

THE EFFECT OF KNOWLEDGE MANAGEMENT PRACTICES ON ORGANISATIONAL INNOVATION: THE MEDIATING ROLE OF INTELLECTUAL CAPITAL

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Abstract *The purpose of this study was to examine the effect of knowledge management practices on organisational innovation, with a mediating role of intellectual capital. To achieve its purpose, the study employed explanatory cross-sectional survey research design. The targeted population of the study was all the academic staff of the Ethiopian Civil Service University, with a sample of 150 staff from which primary data was collected. Both descriptive and inferential statistics were used to analyse data through SPSS version 24, Smart PLS 3, and bootstrapping. PLS algorithm was run to evaluate causal effects and bootstrapping was used to see the significance level of effects. Results revealed that knowledge acquisition, knowledge sharing, and knowledge application practices have an influence on both intellectual capital and organisational innovation. While knowledge acquisition has a statistically significant indirect effect on organisational innovation knowledge sharing and knowledge application have a significant direct effect. Intellectual capital also has a significant mediating effect on the relationship between knowledge management practices and organisational innovation.*

Keywords: *Knowledge Management, Knowledge Acquisition, Knowledge Sharing, Knowledge Application, Intellectual Capital, Organisational Innovation*

INTRODUCTION

Organisational innovation has received much attention in recent years since it, at least, increases economic results, signals innovativeness, and improves organisational adaptation (Singh, 2011; Cunha & Verhallen, 1998). In today's knowledge-based economy and complex competitive environment, organisational innovation is considered one of the key advantages of an organisation and, in order to survive in such a dynamic and highly competitive environment, organisations are required to be innovative to ensure their sustainable competitive advantages and to save them (Nouri, Ghorbani & Soltani, 2017).

Organisational innovation has been defined as the adoption of an idea or behaviour that is new to the organisation (Damanpour, 1996; Daft, 1978). The innovation can either be a new idea, a new product, a new service, a new technology, or a new administrative practice (Hage, 1999). Organisational innovation is the production and utilisation of value-added knowledge, in both economic and social

aspects, renewal and improvement of products, services, and the advancement of new techniques of production and the improvement of marketplace, and development of new administrative systems (Crossan & Apaydin, 2010).

However, organisational innovation is a challenging issue for organisations, as it can be affected by different factors like management style and leadership, organisational structure, knowledge management practices, technology, corporate strategy, organisational culture, employees, and innovation process (Singh, 2011). The ability of an organisation to manage and develop knowledge is generally believed to be the key activity that encourages innovation, since it promotes and enhances activities that help create and improve the organisation's overall processes (Singh, 2011). Knowledge management involves strategy-oriented inspiration and enhancement of knowledge workers in developing, promoting, and using their ability in understanding and interpreting the available knowledge and information from different sources of information to achieve organisational goals (Gloet & Terziovski, 2004).

Knowledge management involves knowledge acquisition, knowledge sharing, and knowledge application (Darroch & McNaughton, 2002; Burcu & Ceyda, 2018). However, the relationship between knowledge management practices and organisational innovation is not well researched.

Thus, knowledge management practices can have an influence on organisational innovation, as acquiring knowledge from both inside and/or outside the organisation, sharing, and applying the acquired knowledge can increase and improve the intellectual capital of the organisation, which helps transform current knowledge to new knowledge and generate new knowledge that promotes the innovativeness of an organisation (Yli-Renko, Autio & Sapienza, 2001). Intellectual capital is closely related to human resource management that is needed by the organisation to provide the necessary impetus for future development and growth (Boudreau & Ramstad, 1997). As intellectual capital is referred to as knowledge and knowing capability of a social collectivity, such as an organisation, intellectual community or professional practice (Nahapiet & Ghoshal, 1998), it can

mediate the relationship between knowledge management practices and organisational innovation. The intellectual capital – human, structural, and relational capital – of the organisation, in turn, may enhance the innovative capacity of the organisation (Hussinki, Ritala, Vanhala & Kianto, 2017).

Therefore, the purpose of this article was to examine the effect of knowledge management practices on organisational innovation, with a mediating role of intellectual capital.

CONSTRUCT DEFINITION

Drawing on intellectual capital theory, we propose that intellectual capital mediates the relationship between knowledge management practices and organisational innovation, as it provides a mechanism that allows the various assets to be bonded together in the productive processes of the firm (Mouritsen, Nikolaj & Marr, 2004). Knowledge management practices involve knowledge acquisition, knowledge sharing, and knowledge application.

