

#### **Doctoral Thesis Summary**

# The relationship between knowledge management and organisational performance, mediating role of innovation: the case of public universities in Vietnam

Vztah znalostního managementu a výkonnosti organizací ve spojitosti s rolí inovací: zaměření na veřejné vysoké školy ve Vietnamu

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### **ABSTRACT**

Over the past decades, knowledge management (KM), a new discipline of study, has drawn a growing number of researchers worldwide who produced numerous publications and conducted various researches in this field. Together with human resource management, KM is considered a source of competitive advantages for any organisation wishing to achieve its institutional goals and perform better. Meanwhile, higher education institutions, deemed a knowledge enterprise and the main instrument of society for the constant pursuit of knowledge, surprisingly has not made KM a high priority in their agenda. They are now at the forefront of changes. The challenges that they face urge them to incorporate knowledge management practices in order to help them enhance their functions and be more competitive and transparent. There is growing recognition that knowledge management can enable higher education to evolve more smoothly to a highly interactive and dynamic educational environment. In Vietnam, while private universities are mostly newly founded and active in the new time of country's integration path, public institutions seem to be marginalized and slow in response to the change of the market. These institutions, more than ever, are in need of an integrative discipline for studying, researching and learning about the knowledge assets - human intellectual capital and technology. Research on knowledge management that helps promote performance efficiency and innovation in public universities of Vietnam, however, is still an untapped area. The study, therefore, investigated the current status of KM application in these institutions; explored the relationship between KM and organisational performance (OP) and between KM and innovation (INNO); lastly examined if INNO mediates the relationship between KM and OP in academic settings. Extensive literature reviews was conducted to build up conceptual framework, define variables. Accordingly, measurement scales and model were constructed. A structured questionnaire was composed serving as instrument for primary data collection and sent to 30 public universities chosen in terms of size, age and importance equally located in 3 regions of Vietnam to collect some 600 samples. SPSS 22.0 and AMOS 23.0 softwares facilitated the data analysis of study. The quantitative research, then, followed by a qualitative one to reinforce and validate the results. Theoretical significance of the study is to fill the gap in literature on KM in academic context of Vietnam especially relationship among 3 variables of KM, OP and INNO. The study provided insight into KM for practitioners, knowledge chief officers, campus chiefs in their policy making. A KM toolkit for self-evaluation was recommended for them if they wish to embark on KM application in their institutions. Though the study was conducted in Vietnamese context, higher education institutions in other countries may find it applicable.

### **ABSTRAKT**

Za posledních deset let se znalostní management (ZM) vyvinul v novou disciplínu, která dosahuje na stále více výzkumných pracovníků na celém světě, s celou řadou publikací a výzkumných projektů v této oblasti. Spolu s řízením lidských zdrojů, je ZM považován za zdroj konkurenčních výhod pro všechny organizace, které chtějí dosáhnout svých cílů, společně se zvýšením výkonnosti. Vysoké školy napodiv nevěnují ZM vysokou prioritu, i když jsou považovány za znalostní podniky, které ve společnosti představují nástroj neustálého prohlubování znalostí. V současnosti jsou vystaveny výzvám v kontextu zavádění praktik ZM, v zájmu posílení konkurenceschopnosti a transparentnosti. Stále víc se uznává, že praktiky ZM mohou umožnit vysokým školám, aby se vyvíjeli směrem k interaktivnímu a dynamickému vzdělávacímu prostředí. Ve Vietnamu jsou nově etablované soukromé univerzity pružnější ve smyslu integrace, zatím co veřejné školství zaostává v kontextu reakcí na změny trhů. Veřejné instituce tak v současnosti mají potřebu integrované disciplíny pro studium, výzkum a znalostních hodnotách, zejména v oblasti lidského učení (intelektuálního) a technologií. Výzkum oblasti ZM napomáhá k zvyšování povědomí o výkonnosti a inovativnosti, v rámci veřejných vysokých škol ve Vietnamu, i když se jedná o stále nevyužitou oblast. Práce se proto zaměřila na současný stav využití ZM, ve veřejných institucích a současně zkoumala vztah mezi ZM a výkonnosti organizací, ZM a inovacemi. V neposlední řadě se orientovala na objasnění, zda jsou inovace zprostředkovatelem vztahu mezi ZM a výkonnosti organizací, v akademickém prostředí. Literární rešerše se zaměřila na tvorbu koncepčního rámce, společně s definicí proměnných. Strukturovaný dotazník byl využit jako nástroj pro shromažďování primárních dat a byl zaslán třiceti veřejným vysokým školám, vybraným z hlediska, velikosti, věku a významu ve třech regionech Vietnamu, na dosažení vzorku 600 respondentů. SPSS 22.0 a AMOST 23.0 byly vybrány pro analýzu dat práce. Kvantitativní výzkum byl následně doplněn o kvalitativní výzkum, pro posílení a ověření výsledků. Teoretický význam práce spočívá ve vyplnění mezery výzkumu ZM, v akademickém prostředí ve Vietnamu, zejména ve vztahu mezi třemi proměnnými ZM, výkonnosti organizací a inovacemi. Práce poskytla pohled na ZM pro praktiky, vedoucí pracovníky oblasti znalostí a pro akademickou sféru ve spojitosti s tvorbou politik. Součástí rovněž bylo navržení nástroje ZM pro sebehodnocení s aplikací do zmíněných institucí. Ačkoliv se studie zaměřuje na prostředí Vietnamu, vysoké školy v jiných zemích mohou rovněž aplikovat výsledky práce.

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# LIST OF ABBREVIATIONS

**ADINNO** = Administrative Innovation

**BSC** = Balanced Scorecard

**HEI** = Higher Education Institution

**INNO** = Innovation

IT = Information Technology

**KA** = Knowledge Acquisition

**KBV** = Knowledge-Based View

**KD** = Knowledge Dissemination

**KM** = Knowledge Management

**KU** = Knowledge Utilization

**MOET** = Ministry of Education and Training

**OP** = Organizational Performance

**OPF** = Staff's Satisfaction

**OPFP** = Financial Performance

**OPIA** = International Affairs

**OPIC** = Industry and Community Engagement

**OPRP** = Research Publication

**OPS** = Student's Satisfaction

**RBV** = Resource-Based View

SC = Social Capital

**SCT** = Social Capital Theory

**TECHINNO** = Technical Innovation

# 1. INRODUCTION

# 1.1 Research background

In Vietnam, the concept of "knowledge-based economy" is frequently mentioned in the party and state documents and resolutions, in socio-economic development strategy of various ministries, sectors and localities. This is to show that leadership of Vietnam increasingly recognized the importance of an economy based on knowledge and they are exerting their efforts to boost the percentage of contribution of knowledge-based products and services to GDP of the country. While we witness the improvement in public awareness of knowledge-based economy, the concept of knowledge management is still not very well-known in Vietnam in both theory and practice.

