, the systematic coordination and integration of all messages through communication channels was not just a theoretical concern but has become a major issue for marketers (Gabrielli and Balboni, 2010; Keller, 2001). Substantially, the research tended to new communication technologies such as the internet, computer applications and mobiles, this study aims to focus primarily on the importance of communication

technologies through the use of information technology which is as the emerging points for various academic disciplines (Khang *et al.*, 2012). However, the purposes of cooperation between employees, customers and technologies are for using communication and control. Hence, IT for marketing communications improve the performance. Therefore, the researcher proposes this hypothesis:

- H<sub>3</sub>: IT for marketing communications have effect on bank performance

**Intellectual Capital (IC):** Today's in the fact, the intangible assets such as skills, relationships and knowledge assets, are successful factor in knowledge economy and complex environment and measuring the efficiency such assets like intellectual capital continues to pose a challenge at the economy (Abdulsalam *et al.*, 2011). Previously, the governments and organizations was becoming less efficient through they did not have reliable indicators for them tasks success and their staff did not recognize them important role to create value (Abdulsalam *et al.*, 2011). Unfortunately, the current measurement systems not help much in this situation, because they depend on Value Added Intellectual Coefficient (VAIC) to measure IC and lack the information that related to measure intellectual capital through questionnaires. Intellectual capital of banks involves all staff, their structures and their ability to create value which has valued at the market and to monitor efficiency of intellectual capital too. Consequently, today's, the most important challenges that faced knowledge economies is the efficiency of knowledge management which related to intellectual capital (Abdulsalam *et al.*, 2011). Hence, intellectual capital becomes the key dynamic to create value.

In the UAE banking sector is a knowledge-intensive sector that depend on Intellectual Capital (IC) to growth since banks equipped with intellectual capital to be more competitive (Wu and Strange, 2000). Thus, banks should manage intellectual capital to maximize long-run bank wealth (Lu *et al.*, 2014; Lynn, 2000). However, several methods have used to measure intellectual capital such as Value Added Intellectual Coefficient (VAIC) (Pulic, 1998, 2004; Yalama and Coskun, 2007; Lu *et al.*, 2014), balanced scorecard (Kaplan and Norton, 1996), the technology broker's IC audit, intellectual capital service's IC-index, economic value added, the intangible asset monitor. This study uses the Balanced Scorecard (BSC) model developed by Kaplan and Norton (1996) which measures the intellectual capital of firms. The BSC Model exposes the intellectual capability of the bank and reveal

their sources and capabilities are used effectively or not. In other words, BSC measures the new value that created from sources of bank. The greater the BSC value of the bank is coming from the value added created by overall sources of that bank. Hence, intellectual capital supports performance. Therefore, we recommend this hypothesis:

- H<sub>4</sub>: Intellectual capital has effect on bank performance

To use IT effectively, the banks need to depend on intellectual capital. According to that, the staff should know how to run and use the technology and system to create new value. Consequently, the capabilities based on technologies that related to skills level of the bank (Dedrick *et al.*, 2013). Moreover, for supporting knowledge and learning, the bank has used IT to gather, store and transfer the data and information within the bank and outside. Thus, educated staff who have skills and capabilities to use IT can enable the bank to be more flexible and adapt with new systems and technologies. Therefore, banks need to focus on IT for human resource and IT for market information simultaneously to create effects on performance. Thus:

- H<sub>5</sub>: IT for human resource effect on intellectual capital
- H<sub>6</sub>: IT for market information effect on intellectual capital
- H<sub>7</sub>: IT for marketing communications effect on intellectual capital

However, very few studies used intellectual capital as mediating factor among some independent variables and dependent variable for example, Saeed *et al.* (2015), Lee and Huang. Hence, this study strives to deepen in the IS literature through examining the 8 mediation effect of Intellectual capital on the IT for human resource, IT for market information and bank performance in UAE. Thus, hypotheses developed for this study is as follows:

- H<sub>8</sub>: Intellectual Capital (IC) mediates effect on the relationship between IT for Human Resource (ITHR) and the bank performance
- H<sub>9</sub>: Intellectual Capital (IC) mediates effect on the relationship between IT for Market Information (ITMI) and the bank performance
- H<sub>10</sub>: Intellectual Capital (IC) mediates effect on the relationship between marketing communications (ITMC) and the bank performance