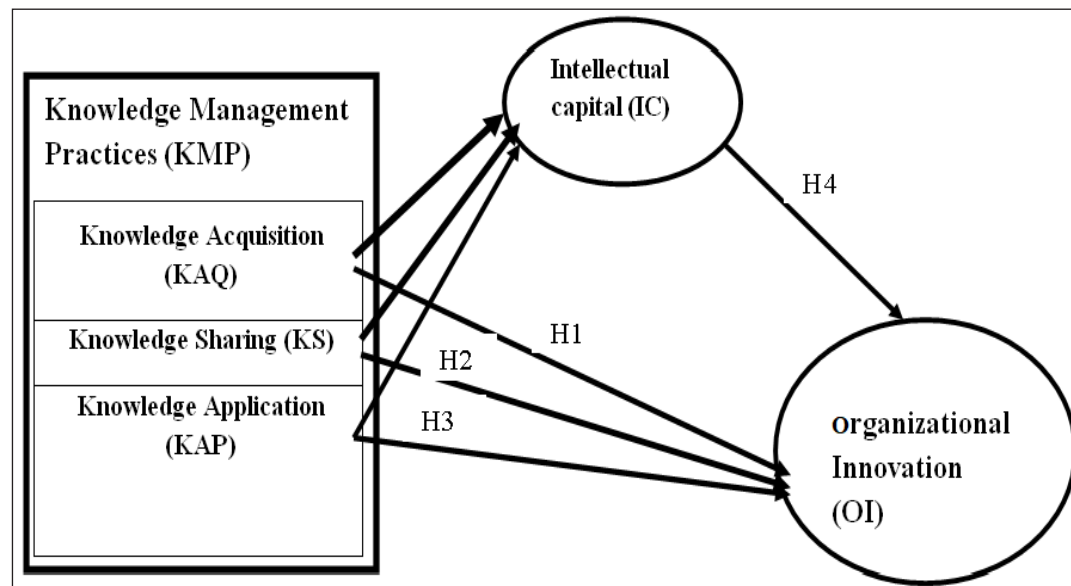


Fig. 1: Hypothesised Relationships

Intellectual Capital: Intellectual capital can broadly be defined as the collection of all information resources a company has at its disposal, which can be used to drive profits, gain new customers, create new products, or otherwise improve the business (Chen & Huang, 2009). It is the sum of employee expertise, organisational processes, and other intangibles that contribute to a company's bottom line (Chen & Huang, 2009). Intellectual capital is viewed as the holistic or meta-level capability of an organisation to co-ordinate, orchestrate, and deploy its knowledge resources towards creating value in pursuit of its future vision (Rastogi, 2003). It mobilises 'things', such as employees, customers,

information technology, managerial work, and knowledge (Mouritsen et al., 2004). On this basis, we hypothesise that intellectual capital would provide a mediating role between knowledge management and organisational innovation.

Knowledge Acquisition: Knowledge acquisition involves using existing knowledge or capturing new knowledge to enhance an organisation's ability to effectively perform its goals, as well as to increase the organisation's learning (McElroy, 2000; Lin & Lee, 2005). It is the process of developing and obtaining insights, skills, and relationships, either from internal or from external sources, to create useful knowledge in the organisation (Rajender & Kumar, 2012).

Organisations can acquire knowledge internally by tapping into the knowledge of its staff, learning from experiences, and implementing continuous process improvements (Nemani, 2010).

Knowledge Sharing: Knowledge sharing indicates the diffusion of knowledge to improve the work of the system and decision-making processes (Eugenie, 2016). It can be characterised by the transfer of knowledge from one person to another. It is the process by which knowledge held by an individual is converted into a form that can be understood, absorbed, and used by other individuals through channels or networks between knowledge providers and seekers (Hong, Suh, & Koo, 2011). Knowledge sharing is the exchange of an employee's knowledge, experience, and skills across the whole organisation.

Knowledge Application: The process of knowledge application is putting and using new and improved knowledge, ideas, techniques, methods, procedures, and so on, to produce new and/or modified services that satisfy the ever-changing needs of customers. Knowledge application is an effective retrieval mechanism that facilitates access to knowledge and it is the actual process of knowledge retrieval and knowledge dissemination (Lee & Kelkar, 2013). This means that knowledge application engages in effective retrieval mechanisms that enable members of the organisations access to relevant knowledge, which promotes their innovative capacities (Kamau, 2016).

Organisational Innovation: Organisational innovation is the initiation of the organisation to develop new or improved products/services and its success in bringing those products/services to the market through implementation of created knowledge (Gumusluoglu & Ilsev, 2009). It is also defined as the organisational capability to renovate ideas and knowledge into new products, services, or processes continuously, for the benefit of its stakeholders. Innovation is the process by which new ideas are captured, filtered, funded, developed, modified, clarified, and eventually, implemented; it is about a process of developing and implementing a new idea or knowledge (Zennouchem, Zhang & Wang, 2014). It can refer to either new-to-the-state-of-the-art or new to the specific organisation (Mol & Birkinshaw, 2009).