Over the past several decades, we have seen a massive increase in the number of knowledge management models, approaches and tools researched and developed by western and Asian scholars. The role of knowledge management in an organization has been recognized. In Vietnam, awareness of knowledge management is still limited and incomprehensive. Besides, higher education institutions, especially in least developed countries, over the past decades, worked in a relatively stable environment, and seemed isolated from much competitive pressure. According to Petrides and Guiney (2002), the internet era and the rapid technological changes have opened up new horizons and new challenges in the educational world. The situation of fierce competitions amongst universities made them redefine knowledge as their strategic asset and source of growth for both private and public institutions.

Petrides & Nodine (2003) said higher education institutions have been deemed a knowledge enterprise and the main instruments of society for the constant pursuit of knowledge. Knowledge management in educational settings should provide a set of designs for linking people, processes, and technologies and discuss how organizations can promote policies and practices that help people share and manage knowledge. However, until recently, surprisingly, "knowledge management" has not been a high priority for higher education. They are now at the forefront of changes. The challenges that they face urge them to incorporate knowledge management practices in order to help them enhance their functions and be more competitive and transparent (Alexandropoulou, Angelis, & Mavri, 2008). Robson et al., (2003) said there is growing recognition that knowledge management can enable higher education to evolve more smoothly to a highly interactive and dynamic educational environment.

Vietnam, a country has just opened its door to the world, is no exception. While private universities are mostly newly founded and active in the new time of country's integration path, public institutions are deemed to be marginalized and slow in response to the change of the market. Public universities in Vietnam are

subsidized financially by the government and centrally controlled by the Ministry of Education and Training. These institutions, more than ever, are in need of an integrative discipline for studying, researching and learning about the knowledge assets – human intellectual capital and technology. Research on knowledge management that helps promote performance efficiency through innovation in public universities of Vietnam, however, is still an untapped area.

## 1.2 Research gap

There is a mainstay of researches in the business world showcasing that knowledge management (KM) and innovation (INNO) are antecedents and foundation for organizational performance (OP) (Lee & Choi, 2003; Tanriverdi, 2005; Bogner & Bansal, 2007). Nonaka (2007) considered knowledge as a main requisite for innovation and competitiveness, while Darroch (2005) stressed that KM stimulates organizational creativity and innovation in products and services. In fact, knowledge contributes to producing creative thoughts and generating innovation (Borghini, 2005) and innovation process highly depends on knowledge (Gloet & Terziovski, 2004). That is why innovation is seen as the area of greatest payoff from KM (Majchrzak et al., 2004).

Rhodes et al. (2008) further the viewpoint by argueing that knowledge transfer strategy leads to enhanced innovative capabilities, including product innovation, and process innovation. Borghini (2005) confirmed the close link between the organisation's knowledge and its capacity to innovate and create.

Empirical research in business world has also provided ample evidence as it often reports that firm innovation strategies and activities positively affect performance (Bowen, Rostami, & Steel, 2010; Calantone et al., 2010). Williams (1999) support the view by stating that in its ideal form, innovation has the capacity to improve performance, solve problems, add value and create competitive advantage for organisations. In his research, James A. Odumeru (2013), also confirms the link between innovation and organisational performance when saying that innovation is a key determinant of organisational performance.

Prior researches in extant literature also stated that KM can improve corporate performance and competitiveness indirectly through higher organisational ability to innovate; also that KM is positively and statistically related to different dimensions of OP (Choi and Lee (2003); Gloet and Terziovski (2004); McKeen, Zack, & Singh (2006); Bierly and Daly (2007); Choi et al. (2008))

Overall, the positive association among KM, INNO and OP are replete in extant literature. Yet, few empirical studies have concentrated on determining this association in academic setting. This leaves a big gap in literature.

In Vietnam, Research on knowledge management in Vietnam is just at its fledging period when comparing with number of research in the same field in the world. At the start of this study, there are just few researches in KM research area found.

Phan Thi Thuc Anh (2007) conducted her study on knowledge acquisition from foreign parents in international joint ventures based in Vietnam. In 2011, Nguyen Ngoc Thang implemented a research to introduce knowledge-creating model stereotyping Japanese model of SECI and BA combination. In 2012, the author chose Alphanam – a Vietnamese medical enterprise to further research on the theme. Nguyen Thi Hai Hang (2011) carried out a research on knowledge management in small and medium sized enterprises in developing countries and Vietnam is the case of study. Nguyen Van Thang and Hong J.F.L (2013) studied mechanisms in which knowledge is shared in FDI enterprises, the role of those mechanisms in knowledge acquisition of the enterprise as well as the role of the acquired knowledge towards the firm performance. Nguyen Ngoc Thang et al. (2013) also carried out case studies at 2 companies in Vietnam including Sannam and Trung Nguyen Coffee concerning the KM enablers.

In 2013, Nguyen Quoc Duy & Vu Hong Tuan conducted a study found the relation between strategic knowledge management and firm performance in Vietnam. In the same year, Doan Quang Minh also conducted an empirical research on acquiring and sharing knowledge in public sector of Vietnam.

Meanwhile, research on KM, INNO and their impacts on performance in universities of Vietnam is scarcely found. The only one study found by the start of this research conducted by Pham Anh Tuan, Nguyen Ngoc Thang & Nguyen Dang Minh (2015) on knowledge management practices application in university context of Vietnam sampling 123 faculties of 10 different universities in Hanoi. The research also suggested that further research on this theme should be done and focus on knowledge management in a specific university.

In short, extant literature in business world is replete that KM, INNO and OP are possively associated while few empirical studies are found in literature proving this significant association in academic setting. Further, in Vietnam, the research context of this study, research on KM in Vietnam is just at its fledging period when comparing with number of research in the same field in the world. Research on KM, INNO and their impacts on performance in universities of Vietnam is barely found. This leaves a big research gap that need to be filled out.

# 1.3 Research problem

Facing a volatile and increasingly competitive context, higher education institutions (HEIs) worldwide begin to realize that they must step out of a safe and stable environment that have sheltered them for years. They are now put at the forefront of change to achieve performance excellence. Some few resources emerging in extant literature that can help them to that end are knowledge management (KM) and innovation. Those factors are believed to make organizations all over the globe redefine their business development strategy and bring them with competitive advantages so as to promote their organizational performance (Davenport and Prusak, 1998; Claycomb et al, 2002; Lee & Choi,

2003; Hasan & Al-Hawari, 2003; Tanriverdi, 2005; Marqués & Simón, 2006; Bogner & Bansal, 2007; Zack et al, 2009). However, few empirical studies have been conducted to clarify the multiple conjectures about the relationship among KM, INNO and OP in academic settings, more specifically in higher education institutions. The situation raises the questions: *if KM and INNO closely associate with each other; if INNO has any influence on OP; if any empirical evidence can be found in relationship between KM and OP and, finally, if INNO mediates the relation between KM and OP in the public HEIs of Vietnam.* 

## 1.4 Research questions

The following research questions have been formulated to address the research gaps related to the current study:

- 1. Is knowledge management a significant predictor of innovation?
- 2. Is there a positive relationship between innovation and organizational performance?
- 3. Does positive correlation exist between knowledge management and organizational performance?
- 4. Does innovation mediate the relationship between knowledge management and organizational performance?