## MATERIALS AND METHODS

This study is aimed to examine the effects of these variables between themselves. A quantitative approach

was used to examine these relationships. A significant tool that used to achieves that objective are questionnaire survey through collecting the data from respondents (Kerlinger and Lee, 2000). The 23 local banks listed in central bank of UAE are the sampling of the current study. These banks consist of 892 branches at the country level. The banking sector is knowledge based economy which effects significantly on UAE economy. The main objective of the present study was to draw data from local banks listed in central bank of UAE. However, the main problem was the difficulty to gather the data from respondents in all local banks and that endeavor was too ambitious. The cross-sectional research is a research design of the current study. The researcher was taken 6 months (from April-September 2015) to distribute and collect the questionnaire. According to that, Chief Knowledge Officer (CKO), Chief Executive Officer (CEO), general managers and branch managers were as the source of data. The main reason for selecting them was their knowledge how to use Information Technology for human resource, IT for market information and IT for marketing communications better than others. The researcher was collected two hundred and ninety six questionnaires.

The questionnaire has been measured and answered by used 7-point Likert scale with 1 being strongly disagree and 7 being strongly agree. Firstly, measurement of bank performance consists from eight items which related to Balanced Scorecard (BSC) measurement were adopting from Karasneh and Dahir (2012). Secondly, IT for human resources have nine items that developing from Benitez-Amado and Ray, Paschke. Thirdly, IT for market information involves from nine items that developed by Trez and Luce (2012), Cabanero *et al.* (2012) and Nguyen and Nguyen (2011). Fourthly, IT for marketing communications include seven items which developed Trez and Luce (2012), Akroush and Al-Mohammad (2010) and Vorhies and Morgan (2005). Lastly, intellectual capital has adopted the eleven items from Sharabati *et al.* (2010) and Bontis *et al.* (2000). The total of items of questionnaire in the current study is 36 items. Smart-PLS Statistical Software is the technique that used to test and analyze the data and hypotheses.

## RESULTS AND DISCUSSION

**Statistical analysis and results:** The validity and reliability of outer is confirmed by Partial Least Square (PLS). The model of the current study includes these variables: Information Technology for human resource, IT for market information and IT for marketing communications, intellectual capital and bank performance.

**The outer model (measurement):** Before starting measurement model, the researcher should test the reliability and validity of the variables. The content validity, discriminant validity and convergent validity are method to examine the reliability and validity. Next section is described those measurements (Fig. 1).

**The content and convergent validity:** This analysis has compared with the other variables of this model. The factor loading of this model used to test the content validity. The items have delete if the loaded high with other variables than their individual ones. Table 1 and 2 shown all the variables that have loaded higher in their variables. The convergent validity comprises from Composite Reliability (CR), Cronbach's alpha and Average Variance Extracted (AVE). Composite Reliability (CR) and Cronbach's alpha should be >0.70. AVE should be higher than 0.50. Table 1 is shown the result of content and convergent validity.

**Discriminant validity:** This analyze assesses the degree of the construct that has a higher value than other constructs. Table 2 shows the correlation estimate of this model.

**R squared (R<sup>2</sup>) and effects sizes (f<sup>2</sup>):** R<sup>2</sup> indicates to the latent variables that account variance which asses the regression functions goodness of fit (Leek *et al.*, 2003). In this model, the score of R<sup>2</sup> of intellectual capital was 0.420 and bank performance was 0.505. In other words, 42% of variance in intellectual capital is explained by ITHR, ITMI and ITMC. The R<sup>2</sup> of bank performance was 0.505. This indicates 50.5% of variance in performance of bank is explained by ITHR, ITMI, ITMC and IC. According to Chin's standard, 0.19 is weak, 0.33 is moderate and 0.67 and more is substantia l. Therefore, criterion R<sup>2</sup> evaluation is moderated (Table 3). Cohen defined the values of effect size (f<sup>2</sup>) to 0.02, 0.15 and 0.35 which indicated to weak, moderate, strong effects, respectively. Table 4 and 5 show the effect size of this model and the interaction terms.

**Predictive relevance (Q<sup>2</sup>):** Table 6 has shown predictive relevance of the model by using Smart PLS 3.2.4. The cross-validated redundancy of intellectual capital was 0.190 and bank performance was 0.337. According to Fornell and Cha, these values are >0, so, this model has a suitable prediction quality.