KNOWLEDGE ACQUISITION AND ORGANISATIONAL INNOVATION

Knowledge acquisition is a process that involves creating and developing new ideas, knowledge, and skills to increase the currently existing stock of organisational knowledge (Choo, 2003; Holsapple & Jones, 2011). Through acquiring knowledge from both inside and/or outside the organisation,

each organisational member can increase his/her capacity to transform current knowledge to new knowledge and generate new knowledge (Yli-Renko et al., 2001; Chen & Huang, 2009). Then, recently obtained knowledge raises the stock of knowledge availability and reduces doubt and opens new opportunities for utilisation and exploitation of knowledge to promote the creation of innovative results (Gold, Malhotra & Segars, 2001; Huang & Li, 2009; Argote, McEvily & Reagans, 2003). Knowledge acquisition helps the organisation diagnose existing knowledge and to capture new knowledge that promotes organisational innovation, since innovation requires an intensive effort and experience in recognising existing knowledge and capture new ones (Drucker, 1993; Fabrizio, 2009). On the other hand, the term 'organisational innovation' refers to the creation or adoption of an idea or behaviour new to the organisation (Daft, 1978; Damanpour, 1996). The new idea or behaviour created can, therefore, be the result of the acquired ideas, knowledge, and skills. Thus, the following hypothesis is proposed:

Hypothesis 1: Knowledge acquisition has a significant effect on organisational innovation.

KNOWLEDGE SHARING AND ORGANISATIONAL INNOVATION

Knowledge sharing is an organisational belief, behaviour, culture, or network that shows the exchange of knowledge, skills, and experience among staffs and departments of the organisation (Gharakhani & Mousakhani, 2012). It can also be defined as an instrument that facilitates dissemination of knowledge within the organisation (Yang, Lai & Yu, 2005). Knowledge sharing is an organisational activity that desires collective knowledge, skills and expertise, and distribution of knowledge across the organisational parts (Chen & Huang, 2009). It comprises the exchange of employee knowledge, experiences, and skills throughout the organisation and the whole firm to build new mental models (Lin, 2007). The members of an organisation can simply gain knowledge by sharing knowledge among themselves and/or across diverse units, which decreases the amount of time and investment needed to collect information. Thus, through reduction of time and investment in collecting information and building new mental models, organisations can utilize their valuable resources in innovation processes. Additionally, sharing and exchanging knowledge can cause a high level of participation in learning new knowledge, which is essential for the development of innovative ideas (Chen & Huang, 2009). Thus, the knowledge sharing process can be associated with organisational innovation. This resulted in hypothesis 2.

Hypothesis 2: Knowledge sharing has a significant effect on organisational innovation.

KNOWLEDGE APPLICATION AND ORGANISATIONAL INNOVATION

Knowledge application is the process of knowledge management that involves integrating and changing acquired and created knowledge into products, processes, and services of the organisation, to sustain its competitive advantage (Bhatt, 2001; Daghfous, 2003, Zaim, Bayyurt, Tarim, Zaim & Guc, 2013). Knowledge application is denoted as actual utilisation of the knowledge in developing new and improved services, management systems, techniques, and procedures based on changes in customers' needs and preferences (Asoh, Belardo & Crnkovic, 2007; McInerney & Koenig, 2011). On the other hand, organisational innovation is defined as the organisational capability to renovate ideas and knowledge into new products, services, or processes continuously, for the benefit of its stakeholders (Zennouchem, Zhang & Wang, 2014). Thus, knowledge application can have an effect on organisational innovation. This resulted in the following hypothesis:

Hypothesis 3: Knowledge application has a significant effect on organisational innovation.

KNOWLEDGE ACQUISITION, KNOWLEDGE SHARING, KNOWLEDGE APPLICATION, INTELLECTUAL CAPITAL, AND ORGANISATIONAL INNOVATION

Broadly, knowledge in an organisation can be categorised into individual and organisational knowledge. Individual knowledge resides in an individual's mind, and organisational knowledge is formed through interaction between technologies, techniques, and people (Rowley, 2003). Organisational knowledge is also classified as explicit and tacit (Nonaka, Byosiere, Borucki & Konno, 1994). Explicit knowledge is precise and codifiable, while tacit knowledge is more personal (Sallis & Jones, 2013). To get maximum benefit from knowledge resources, there is a need to manage them effectively (Davenport & Prusak, 1998).

Knowledge management is generally used as a process of transforming information and intellectual assets of the organisation into value-adding activities, by making knowledge accessible for taking action when users need it (Gold et al., 2001). The real focus of knowledge management is providing a framework in which the organisation views business processes and knowledge processes that include acquisition, sharing, and application of knowledge, towards organisational development and existence (Dhamdhare, 2015). It is a management activity that emphasises knowledge acquisition, knowledge sharing, and knowledge application, and provides easy access to knowledge, know-

how, experience, and expertise (Darroch & McNaughton, 2002; Burcu & Ceyda, 2018). Thus, knowledge management can accelerate other important processes in the organisation, which is the innovation process (Darroch & McNaughton, 2002). On the basis of this, the following hypothesis is proposed:

Hypothesis 4: Intellectual capital mediates the relationship between knowledge management practices (knowledge acquisition, knowledge sharing, and knowledge application) and organisational innovation.