# 1.5 Research objectives

Having identified the above knowledge gaps and research demands, this study was conducted with the following objectives in parallel with the research questions:

- To identify and examine the dimensions of KM, INNO and OP in academic setting.
- To empirically investigate knowledge management application and its relation to innovation in public university settings in Vietnam;
- To empirically examine the association between innovation and organizational performance in public university settings in Vietnam;
- To empirically explore the relationship between knowledge management and organizational performance in public university settings in Vietnam;
- Evaluate extent to which innovation mediates the relationship between knowledge management and organizational performance in public university settings in Vietnam.
- To develop a toolkit serving as a checklist for HEI if they wish to deploy and gear up KM practices and INNO management to improve OP.
- To contribute knowledge to the research area of KM and INNO management within the context of public HEIs in Vietnam and to provide practical knowledge to public HEIs Vietnam about achieving efficiency in OP by embarking on the journey of KM and INNO.

# 1.6 Overview of higher education and public universities in Vietnam

Like many other countries in Southeast Asia, Vietnam has embarked on major reform in higher education in line with the emergence of a knowledge economy to respond to globalization and developments to support socio-economic development over several decades. The key themes of reform include, but not limited to, marketisation, privatization, changes in governance, enhanced student access, modern curricula and strong emphasis on science and technology.

Management of higher education in Vietnam is characterized by a very high level of centralization. MOET has significant power over higher education and determines the curriculum, student enrolment, academic assessment, awarding of degrees, staff appointments, budget decisions, and infrastructure and facility maintenance. Universities have little experience in managing themselves or pursuing their own goals. There still exists a severe lack of close links between higher education institutions and scientific research, businesses, industries and employers. Besides, the public budget available to support the higher education sector has remained static.

The milestone should be marked is, in 2005, when the government of Vietnam adopted the Resolution 14 on the "comprehensive renovation of higher education" by 2020. It is a turning point, calling for governance reforms, including greater institutional autonomy and more merit-based selection mechanisms.

More than ever, the desire to nurture the creativity, innovation and knowledge content for improvement in teaching and learning to secure competitive advantages is evident in Vietnam's HEIs. This leaves room for knowledge management and innovation to fit in.

#### 1.7 Thesis overview

This thesis contains eight chapters: 1. Introduction, 2. Literature Reviews, 3. Theoretical Framework, 4. Conceptual Framework and Hypothesis Generation, 5. Methodology, 6. QuantitativeData Analysis, 7. Qualitative Data Analysis and 8. Conclusion and Recommendations. References and appendices are given at the end of the thesis.

# 2. LITERATURE REVIEW AND THEORETICAL FRAMEWORKS

#### 2.1 Literature review

This chapter contains the literature review of the materials relevant to this study. A thorough overview of existing information on knowledge management, innovation and organizational performance in extant literature is critically reviewed. The concepts and themes in the field will be introduced and served as

valuable and necessary background for the original thesis work later presented. The Chapter consists 9 sections introducing 3 key concepts in the current literature, the way they are defined in education setting. Besides, the relationship among those concepts in current literature were also described and summed up. This will be a concrete foundation to initiate the work that begins from the next chapter of the thesis.

#### 2.2 Theoretical frameworks

The two theoretical perspectives, namely Knowledge-based view (KBV) and Social Capital (SC) were utilized to conceptualize the research problem and guide the study. This Chapter presents those two theories.

# 2.2.1 The Knowledge-Based View (KBV)

KBV is deemed to be extended from Resource-Based View (RBV) whose foundation can be found in the work by Penrose in the middle of the XX century (1959). The theory perceives an organization is a collection of productive resources, both physical and human that bring an organization competitive advantage. In line with many other scholars in extant literature, Barney (1991) believed that organizational resources are assets, the capabilities, the organizational processes, attributes, the information, the knowledge, etc. This means knowledge that people in the organization possess and the services obtained from the resources are closely associated; and therefore, organizations are truly repositories of knowledge.

In the context of the present study, RBV will be used to examine the connection between KM, INNO and OP.

# 2.2.2 Social Capital Theory (SCT)

According to Tsai & Ghoshal (1998) and Putnam (1995), SC is conceptualized as a set of social resources embedded in relationships including also the norms and values associated with the relationships. It can also be viewed as an asset connected to a certain position in the structure of exchanges that certain people or groups are dependent on (Burt, 2000).

Nahapiet and Ghosal (1998) said SC is recognized as an important capital for organizations and their networks for renewal of intellectual capital and for increasing innovation potentials. Mark W. McElroy, René J. Jorna, Jo van Engelen (2006) believed there are 5 major elements of social capital: Trust, Beliefs, Norms, Rules, and Networks. They presented a new perspective connecting the SC and KM when saying that Knowledge Management (KM) has a critical role to play not only in the development of social capital, but also in the development of organizations and other types of human social systems that rely on knowledge and social innovation networks for their health and well-being.

SCT will be used as theoretical lenses to explore the connection among KM, INNO and OP in the setting of academia in Vietnam.

# 3. CONCEPTUAL FRAMEWORK AND HYPOTHESIS GENERATION

This Chapter presents the conceptual model and hypothesis generation of the study. Altogether, four main hypotheses are generated and discussed based on the theoretical framework and literature review in the research area. The chapter starts off with conceptual framework, then discuss the generation of 4 main hypotheses. Based on the conceptual framework, 36 sub-hypotheses are proposed.

# 3.1 Conceptual framework

Based on the theoretical framework and literature reviewed, a conceptual model was developed to address the research questions. The proposed model comprises of 3 constructs with its components (see Fig. 4.1):

- Knowledge Management (KM)
   Knowledge acquisition, knowledge dissemination, knowledge utilization
- 2. Innovation (INNO)
  Technical innovation, administrative innovation
- 3. Organizational performance (OP)

Student's satisfaction, staff's satisfaction, research & publication, international affairs, financial performance, industry & community engagement.

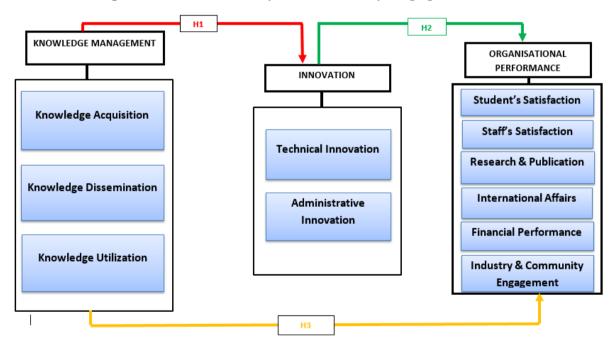


Fig. 4.1: Proposed Conceptual Model and Hypotheses ((Source: author)

# 2.2 Hypothesis development

The proposed conceptual model, presented in Figure 4.1 broadly depicts the possible relationships connecting the 3 key constructs (KM, INNO, and OP). Theoretical evidence through which the hypothetical relationships of the above constructs were linked was found in literature review to confirm these relationships. These relationships were proposed as a set of research hypotheses to address the research questions. The conceptual model (see Figure 4.1) and literature review helped to formulate three key research hypotheses linked to research questions. Besides, the role of INNO as a mediator in the relationship between KM and OP is also tested.