**Hypothesis testing:** The hypotheses of the current study have tested by PLS algorithm and bootstrapping.

Table 1: The content and convergent validity analysis

Constructs/items	Loadings	Cronbach's alpha	(RC)	(AVE)
<b>Bank Performance (BP)</b>				
BP1	0.855	0.893	0.921	0.700
BP2	0.845			
BP3	0.808			
BP4	0.837			
BP5	0.837			
<b>Intellectual Capital (IC)</b>				
IC10	0.801	0.917	0.931	0.600
IC11	0.808			
IC1	0.735			
IC2	0.792			
IC3	0.732			
IC4	0.742			
IC5	0.731			
IC8	0.802			
IC9	0.824			
<b>IT for Human Resource (ITHR)</b>				
ITHR1	0.769	0.831	0.880	0.596
ITHR2	0.758			
ITHR3	0.762			
ITHR4	0.793			
ITHR5	0.778			
<b>IT for Marketing Communications (ITMC)</b>				
ITMC1	0.754	0.867	0.900	0.599
ITMC2	0.785			
ITMC3	0.794			
ITMC4	0.730			
ITMC6	0.768			
ITMC7	0.810			
<b>IT for Market Information (ITMI)</b>				
ITMI2	0.733	0.843	0.888	0.614
ITMI5	0.780			
ITMI6	0.772			
ITMI8	0.836			
ITMI9	0.793			

Table 2: The discriminant validity analysis

Constructs	BP	IC	ITHR	ITMC	ITMI
Bank Performance (BP)	0.837				
Intellectual Capital (IC)	0.661	0.775			
IT for Human Resource (ITHR)	0.446	0.523	0.772		
IT for Marketing Communications (ITMC)	0.523	0.611	0.618	0.774	
IT for Market Information (ITMI)	0.583	0.554	0.595	0.731	0.784

Table 3: R<sup>2</sup> values

Constructs	R <sup>2</sup>	Results
Bank Performance (BP)	0.505	Moderated
Intellectual Capital (IC)	0.420	Moderated

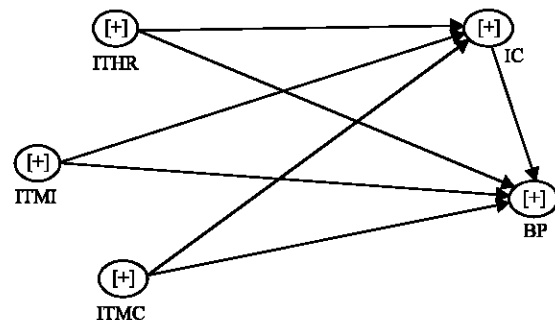


Fig. 1: The research framework

**Direct hypothesis testing:** The findings of the current study in Table 6 proved that ITHR has not effect on the bank performance ( $\beta = 0.010, t = 0.141, p > 0.1$ ). The hypothesis ( $H_1$ ) was rejected at the significance level of 1%. The findings in this study found ITMI has effect significantly on performance of bank ( $\beta = 0.316, t = 3.760, p < 0.001$ ). The second hypothesis ( $H_2$ ) is supported. Moreover, ITMC has not effect on performance of the bank ( $\beta = -0.011, t = 0.136, p > 0.1$ ). So, the hypothesis ( $H_3$ ) is not supported. Table 6 was shown IC has effect strongly on bank performance ( $\beta = 0.488, t = 5.648, p < 0.001$ ). Therefore, the hypothesis ( $H_4$ ) is accepted. Similarly, ITHR has effect on intellectual capital ( $\beta = 0.197, t = 1.960, p < 0.05$ ). Hence, the hypothesis ( $H_5$ ) is supported. It also shows that ITMI has not effect on intellectual capital ( $\beta = 0.170, t = 1.394, p > 0.1$ ). According to this result, the hypothesis ( $H_6$ ) is rejected. Finally, ITMC has effect significantly on intellectual capital ( $\beta = 0.365, t = 3.254, p < 0.001$ ). Therefore, the hypothesis ( $H_7$ ) is supported.