METHODS

Sample and Procedure

The sample comprised 125 lecturers and professors (115 males and 10 females) of a large state university in Ethiopia. The complete list of the academic staff, consisting of 240 lecturers and professors, was taken as the sampling frame and the sample was selected using systematic random sampling technique. A five-scale Likert type questionnaire, ranging from 1 = strongly disagree to 5 = strongly agree, was used as the data collection instrument. All the respondents participated in the research with consent. The questionnaire was distributed, in person, through a hard copy and collected within ten days at the respondents' convenience.

Measures

The instruments were adapted and modified from the works of Ngoc-Tan & Gregar (2018); Debowski (2006); Lawson (2003); Marsick & Watkins (2003); Cabrilo & Dahms (2018); and Li & Chang (2010). Some modifications were made to contextualise items in the instrument. All the constructs were measured in a Likert-type close-ended questions. Respondents completed an extensive questionnaire that included questions on demographic characteristics, knowledge acquisition, knowledge sharing, knowledge application, organisational innovation, and intellectual capital.

Knowledge Acquisition: Knowledge acquisition was measured using scales developed by Debowski (2006), Lawson (2003), and Marsick and Watkins (2003). Respondents rated the practice of knowledge acquisition in their organisation using a scale of strongly disagree (1) to strongly agree (5). It was a ten-item questionnaire, with an internal reliability of 0.876. The defining items included mechanisms for acquiring knowledge, policy for knowledge acquisition, environment for conversion of tacit knowledge to explicit knowledge, open communication system, acquisition culture, and rewards for knowledge creation.

Knowledge Sharing: Knowledge sharing was measured using scales developed by Debowksi (2006), Lawson (2003), and Marsick & Watkins (2003). Respondents rated the practice of knowledge acquisition in their organisation using a scale of strongly disagree (1) to strongly agree (5). It was a ten-item questionnaire, with an internal reliability of 0.897. The defining items included use of technologies, accessibility of knowledge, availability of publications, regularity of meetings, mentoring and coaching practices, publicising internal innovations, knowledge sharing policy, and reporting practices.

Knowledge Application: Knowledge application was measured using scales developed by Debowksi (2006), Lawson (2003), and Marsick & Watkins (2003). Respondents rated the practice of knowledge acquisition in their organisation using a scale of strongly disagree (1) to strongly agree (5). It was a ten-item questionnaire, with an internal reliability of 0.745. The defining items included use of employees’ knowledge, skills, and abilities; use of existing knowledge for organisational purposes; application of knowledge to new situations; mechanisms for filtering sources and types of knowledge; applying lessons learnt; and use of captured knowledge for interventions.

Organisational Innovation: Organisational innovation was measured using scales developed by Ngoc-Tan and Gregar (2018). Respondents rated the practice of organisational innovation in their organisation using a scale of strongly disagree (1) to strongly agree (5). It was a 16-item questionnaire incorporating technical and administrative innovation dimensions, with an internal reliability of 0.886. The defining items included use of new technologies

in performing activities, use of the seniors’ experiences to improve processes, organisation of information and communication technology infrastructure, response to changes in customers’ needs, creativity enhancement culture, awareness of the benefits of innovation, openness to innovation, and flexibility of organisational structure.

Intellectual Capital: Intellectual capital was measured using scales developed by Cabrilo and Dahms (2018) and Li and Chang (2010). Respondents rated the practice of intellectual capital in their organisation using a scale of strongly disagree (1) to strongly agree (5). It was a 14-item questionnaire incorporating human capital, relational capital, and structural capital dimensions, with an internal reliability of 0.856. The defining items included employees’ skills, motivation, and experiences; understanding of different units and functions; internal cooperation, collaboration with external stakeholders; efficiency and relevance of the information system; facilities to support internal cooperation; and accessibility to existing documents.

Demographic Data

The demographic data of the participants is presented in Table 1. Age, sex, educational level, and work experience were identified. The age distribution ranges from 20 to above 40 years. The majority (74.4%) were between 31 and 40 years. The majority, 115 (i.e. 92%) are male and 120 (96%) have a Master’s degree and above. As the level of education of members becomes higher, it is likely that members appreciate and share knowledge. Almost all, 123 (97.4%), have at least five years of work experience.