The constructs of KM (KA, KD, KU) are applied in this study as independent variables in relation to dependent variable INNO (ADINNO, TECHINNO). Accordingly, the first main hypothesis of the study is generated as below:

# H1. KM and INNO are significantly associated in the settings of public universities in Vietnam.

Based on the conceptual framework proposed, the first main hypothesis can be broken into the following sub-hypothesis.

- **H1a.** Knowledge acquisition is significantly associated with administrative innovation in the settings of public universities in Vietnam.
- **H1b.** Knowledge dissemination is significantly associated with administrative innovation in the settings of public universities in Vietnam.
- *H1c.* Knowledge utilization is significantly associated with administrative innovation in the settings of public universities in Vietnam.
- **H1d.** Knowledge acquisition is significantly associated with technical innovation in the settings of public universities in Vietnam.
- **H1e.** Knowledge dissemination is significantly associated with technical innovation in the settings of public universities in Vietnam.
- H1f. Knowledge utilization is significantly associated with technical innovation in the settings of public universities in Vietnam.

In the relation between INNO and OP, INNO is adopted as independent variable and significant association between them is hypothesized. Accordingly, the second main hypothesis of the study is generated as below:

# H2. INNO and OP are significantly associated in the settings of public universities in Vietnam.

Based on the conceptual framework proposed, the second main hypothesis can be broken into the following sub-hypothesis.

**H2a.** Administrative innovation significantly associates with student's satisfaction in the settings of public universities in Vietnam.

- **H2b.** Administrative innovation significantly associates with staff's satisfaction in the settings of public universities in Vietnam.
- **H2c**. Administrative innovation significantly associates with research and publication in the settings of public universities in Vietnam.
- **H2d.** Administrative innovation significantly associates with international affairs in the settings of public universities in Vietnam.
- **H2e**. Administrative innovation significantly associates with financial performance in the settings of public universities in Vietnam.
- **H2f.** Administrative innovation significantly associates with industry and community engagement in the settings of public universities in Vietnam.
- **H2g.** Technical innovation is a significant predictor of student's satisfaction in the settings of public universities in Vietnam.
- **H2h.** Technical innovation is a significant predictor of staff's satisfaction in the settings of public universities in Vietnam.
- **H2i.** Technical innovation is a significant predictor of research and publication in the settings of public universities in Vietnam.
- **H2j.** Technical innovation is a significant predictor of international affairs in the settings of public universities in Vietnam.
- **H2k.** Technical innovation is a significant predictor of with financial performance in the settings of public universities in Vietnam.
- **H2l.** Technical innovation is a significant predictor of industry and community engagement in the settings of public universities in Vietnam.

The constructs of KM (KA, KD, KU) are also applied in this study as independent variables in relation to dependent variable OP (OPS, OPF, OPRP, OPIA, OPFP, OPIC). Based on the evidence found from the previous studies in extant literature, the third main hypothesis of the study is generated as below:

H3. Knowledge management is significantly associated with organizational performance in the settings of public universities in Vietnam.

The proposed conceptual framework suggests the 3rd main hypothesis can be broken into sub-hypotheses as below:

- **H3a**. Knowledge acquisition is significantly associated with student's satisfaction in the settings of public universities in Vietnam.
- **H3b**. Knowledge acquisition is significantly associated with staff's satisfaction in the settings of public universities in Vietnam.
- *H3c.* Knowledge acquisition is significantly associated with research and publication in the settings of public universities in Vietnam.
- *H3d.* Knowledge acquisition is significantly associated with international affairs in the settings of public universities in Vietnam.
- **H3e**. Knowledge acquisition is significantly associated with financial performance in the settings of public universities in Vietnam.

- *H3f.* Knowledge acquisition is significantly associated with industry and community engagement in the settings of public universities in Vietnam.
- **H3g.** Knowledge dissemination is a significant predictor of student's satisfaction in the settings of public universities in Vietnam.
- **H3h.** Knowledge dissemination is a significant predictor of staff's satisfaction in the settings of public universities in Vietnam.
- **H3i.**Knowledge dissemination is a significant predictor of research and publication in the settings of public universities in Vietnam.
- H3j. Knowledge dissemination is a significant predictor of international affairs in the settings of public universities in Vietnam.
- *H3k.* Knowledge dissemination is a significant predictor of financial performance in the settings of public universities in Vietnam.
- *H31.* Knowledge dissemination is a significant predictor of industry and community engagement in the settings of public universities in Vietnam.
- *H3m.* Knowledge utilization is positively related to student's satisfaction in the settings of public universities in Vietnam.
- **H3n.** Knowledge utilization is positively related to staff's satisfaction in the settings of public universities in Vietnam.
- *H3o.* Knowledge utilization is positively related to research and publication in the settings of public universities in Vietnam.
- *H3p.* Knowledge utilization is positively related to international affairs in the settings of public universities in Vietnam.
- *H3q.* Knowledge utilization is positively related to financial performance in the settings of public universities in Vietnam.
- *H3r.* Knowledge utilization is positively related to industry and community engagement in the settings of public universities in Vietnam.

Though there is lack of empirical evidence regarding the mediating role of innovation in the relationship between KM and OP, there is some specific support for indirect impact of KM on OP under the name of competitive advantage through innovation (Taleghani et al., 2012; Mundra et al., 2011; Hana, 2013). Significant indirect relationship between KM and competitive advantage mediated by innovation are examined and confirmed by Ussahawanitchakit (2008) and Taleghani et al. (2012). Thus, on the basis of strong literature support, author of this study hypothesizes that:

H4. Innovation mediates the relationship between knowledge management and organizational performance in the settings of public universities in Vietnam.

#### Summary

This chapter presents the carefully scaffolded conceptual framework proposed basing upon the theories adopted to guide the study and the extant literature review. In addition, the operational definition of the key constructs of the study are also introduced. Formulation of 4 key hypotheses and 36 sub- hypotheses are also presented. Mention should be made to the proposed hypothesis to test the mediating effect of INNO in the relationship between KM and OP.

# 4. METHODOLOGY

# 4.1 Research design

The design of research is very important, as it maps out and guides the research towards meeting the aim of the study. It also directs the research on how to address the study hypotheses and the research questions by providing a logical flowchart of the study from early stages till finalizations (Mohamed, 2003).

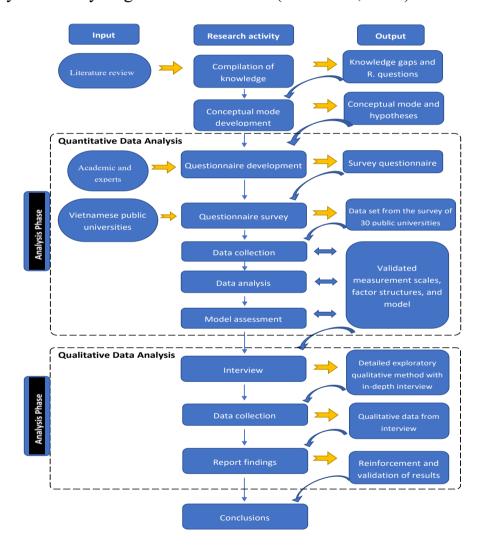


Fig. 5.1: Research design (Source: author)

#### 4.2. Research instrumentation

#### 4.2.1 Measures

In this research study, operational constructs are composed of scale items which were mainly adapted from previous studies, translated and modified to fit the purpose of the study. All scale items are measured by using five-points Likert-scale statistical measures (ranging from 1 = strongly disagree to 5 = strongly agree). The theoretical constructs and their items are described carefully below.