**Testing the mediating effect of Intellectual Capital (IC):**

To test the indirect effect of IC between ITHR, ITMI, ITMC and bank performance, the researcher used bootstrapping method of Smart PLS 3.2.4. The result of bootstrapping in Table 6 showed there are two

hypotheses ( $H_8$  and  $H_{10}$ ) are supported and one hypothesis ( $H_9$ ) is rejected. In other words, these indicate that IC is achieved as mediator factor in the link between ITHR and bank performance ( $\beta = 0.0096, t = 1.826, p < 0.10$ ). Besides, IC has mediated between ITMC and the performance ( $\beta = 0.0178, t = 2.884, p < 0.001$ ). Therefore, the hypotheses ( $H_8$  and  $H_{10}$ ) are accepted. Unfortunately in violation of those results, IC has not mediated between ITMI and bank performance ( $\beta = 0.0083, t = 1.474, p > 0.1$ ). So, the hypothesis ( $H_9$ ) is not supported Table 7.

The main findings of the current study are to show that ITMI has a significant effect on performance of the bank at the significance level of 0.1%. This indicates that the bank performance in UAE can be improved as a result of ITMI implementation. This result has consistent with some previous studies in the outside Arab world that investigating the effect of ITMI on organizational performance such as Song *et al.* (2010), Keh *et al.* (2007). On the other hand, ITHR and ITMC has not effect directly on performance. First, ITHR has not effect on bank performance. The main reason for that is bank has weak coordinating between IT and human resource management which effect on bank performance. Second, ITMC has not effect on performance. The reason of that is weak effective of the communication in the bank and outside the bank which lead to late delivery the information to customers, employees and Stakeholders. More importantly this study reveals more evidence related to the mediating effect of IC on the relationships between ITHR, ITMC and bank performance. This finding has implying IC enhances the relationships between these factors. The current study has many contributions. First, theoretical contribution. This study tested the direct and indirect relationships between the variables (ITMI, ITHR, ITMC) not studied previously in single model. For that, this framework is a unique. Moreover, filling the gap in the literature through examining mediation effect of IC among ITHR, ITMI, ITMC on performance of bank.

Table 4: Effect size values of bank performance and the interaction terms

Constructs	BP	Results
Intellectual Capital (IC)	0.278	Moderate
IT for Human Resource (ITHR)	0.000	None
IT for Marketing Communications (ITMC)	0.000	None
IT for Market Information (ITMI)	0.085	Small

Table 5: Effect size values of intellectual capital and the interaction terms

Constructs	BP	Results
IT for Human Resource (ITHR)	0.038	Small
IT for Marketing Communications (ITMC)	0.095	Small
IT for Market Information (ITMI)	0.022	Small

Table 6: Predictive relevance analysis

Constructs	SSO	SSE	Q5 (=1-SSE/SSO)
Bank Performance (BP)	1,480.000	981,14800	0.337
Intellectual Capital (IC)	2,664.000	2,156.956	0.190

Table 7: Hypothesis testing results

No	Hypothesis path	Path coefficient	SE	t-values	p-values	Decision
H1	ITHR->BP	0.010	0.068	0.141	0.444	Not supported
H2	ITMI->BP	0.316	0.084	3.760***	0.000	Supported
H3	ITMC->BP	-0.011	0.084	0.136	0.446	Not supported
H4	IC->BP	0.488	0.086	5.648***	0.000	Supported
H5	ITHR->IC	0.197	0.100	1.960**	0.025	Supported
H6	ITMI->IC	0.170	0.122	1.394	0.082	Not supported
H7	ITMC->IC	0.365	0.112	3.254***	0.001	Supported
H8	ITHR->IC->BP	0.096	0.053	1.826*	0.068	Supported
H9	ITMI->IC->BP	0.083	0.056	1.474	0.141	Not supported
H10	ITMC->IC->BP	0.178	0.062	2.884***	0.004	Supported

Significant level: \*\*\*p<0.001; \*\*p<0.05; \*p<0.1

## CONCLUSION

Therefore, this study will motivate the researchers to examine other variables such as IT innovation and IT services. Second, practical contributions. The current study shows to top manager the importance of ITML, ITHR, ITMC, IC and how to use them effectively on performance of bank to implement the strategies and improve the systems. Based on the results, the banking sector should focus on management practices that related to technologies, programs and applications before starting to improve the performance.

## LIMITATIONS

However, this study has some limitations. The current study examined in developing countries such as UAE which considered as emerging market. Moreover, UAE has different culture, economy, environment than other countries. This study focused on certain period time that is meaning, this study focus on cross-sectional study. Therefore, the answering cannot be generalized. In addition, human characterized has effect answering of the survey.

## RECOMMENDATIONS

For that, to generalize the result of this study, the future studies should focus on longitudinal approach and testing in other countries. Besides, other future studies can have used other factors such as IT innovation, IT for information acquisition.

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