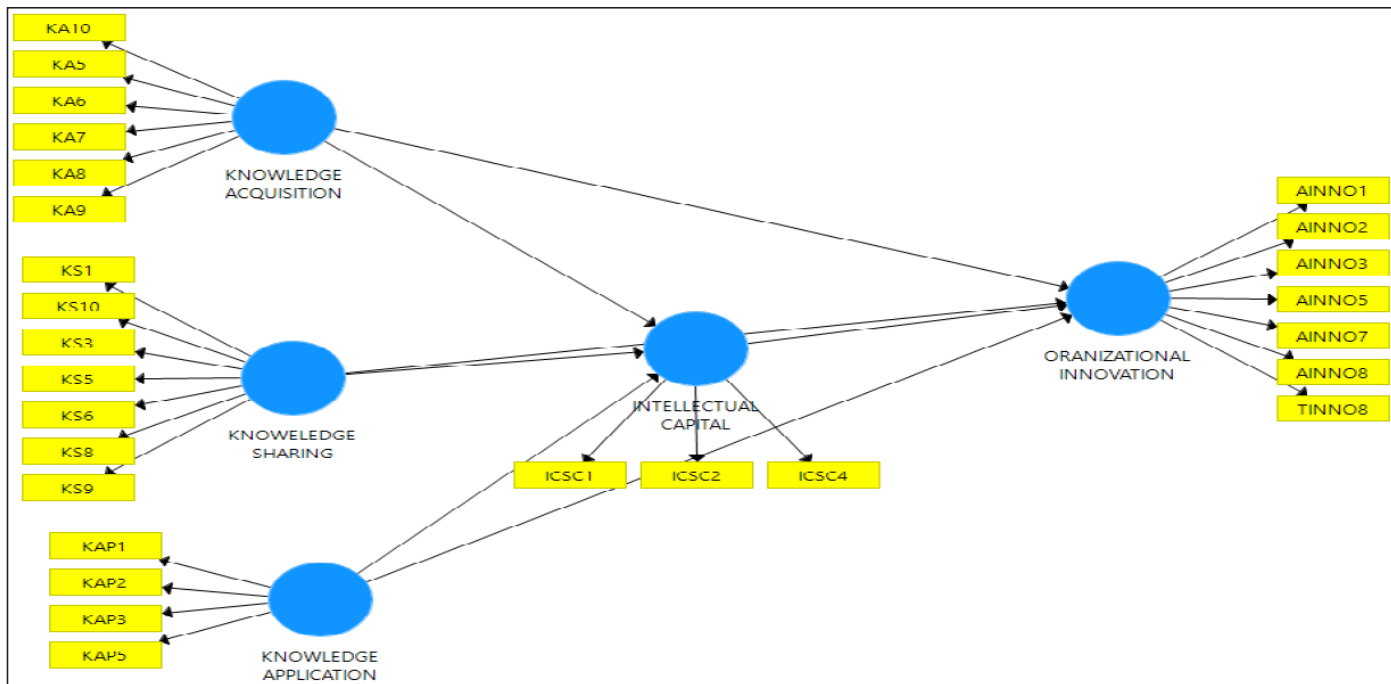
Table 1: Demographic Data

Item	Frequency	Percent	Cum. Percent	Item	Frequency	Percent	Cum. Percent
Age (in year)				Education			
Between 20 & 30	16	12.8	12.8	Bachelor’s Degree	5	4.0	4.0
Between 31 & 40	93	74.4	87.2	Master’s Degree	98	78.4	82.4
Above 40	<u>16</u>	<u>12.8</u>	100	Doctoral Degree	<u>22</u>	<u>17.6</u>	100
Total	125	100		Total	100	100	
Sex				Work Experience			
Male	115	92.0	92.0	2 – 4 years	2	1.6	1.6
Female	<u>10</u>	<u>8.0</u>	100	5 – 7 years	48	38.4	40
Total	125	100		8 – 11 years	59	47.2	87.2
				12 and above	<u>16</u>	<u>12.8</u>	100
				Total	100	100	

RESULTS

The research had passed through two steps to assess the PLS-SEM model, starting from the measuring model and

proceeding to the structural model (Hair, Sarstedt, Hopkins & Kuppelwieser, 2014). The working model is presented in Fig. 2.



Source: Smart PLS result (2020)

Fig. 2: Working Model of the Study

Internal consistency, convergent validity, and discriminant validity were used to evaluate the measurement model. To evaluate the internal consistency (reliability) of the model, composite reliability (CR), which is recommended for PLS-SEM over Cronbach’s alpha (CA) (Hair et al., 2014) was used. The composite reliability of all variables was greater than the threshold (0.7), where the values above 0.7 are acceptable for exploratory researches (Hair et al., 2014). Thus, as displayed in Table 2, there is internal consistency in the model.

Table 2: Reliability and Validity Tests

	Cronbach’s Alpha	Composite Reliability	AVE
Intellectual Capital	0.856	0.911	0.78
Knowledge Sharing	0.897	0.919	0.62
Knowledge Acquisition	0.876	0.906	0.63

Knowledge Application	0.745	0.839	0.60
Organisational Innovation	0.886	0.912	0.60

Source: Smart PLS result (2020)

Convergent validity obtained by the observations of the Average Variance Extracted (AVE) was evaluated by using the Fornell and Larcker (1981) criteria (AVE > 0.50), which indicates the portion of the data explained by each one of the constructs or latent variables respective to their groups of variables. As a result, the AVE of all variables were greater than the expected threshold (0.5 or 50%), and all variables are positively correlated with their respective constructs. The AVE for knowledge acquisition, knowledge sharing, knowledge application, intellectual capital, and organisational innovation were 0.618, 0.62, 0.567, 0.775, and 0.60 factorial loads (correlations), respectively, as presented in Table 3. Therefore, the model provided satisfactory results, as suggested by Hair et al. (2014).