#### Knowledge management

There are 3 components of KM including knowledge acquisition (with 11 scale items of which 6 are adopted from Lawson (2003); 5 are self-developed), knowledge dissemination (with 12 scale items of which 7 are adopted from Lawson (2003), 5 are self-developed), knowledge utilization (with 5 scale items are totally adopted from Lawson (2003)). All the measures were based on five-point Likert scales (1-strongly disagree, 5-strongly agree).

#### Innovation

Innovation in this study is consists of 2 components including administrative and technical innovation. Administrative innovation is measured by 7 scale items inspired by Liao et al., (2008), Damanpour (1991), Brennan et al., (2014) and OECD. (2013). Meanwhile, Technical innovation is also measured by 7 scale items inspired by Subramanian and Nilakanta (1996), Armbruster et al., (2008) and Brennan et al., (2014). All of the measures were based on five-point Likert scales (1-strongly disagree, 5-strongly agree).

# Organizational performance

The authors adapted 9 scale items from MBNQA (1999) to measure the dimensions of staff's and student's satisfaction and research & publication. Another 9 scale items were adapted from Cameron, K. (1978) to measure the dimensions of financial performance and industry & community engagement. Meanwhile, to measure the dimension of international affairs, 6 scale items were adapted from Zangoueinezhad, A. and Moshabaki, A. (2011). All the measures were based on five-point Likert scales (1-strongly disagree, 5-strongly agree).

# 4.3 Survey instrument

The instrument of this research was developed based on a literature review of related previous studies on KM, INNO and OP and those concepts in education sector. The data collection instrument is divided in four major sections consisting of quantitative scaled response questions, according to Sekaran (2006), which can help to collect the data in a short period of time with a high response rate.

Each section collected information in respect of the feedback of the target respondents from their current organizational settings. The first major section was composed of questions addressing the profile of organization for which the target respondent is working. The second section covered statements of knowledge acquisition, knowledge dissemination and knowledge utilization of the organization. The third collected information about the innovativeness of the organization. The last section dealt with scale items stating about the performance state of the organization. Contents of each section can be described in detail as below:

## 4.3.1 Knowledge acquisition

This sub-section of the questionnaire aims to examine whether an institution has a knowledge acquiring mechanism in place; if it deploys practices of knowledge acquisition to promote innovation and organizational performance. Indicators of this sub-section include encouragement of knowledge exchange, knowledge generation and absorption from different sources, timely response and documentation of initiative for further development, purchasing and hiring intellectual products, enabling cross training within organization, setting up regulation for staff's further study and rewarding them for their initiatives (Table 5.1).

Table 5.1. Knowledge acquisition measurement scale items (KA)

Table 3.1. Knowledge acquisition measurement scale items (KA	-)
KA1. My institution encourages and has processes for the exchange of ideas and knowledge between individuals and groups (faculties and administrative staff).	
KA2. My institution has a mechanism for creating and acquiring knowledge from different sources such as customers, employees, business partners and competitors.	
KA3. My institution responds to our ideas and documents them for further development.	Adopted from Lawson,
KA4. My institution sets up regulations to encourage staff to further study after a certain period of time working for the institution.	S. (2003)
KA5. My institution rewards us timely for our new ideas and knowledge.	
KA6. My institution has a mechanism in place to absorb and transfer knowledge into the institution.	
KA7. My institution recruits and hires quality professional or teaching staff to increase grey matter in the organization.	
KA8. My institution is willing to purchase or hire intellectual products that serve the growth of the institution.	Self-
KA9. My institution annually spends certain amount of budget to purchase learning and research materials.	developed
KA10. My institution has a mechanism for creating new knowledge from existing knowledge.	

#### KA11. My institution enables cross-functional training.

(Source: author)

# 4.3.2 Knowledge dissemination

This sub-section is designed to assess the capability of an institution in its efforts to share the knowledge. Indicators of this sub-section cover the institutional facilities, devices and mechanism for knowledge dissemination (Table 5.2).

Table 5.2. Knowledge dissemination measurement scale items (KD)

Table 5.2. Knowledge dissemination measurement scale items	(KD)
KD1. My institution has libraries, resource centres and other	
forums to display and disseminate knowledge.	
KD2. My institution has knowledge in the form that is readily	
accessible to us when needed.	
KD3. My institution has mechanism to patent and copyright	
new knowledge.	
KD4. My institution has different publications to display the	Adopted
captured knowledge.	from Lawson,
KD5. My institution has regular symposiums, lectures,	S. (2003)
conferences and training sessions to share knowledge.	
KD6. My institution utilizes various written devices such as	
newsletters, manuals to store the knowledge what they capture.	
KD7. My institution utilizes databases, repositories and info	
technology applications to store knowledge for easy access by	
staff.	
KD8. My institution runs apprenticeship, mentor or coaching	
program for the development of young staff.	
KD9. My institution provides space and occasion for	
employees to talk and to listen to one another and interact	
informally.	
KD10. My institution often forms up team with members from	Self-
different departments to involve in a special project.	developed
KD11. My institution has virtual space (i.e. website, forum,	
intranet, internal e- mail system) for us to exchange ideas among	
one another.	
KD12. My institution sends out timely reports with appropriate	
information to us and other relevant institutions.	
(Sayman author)	

(Source: author)

# 4.3.3 Knowledge utilization

This is the most visible part of knowledge management. The sub-section aims to examine the ability of an institution in applying knowledge management to its

competitive needs, devising new knowledge pattern for future use, protecting and filtering institutional knowledge (Table 5.3).

Table 5.3. Knowledge utilization measurement scale items (KU)

KU1. My institution has methods to analyze and critically evaluate knowledge to generate new patterns and knowledge for future use.	
KU2. My institution applies knowledge to critical competitive needs.	
KU3. My institution has mechanism to protect knowledge from inappropriate or illegal use inside and outside of the institution.	Adopted from Lawson, S.
KU4. My institution has different methods to further develop the knowledge and apply them to new situations.	(2003)
KU5. My institution has mechanism for filtering, cross-listing and integrating different sources and type of knowledge.	

(Source: author)

#### 4.3.4 Administrative innovation

The construct is all about new procedures, policies and organizational forms, culture, and innovative operation including planning, organization, personnel, leadership, management, incentive. It potentially leads to enhancement of management systems and better organizational performance (Table 5.4).

Table 5.4. Administrative innovation measurement scale items (ADINNO)

ADINNO 1. My institution deploys advanced management methods (Eg. ISO).	Adapted
ADINNO 2. My institution nurtures a culture towards INNO (that enhances creativity, creates awareness of the benefits resulting from the implementation of the INNO, stimulates openness to INNO and minimizes resistance to change).	from Liao et al., (2008)
ADINNO 3. Organizational structure of my institution is of high flexibility and less administrative procedures.	Adapted from Damanpour (1991)
ADINNO 4. IT infrastructure facilitates the internal communication of the institution.	Adapted from
ADINNO 5. IT infrastructure facilitates governance of the institution.	OECD. (2013)

ADINNO 6. My institution stimulates quality improvement and cost reduction in operation.

ADINNO 7. Employees are encouraged to initiate innovative improvements in my institution.

(Source: author)

#### 4.3.5 Technical innovation

This sub-section the questionnaire is designed to evaluate how technically innovative an institution is. The indicators include adoption of new ideas relating to new products or services or introduction of new elements in an organization's production process or service operations, involvement of stakeholders in policy making, speed and flexibility of production and the quality of production in meeting the market demand (Table 5.5).

Table 5.5. Technical innovation measurement scale items (TECHINNO)

Table 3.3. Technical innovation measurement scale items (1)	Sermino)
TECHINNO 1. My institution constantly offers new courses, disciplines and new modes of learning that are in demand to compare with other institutions in the field.	Adapted from Subramanian and Nilakanta (1996)
TECHINNO 2. My institution frequently keeps improving our existing products/services, processes by multiplied lesson learnt and senior's experience, as a result, we are more innovative compared with what we were.	
TECHINNO 3. Curricula are revised periodically at my institution.	
TECHINNO 4. Learners of my institution can contribute to curricula construction and assessment process.	Adapted from Brennan
TECHINNO 5. My institution treasures industry engagement in order to produce high quality and market – based products/services.	et al., (2014)
TECHINNO 6. My institution has mechanism to collect and analyze feedback information (from learners, organizations, employers etc.) on performance and impact, and inform all stakeholders.	Adapted from Armbruster et al., (2008)
TECHINNO 7. My institution provides special education opportunities for students to meet the wide range of social demands for educational service (providing correspondent	Adapted from Subramanian

course, in-service training course, distance and cyber course	and Nilakanta
etc.).	(1996

(Source: author)

#### 4.3.6 Student's satisfaction

This sub-section aims to measure the extent to which students are satisfied with what an education institution offers. The important indicators comprise of the academic quality, the facilities and the employment rate after graduation (Table 5.6).

Table 5.6. Student's satisfaction measurement scale items (OPS)

OPS 1. Our students are satisfied with what my institution	
offers in terms of academic quality.	Adapted
OPS 2. Our students are satisfied with what my institution	from
offered in terms of facilities.	MBNQA
OPS 3. The number of students is employed right after their	(1999)
graduation is high (more than 80%).	

(Source: author)

#### 4.3.7 Staff's satisfaction

This sub-section of the instrument refers to the level by which staff of an education institution are happy with their organization. This dimension encompasses satisfaction of faculty members and administrators with employment and well-being at the institution, opportunities for professional attainment and promotion, and compensation rate. Among many indicators, this study adapted 3 scale item that indicate staff's satisfaction toward working environment, promotion opportunities and remuneration rate (Table 5.7).

Table 5.7. Staff's satisfaction measurement scale items (OPF)

OPF1. Staff are committed and satisfied with working	
environment of my institution.	Adapted
OPF2. Staff of my institution is happy with promotion	from
opportunities in their academic career.	MBNQA
OPF3. Staff is satisfied with remuneration system of my	(1999)
institution.	

(Source: author)

# 4.3.8 Research and publication

This sub-section aims to assess research capability of an academic institution. This dimension becomes increasingly important criterion to evaluate the performance and rank an academic institution in the system. Volume of research publication of high quality together with the number of seminars, workshop and conference are indicators adapted in this study (Table 5.8).

Table 5.8. Research and publication measurement scale items (OPRP)

Table 5.6. Research and publication measurement searchement	, (OIII)
OPRP1. The number of seminars, workshops, and	
conferences of various disciplines witnesses a year-on-year	Adopted
increase at my institution.	Adapted from
OPRP2. The number of ISI and SCOPUS-indexed	MBNQA
publications of my institution is increasing annually	(1999)
OPRP3. The number of publications on domestic journals	(1999)
of my institution is increasing annually	

(Source: author)

#### 4.3.9 International Affairs

This sub-section is designed to examine the internationalization capacity of an academic institution. This dimension is attached of great importance when educators worldwide realize that internationalization now serves as a pillar in the institutional development strategy. The indicators of this dimension consist of the volume of faculty and student mobility both in-coming and out-going, the number of joint education programs, the portfolio of international partners, the number of articulation signed and the ability to appeal the international financial support (Table 5.9).

Table 5.9. International affairs measurement scale items (OPIA)

Tuote 3.5. International arturns incasarement scale items (	, <i>,</i>
OPIA1. The diversity of international partners of my	
institution is growing.	
OPIA2. My institution signs a number of articulations	
to mutually recognize education programs with	
international partners.	
OPIA3. The number of in-coming and out-going	A dantad fram
students and faculties of my institution is increasing.	Adapted from Zangoueinezhad,
OPIA4. My institution is capable of calling for	A. and
financial support from international donors, diplomatic	Moshabaki, A.
agencies and partners to improve our infrastructure and	· · · · · · · · · · · · · · · · · · ·
facilities.	(2011)
OPIA5. My institution strives to increase the number	
of international joint-education programs with well-	
accredited partners.	
OPIA6. International joint-education programs at my	
institution are well-run.	

(Source: author)

# 4.3.10 Financial performance

This sub-section evaluates how well an academic institution perform in terms of finance management. This dimension of the study measure ability of academia

to acquire resources from the external environment including student intake, financial support, funding from central government, and external funding as well as implementing measures of cost efficiency (Table 5.10).

Table 5.10. Financial performance measurement scale items (OPFP)

OPFP1. My institution has a mechanism in place to	
reduce overhead costs.	
OPFP2. My institution uses facilities efficiently and	
effectively.	Adapted from
OPFP3. My institution's revenue gets improved year by	Cameron, K.
year.	(1978)
OPFP4. My institution is capable of calling for financial	
support from the government, organizations and foundations	
in Vietnam and beyond.	

(Source: author)

#### 4.3.11 Industry and community engagement

This sub-section of the instrument aims to assess system openness and community interaction. This criterion indicates the emphasis placed on interaction with, adaptation to, and service in the external environment. The indicators of this dimension contain employer's appreciation toward the graduates, employment and internship programs connecting academic institution with industry, industry as an outlet for research and technology transfer (Table 5.11)

Table 5.11. Industry and community engagement measurement scale items (OPIC)

OPIC1. Employers appreciate industry-engaged	
education programs offered by my institution.	
OPIC2. My institution cooperates with enterprises in the	
areas of internships & employment for our graduates.	Adamtad
OPIC3. My institution cooperates with enterprises for	Adapted from
application of our research results.	
OPIC4. My institution provides high-quality human	Cameron, K. (1978)
resource to meet up the development strategy of the region	(1976)
and country.	
OPIC5. My institution has good relationship with	
authorities and business community in Vietnam and beyond.	