Table 3: Discriminant Validity

	Intellectual Capital	Knowledge Sharing	Knowledge Acquisition	Knowledge Application
Intellectual Capital	0.880			
Knowledge Sharing	0.699	0.787		
Knowledge Acquisition	0.824	0.736	0.786	
Knowledge Application	0.591	0.642	0.659	0.753
Organisational Innovation	0.611	0.637	0.541	0.276

Source: Smart PLS result (2020)

To check the interdependency of the constructs, discriminant validity test was carried out and the values for all the constructs were below 0.9, indicating that the constructs are not interdependent on one another (Fornell & Larcker, 1981), i.e. the independent variables were not dependent on one another, as presented in Table 3.

Evaluation of Collinearity Statistics

Since Smart PLS requires collinearity assessment among predictor constructs, before evaluating the

Pearson’s coefficient (R-squared) and path coefficients of the model (Sarstedt, Ringle & Hair, 2014), collinearity test was conducted. Accordingly, in the model, the variance inflation factor (VIF) is greater than one and less than the maximum threshold (five) for all indicators, ranging from 2.033-3.911, as displayed in Table 4. Therefore, the model does not have multi-collinearity problem (Hair et al., 2014).

Table 4: Collinearity Statistics (Inner Model VIF Values)

	Intellectual Capital	Knowledge Sharing	Knowledge Acquisition	Knowledge Application	Organisational Innovation
Intellectual Capital					2.650
Knowledge Sharing	3.114				3.911
Knowledge Acquisition	3.314				3.315
Knowledge Application	2.033				2.270
Organisational Innovation					

Source: Smart PLS result (2020)

Evaluation of Path Coefficients

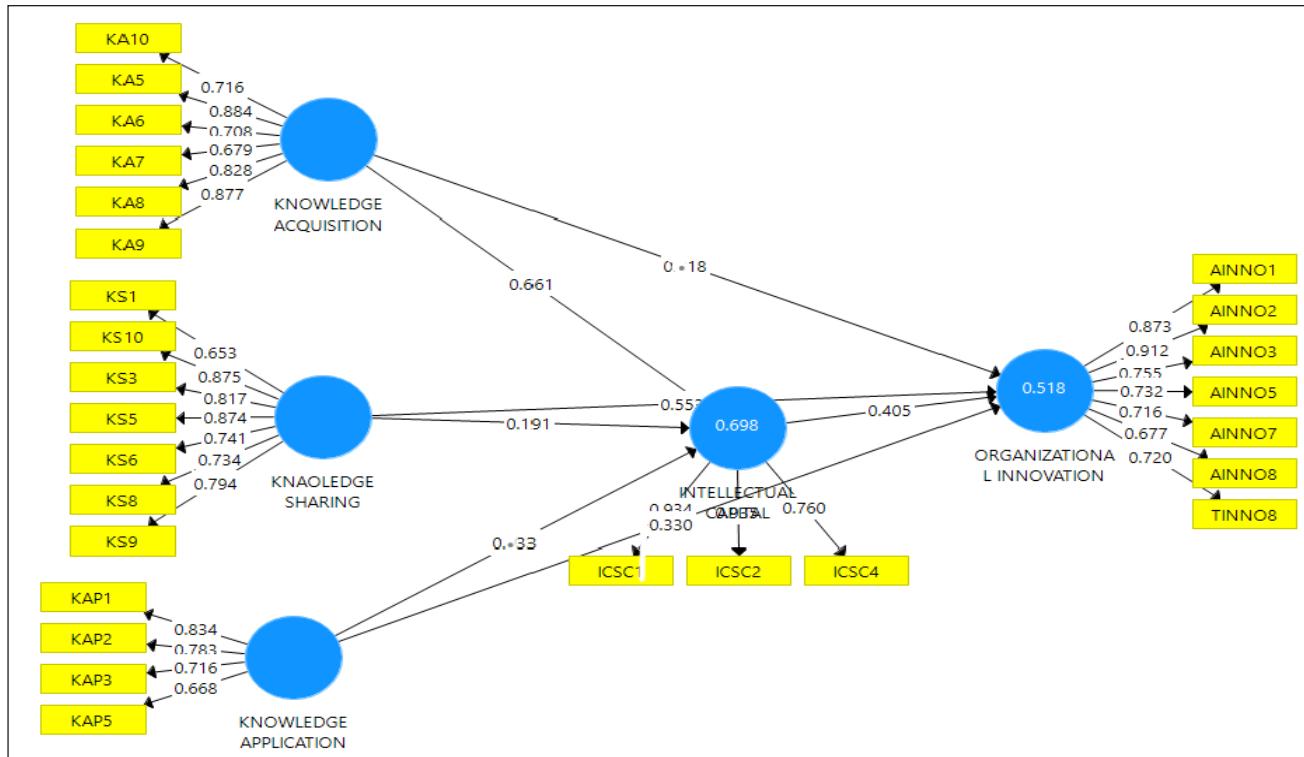
After running the PLS algorithm, path coefficients evaluation was made to measure the extent to which the independent variables affect the dependent variable. The result is presented in Fig. 3. It is revealed that Knowledge Acquisition (KA) has 0.66 path coefficients with intellectual capital and 0.18 path coefficients with organisational innovation (OI). This indicates that when knowledge acquisition increases by one standard deviation from the average values, intellectual capital will increase by 0.66 and organisational innovation by 0.18, suggesting that knowledge acquisition has a strong indirect and less direct relationship with organisational innovation.

Knowledge Sharing (KSH) has a path coefficient of 0.19 with intellectual capital and 0.55 with organisational innovation. This indicates that a onestandard deviation increase in knowledge sharing will result in a 0.19 increase in intellectual capital and a 0.55 increase in organisational innovation, suggesting that knowledge sharing has a strong direct and less indirect relationship with organisational innovation.

Knowledge Application (KAP) has a path coefficient of 0.33 with intellectual capital and the same (0.33) with organisational innovation, indicating that a one standard deviation increase in knowledge application results in a 0.33 increase in both intellectual capital and organisational innovation. This suggests that knowledge application has a strong direct and indirect relationship with organisational innovation.

Finally, intellectual capital (the mediating variable) has a path coefficient of 0.41 with organisational innovation, suggesting a strong effect on organisational innovation.

Therefore, the result of the model indicates that knowledge acquisition (KA) has a strong (0.66) indirect and less (0.18) direct relationship with organisational innovation; knowledge sharing (KS) has a strong (0.55) direct and less (0.19) indirect relationship with organisational innovation; and knowledge application (KAP) has a strong (0.33) direct and indirect relationship with organisational innovation. Finally, intellectual capital has a strong mediating effect on the relationship between knowledge management (KA, KS, and KAP) practices and organisational innovation as evidenced from the structural model in Fig. 3.



Source: Smart PLS (2020)

Fig. 3: Structural Model

Evaluation of P-Values

Based on the developed structural model, after running the PLS algorithm and examining the existing relationships among variables, Bootstrapping analysis was run, with a confidence level of 95% (P<0.05), to test the statistical significance of PLS-SEM results (Hair et al., 2014). Table 5 presents the PLS results.

With Hypothesis 1, knowledge acquisition and organisational innovation do not have a significant relationship (p = 0.608). However, knowledge acquisition has a significant

relationship with intellectual capital (p = 0.000). With regard to Hypothesis 2, knowledge sharing has a significant effect on organisational innovation (p = 0.000). However, knowledge sharing and intellectual capital do not have a significant relationship (p = 0.376). With Hypothesis 3, knowledge application has a significant direct effect on organisational innovation (p = 0.001). Knowledge application also has an indirect significant influence on organisational innovation (p = 0.001). Finally, with Hypothesis 4, intellectual capital has a significant mediating effect on the relationship between knowledge management practices and organisational innovation (p = 0.000).

Table 5: P-Value Tests

Causal Relations	Original Sample (O)	Sample Mean (M)	SD	T Statistics (O/STDEV)	P-Values
Knowledge Acquisition → Intellectual Capital	0.732	0.735	0.056	13.000	0.000
Knowledge Acquisition → Organisational Innovation	0.052	0.041	0.102	0.515	0.608
Knowledge Sharing → Intellectual Capital	0.071	0.069	0.080	0.888	0.376
Knowledge Sharing → Organisational Innovation	0.516	0.531	0.071	7.285	0.000
Knowledge Application → Intellectual Capital	0.318	0.311	0.090	3.518	0.001
Knowledge Application → Organisational Innovation	0.316	0.310	0.090	3.518	0.001
Intellectual Capital → Organisational Innovation	0.423	0.427	0.094	4.490	0.000

Source: Smart PLS result (2020)

Coefficient Determination (R-Squared)

The R-squared result for a mediating variable (intellectual capital) was 0.69, implying that 69% of variance in intellectual capital was explained by the independent variables (knowledge acquisition, knowledge sharing, and knowledge application). The R-squared value for the endogenous variable (organisational innovation) was 0.518, implying that 52% of variance in organisational innovation was explained by the independent variables (knowledge acquisition, knowledge sharing, and knowledge application) and the mediating variable (intellectual capital) (Table 6).