(Source: author)

# 4.4 Instrument forward translation and subjective evaluation

The questionnaire was originally developed in English. Since the research context is in Vietnam, it must be translated into Vietnamese. Based on the cross-cultural development work of Sperber et al. (1994) and the organizational learning culture and climate study in Jordan by Bates and Khasawneh (2005), a forward translation procedure with subjective evaluation was adopted in order to maintain a high quality of translation to ensure the functional equivalence between the English and Vietnamese items.

# 4.5 Pilot study

A pilot study recommended by Burns and Bush (2003) was carried out with an aim to identify issues that needed to be revised before official data collection is implemented. Therefore, as suggested by Zikmund et al. (2012), the instrument was pretested in different stages with small sample of participants to find out problems that may have and to ensure the transparency, clarity and comprehensibility of the questionnaire.

Accordingly, the draft questionnaire went through some stages. Firstly, after being completed the questionnaire was reviewed by the author's supervisor for comment and feedbacks. Secondly, it was delivered to 10 experts in the field. They come from 10 different universities in Hanoi, Vietnam. Their suggestions and recommendations for modification were taken into account for the better version of the questionnaire.

# 4.6 Sample and sample size, survey administration.

The study adopts the non- probability quota sampling technique wherein the assembled sample has the same proportions of individuals as the entire population with respect to known characteristics, traits or focused phenomenon. There is no direct and solid method in the literature to define survey complexity and sample size; therefore, recommendations provided by Hair et al. (2006) were utilized. According to Hair et al. (2006), sample size of SEM studies should range from 100-200 participants.

Both hard copies and online link of questionnaires were sent to the focal contact points of 30 universities – an equivalence of 20% public universities in Vietnam equally located in 3 regions of the country. They are chosen according to their importance, age and size. The focal contact points are Director of Research Management Department of each university. Those contact points were carefully informed of the nature and also the purposes of the research before they helped deliver the questionnaire to the target respondents in their institution – the administrators from faculty to university leadership level. The author wishes to collect 25 samples at each institution and altogether the expected sample size is 750. The focal points, then, helped collected the questionnaire and returned them to the local address of the author. Of the 750 questionnaires handed out, 543 were

returned and 531 valid copies were used for data analysis which represents 70.8% response rate.

# 4.7 Data analysis

#### 5.7.1 Quantitative data analysis

Quantitative data of the study was process in the following steps:

*First*, reliability and internal consistency analysis were performed to test whether the measures were applicable for the construct measurement. Internal consistency is evaluated by construct reliability and convergent validity. Values of Cronbach's alpha and statistical significance of factor loadings were assessed.

Second, Exploratory Factor Analysis (EFA) was conducted in order to to minimize the large number of variables into a lesser, more controllable set of factors. EFA serves as a preliminary analysis in the absence of a sufficiently detailed theory about the relations of the variables to the underlying constructs.

Third, discriminant validity indicating if constructs actually differ from each other was checked by comparing the average variance extracted (AVE) by individual constructs and the shared variance between a given construct and other constructs in the model.

Fourth, confirmatory factor analysis (CFA) was performed to validate and find the reliability of any measurement in most social science studies (Harrington, 2009). The objective of CFA is to test whether the data fits a hypothesized measurement model. The author of this study used AMOS (version 23.0) to perform CFA.

Finally, structural equation modelling (SEM) for statistical testing of the hypothesized relationships and structural model assessment was used. AMOS (version 23.0) was deployed to facilitate this analysis. Most of the statistical calculations were conducted through Statistical Package for the Social Sciences (SPSS) (version 22.00) and AMOS (version 23.0).

## 4.7.2 Qualitative data analysis

Thematic analysis was performed to analyze the English-translated transcripts, and themes. Manual color-coding of themes and concepts was used to extract relevant sections of text, capturing the different views and perspectives of the senior HE leaders and comparing them to the relevant literature and quantitative results of the study (Burnard, 1991; Creswell, 2009).

Transcript of each interview was worked through and coded into themes and sub-themes with colored highlighting of texts used to identify texts. Then, these highlighted texts were extracted and pasted on to sheets with the appropriate theme/sub-theme labels. The original transcripts were kept close at hand during analysis to ensure the context of the selected sections was noted. In the next step, a summary description of each theme/sub-theme's meaning was written.

Interpretation of the data followed where sample texts, and associated interpretive commentaries, were reviewed with reference to current literature, quantitative results of the study, and recognizing both similarities and differences with participants' views and experiences (Braun and Clarke, 2006).

#### Summary

This chapter covered research design in which research steps in order were listed in detail; a figure serves as a panorama picture of the research design was illustrated. Elaboration on the research instrumentation, survey instrument construction, data collection sample size and pilot study were made. Description of how both the quantitative and qualitative data analysis was performed was detailed before it came to a summary.

#### 5. CONCLUSION AND RECOMMENDATIONS

This Chapter present the concluding remarks of the study. The key findings of the study are summarized. The section follows by theoretical and managerial implications. The chapter concludes with recommendations for future research possibilities and avenues.

## 5.1 Key findings

#### 5.1.1 Findings from quantitative study

Though the hypothesized relationship between KM and INNO was not statiscally significant, by looking into the sub-hypotheses of those two constructs, positve impacts from 3 components of KM on 2 components of INNO are evident. Firstly, the empirical result demonstrates that KM (KA, KD, and KU) comprehensively and positively impacts TECHINNO in a public university of Vietnam. Secondly, statistical evidence of the research results indicates that KM partially influences ADINNO of an academic institution. Of the 3 components in the KM process including KA, KD, KU, only the path estimate from KU (B=0,248, p< 0.05) is statistically significant.

The main hypothesis of the association between INNO and OP was statistically supported. Results of the study indicate that ADINNO can only predict 2 out 6 dimensions measuring organizational performance of a higher education institution. Statistical evidence shows that ADINNO significantly associates with student's and staff's satisfaction. Contrary to hypotheses of the study, it does not impact the following areas including research and publication, financial performance, international affairs and industry & community engagement. Results of the model testing demonstrate that TECHINNO influences 4 out 6 dimensions measuring the performance of a HEI including research publication, financial performance, staff's satisfaction and industry & community engagement.

The statistical evidence shows that TECHINNO does not affect student's satisfaction and international affairs of a HEI. The model testing results statistically showcase that both ADINNO and TECHINNO significantly predict staff's satisfaction. On the contrary, they both exert no impact on international affairs of a HEI and, in addition, TECHINNO does not influence student's satisfaction.

The main hypothesized relationship between KM and OP was statistically supported. Findings manifested that KM exerts positive impacts on performance of HEIs in Vietnam though the impacts are modest. More precisely, the research results reveal that knowledge acquisition is significantly associated with HEI's financial performance; while, knowledge dissemination can predict HEI's industry and community engagement and knowledge utilization impacts research and publication of a HEI.

By testing the direct effect of KM and OP with the presence of INNO and indirect effect of this relationship, the statistical results indicates that INNO does not account for or exert any impacts on this association. Therefore, conclusion can be made that INNO does not mediate the relationship between KM and OP.