Table 6: R-Squared Result

	R-Square	R-Square Adjusted
Intellectual Capital	0.698	0.690
Organisational Innovation	0.518	0.502

Source: PLS path model result (2020)

DISCUSSION

This study examines the relationship between knowledge management practices and organisational innovation, focusing on knowledge acquisition, knowledge sharing, and knowledge application practices. It also examines the mediating role of intellectual capital on the relationship between knowledge management practices and organisational innovation. Results revealed that knowledge acquisition, knowledge sharing, and knowledge application practices have an influence on both intellectual capital and organisational innovation. Thus, knowledge acquisition, knowledge sharing, and knowledge application practices have both a direct and an indirect effect on organisational innovation; and intellectual capital plays a mediating role in the relationship between knowledge management practices and organisational innovation. Overall, the findings support the idea that knowledge acquisition, knowledge sharing, and knowledge application have a relationship with organisational innovation, and this relationship is mediated by intellectual capital.

Hypothesis 1 claimed, 'Knowledge acquisition has a significant effect on organisational innovation'. The findings revealed that knowledge acquisition does not have a significant direct relationship with organisational innovation ($p = 0.608$). This is an unexpected result, contradicting the findings of some researchers (e.g. Valdez-Juárez, García-Pérez de Lema & Maldonado-Guzmán, 2016; Zhang, Shu, Jiang & Malter, 2010; Kör & Maden, 2013; and Mafabi, Munene & Ntayi, 2012), which revealed a significant and positive relationship between knowledge acquisition and innovation. However, this result is in agreement with the

findings of some other researchers (e.g. Capon, Farley, Lehmann & Hulbert, 1992; and Githii, 2014). The less direct relationship between knowledge acquisition and organisational innovation might explain the need for the conversion of the acquired knowledge into intellectual capital to influence organisational innovation. The acquired knowledge by itself does not bring organisational innovation, unless it becomes an asset (intellectual capital). This explains the significant relationship between knowledge acquisition and intellectual capital evidenced in this study.

Hypothesis 2 claimed, 'Knowledge sharing has a significant effect on organisational innovation'. Knowledge sharing requires collective knowledge, skills and expertise, and dissemination of knowledge across the organisational units (Chen & Huang, 2009; Lin & Lee, 2005). It involves the exchange of employee knowledge, experiences, and skills throughout the organisation (Lin, 2007). The relationship between knowledge sharing and organisational innovation is significant ($p = 0.000$). This implies that knowledge sharing practice has a statistically significant direct effect on organisational innovation. The relationship between knowledge sharing and organisational innovation matches the existing literature (e.g. Lin & Lee, 2005; Gold et al., 2001; Chen & Huang, 2009). An organisational belief, behaviour, culture, or network that shows the exchange of knowledge, skills, and experience among staffs and departments of the organisation (Gharakhani & Mousakhani, 2012) results in organisational innovation.

Hypothesis 3, which claimed, 'Knowledge application has a significant effect on organisational innovation', the model displayed that knowledge application has a statistically significant direct effect on organisational innovation ($p = 0.000$). Knowledge application engages in effective retrieval mechanisms that enable members of the organisations access to relevant knowledge, which promotes their innovative capacities (Kamau, 2016). The result obtained from the model indicates that knowledge application practices can directly influence organisational innovation. This is in agreement with the existing literature (e.g. Asoh et al., 2007; Zaim, 2010; McInerney & Koenig, 2011), which states that knowledge application process is denoted as actual utilisation of the knowledge in developing new and improved services, management systems, techniques, and procedures.

Finally, concerning Hypothesis 4, which claimed, 'Intellectual capital has a mediating role in the relationship between knowledge management practices and organisational innovation', the model revealed that there is a significant mediating effect on the relationship between knowledge management practices (knowledge acquisition, knowledge sharing, and knowledge application) and organisational innovation ($p = 0.000$). Knowledge management, in general, is an input for both intellectual capital and organizational innovation. It is a collective phrase

for a group of processes and practices used by organisations to increase their value by improving the effectiveness of the generation and application of their intellectual capital (Marr et al., 2003). The finding is supported by literature (Ulrich, 1998), which states that intellectual capital equals the knowledge, skills, and attributes of each individual within an organisation multiplied by the person's willingness to work hard. An analysis of the mediating role of the separate knowledge management processes (knowledge acquisition, knowledge sharing, and knowledge application) revealed that intellectual capital significantly mediates knowledge acquisition, knowledge sharing, and knowledge application, and organisational innovation.

CONCLUSIONS

Knowledge-based theory stresses that knowledge is an asset, and its elements, knowledge acquisition, knowledge sharing, and knowledge application, are the main resources that can be used in strategic development of products, processes, and markets within knowledge-intensive and innovative organisations. Knowledge acquisition has a statistically significant indirect effect on organisational innovation, while knowledge sharing and knowledge application have a statistically significant direct effect on organisational innovation. Moreover, intellectual capital significantly mediates the relationship between knowledge management (knowledge acquisition, knowledge sharing, and knowledge application) and organisational innovation.

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