#### 5.1.2 Findings from qualitative study

The qualititative study confirmed various issues concerning KM awareness, benefits and challenges. Overall, KM is still a novice concept in the higher education system of Vietnam. KM awareness among leaders of different levels in HEI system is incomplete

While the quantitative results only found 3 dimensions are influenced including research and publication, financial performance, and community and industry engagement, findings of the interview indicate that among 6 dimensions of a university performance in the framework of this study 5 out of 6 dimensions were believed to be impacted by KM. Only KM's impact on international affairs was not mentioned. Besides, Findings also revealed that KM positively influences IT infrastructure and administrative governance of a HEI.

Findings of the qualitative study also presented a list of challenges that informants think a HEI may face when embarking on KM initiatives. The challenges listed comprise of poor awareness, inablity to establish an open and friendly organizational culture, reluctance to change, failure to realize communities of practice that are already in place, an a myth that IT is what KM's all about.

This study satisfactorily addressed the research problems indetified, achieving its objectives set out at the beginning of the thesis, filling the knowledge gaps in the area of knowledge management in public HEI performance as presented in the key findings. The contributions of the current study towards theory, practice, and education are summarized as below:

#### 5.2 Gains for science

Though the extant literature is replete with researches suggesting the positive association among KM, INNO and OP, just few empirically showcase this relationship in academia. Findings of this study statistically show that KM and INNO influence different performance dimensions of a HEI including student's satisfaction, staff's satisfaction, research publication, financial performance, industry and community engagement, IT infrastructure and administrative governance. Results of the study partly helps address this gap by confirming the impacts of KM and INNO on OP in public HEIs of Vietnam.

The study contributes to literatures on performance management in academic context by demonstrating the impacts of KM and INNO as managerial tools for increasing OP. In addition, measurement dimensions with specific scale items measuring KM, INNO and OP of a HEI inspired by well-known scholar's theories were developed by the authors. This is of useful reference for later researchers who wish to conduct research of the same theme in academic settings of other countries.

The study is the first of its kind looking at innovation of a HEI at two perspectives of administrative and technical. By adopting this well-known pair of innovation in literature to guide the research, the author found each type of innovation influence certain facets of organizational performance.

The study enriches literatures on KM, INNO, OP and their best practices in academia.

# 5.3 Gains for practice

Results of this study suggest administrators of academic institutions raise their awareness about the unique values of KM and INNO that can be used to strengthen teaching-learning environment and lead to exponential improvements in the organizational performance. They would realize that KM helps improve their institution's capacity to acquire, share and use knowledge in ways that improve organizational survival and success; and if KM and INNO practices are applied, every part of a HEIs' mission could be supported. Accordingly, KM

initiatives and practices should be a part in development strategy of their organizations.

The study findings are also nice reminders for policy makers in education sector of Vietnam. Solid evidence of the previous studies about the benefits brought about by KM deployment and the poor results of KM application by public universities in the country revealed by this study would make policy makers in education sector be more sensitive to KM initiatives. KM should be taken into serious consideration in the enactment of new education policies in the future.

This study provides KM and INNO practices and initiatives that are likely to improve performance of an academic institution; hence, it may serve as guidelines for the administrators in those institutions. Findings of this study are of value for leadership of academic institutions since they are directly related to their daily routines. The findings may intrigue administrator's interest, make them take appropriate actions and build up a route map to embark on KM once they wish to strengthen innovativeness then boost the performance of their institution.

A list of KM, INNO and OP measurement scales serving as a checklist for leadership of any academic institution desire to practice KM and then boost organizational innovation and performance is provided by this study.

List of challenges also serves as reminders for better preparation once a HEI want to deploy KM initiatives.

Though the study context is public universities in Vietnam, the study's findings may be applicale to higher education system of developing coutries sharing similarities with Vietnam.

#### 5.4 Gains for education

As KM has become a new discipline of study, results of this study may enrich KM curriculum of education institutions who are teaching the subject.

The study may inspire and set path for researchers and further researches in the future wishing to deepen the theme by conducting the research in other forms of higher education institution including private, semi-public ones.

#### 5.5 Limitations and recommendations

The context as well as findings of this study suggest a number of avenues for future works. Firstly, the study chooses to conduct in a developing country where the popularity of KM concepts is still limited; KM is still a novel term. Therefore, research of the same theme recommended to conduct in other context like developed countries may yeild interesting results. Secondly, it seems likely that different knowledge infrastructure and environment may lead to different

outcomes. So, comparative studies of KM deployment in public and private HEIs may be an interesting theme for future researches. Thirdly, success of KM largely depends on KM enablers including strategy and leadership, organizational culture, information technology (IT), and performance measurement — which have received considerable attention in the corporate literature (Devi Ramachandran, Chong, & Wong, 2013) and organization structure (Mills and Smith, 2011); this theme may spark interests for later researchers. Finally, time-series data of a longitudinal would allow researchers to have better understanding of a causal relationship among KM, INNO and OP compared with one-time study conducted in a cross-sectional research setting. This is highly recommended directions for future studies.

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#### LIST OF WORK PUBLISHED

#### **Journal Publications**

Ngoc-Tan, N., & Gregar, A. (2018). Impacts of Knowledge Management on Innovations in Higher Education Institutions: An Empirical Evidence from Vietnam. Economics and Sociology, 11(3), 301-320. doi:10.14254/2071789X.2018/11-3/18

Ngoc-Tan, N., & Gregar, A. (2019). Knowledge management and its impacts on organizational performance: an empirical research in public higher education institutions of Vietnam. Journal of Information and Knowledge Management, ISSN (print): 0219-6492 | ISSN (online): 1793-6926 (to be published in June, 2019)

Ngoc-Tan, N., & Gregar, A. (2019). Innovation and its impacts on public university performance: An empirical study from Vietnam. (Under review)

Tri, H.T., Ngoc-Tan, N., Gregar, A., & Pavelkova, D. (2019). Motivators and its impacts on job satisfaction in FDI companies - A case study of Eurowindow Vietnam. (Under review)

#### **Conferences (peer reviewed)**

NGUYEN, Ngoc Tan. (2017). A review on the interrelation between knowledge management and human resource management. *In 8<sup>th</sup> International Conference on Finance and Performance of Firm in Science, Education and Practice*. April 26-27, 2017, Zlin, Czech Republic. ISBN 978-80-7454-653-2.

NGUYEN, Ngoc Tan. (2017). A review and critique of researches on knowledge management and innovation in academia. *In DOKBAT 2017 - 13th Annual International Bata Conference for Ph.D. Students and Young Researchers* (Vol. 13). Zlín: Tomas Bata University in Zlín, Faculty of Management and Economics. Retrieved from http://dokbat.utb.cz/conference-proceedings/ ISBN: 978-80-7454-654-9

Ngoc-Tan, N., & Gregar, A. (2018). Impacts of Knowledge Management on Innovation in Higher Education Institutions. *International Scientific Conference: Economics, Management, Finance (EMF 2018) New Trends and Challenges for Academics and Entrepreneurs*, Bratislava, Pan-European University, Tomášikova 150/20, ISBN: 978-80-8154-243-5.

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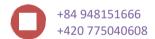
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