อิทธิพลของการถ่ายโอนความรู้ที่ส่งผลต่อประสิทธิภาพของการจ้างบุคคลภายนอก ด้านเทคโนโลยีสารสนเทศของธนาคารไทย

อรพรรณ คงมาลัย[1] และ อัญณิฐา ดิษฐานนท์[2]

บทคัดย่อ

อุตสาหกรรมธนาคารในประเทศไทยกำลังเข้าสู่ยุคดิจิทัล ดังนั้นโครงการด้านเทคโนโลยีสารสนเทศ จึงมีความสำคัญและต้องดำเนินงานด้วยความรวดเร็วและมีประสิทธิภาพสูง งานวิจัยนี้มีวัตถุประสงค์เพื่อ ศึกษาอิทธิพลของการถ่ายโอนความรู้ที่ส่งผลต่อประสิทธิภาพของการจ้างบุคคลภายนอกด้านเทคโนโลยี สารสนเทศของธนาคารไทย ทำการเก็บรวบรวมข้อมูลโดยใช้แบบสอบถามจากกลุ่มตัวอย่างที่ทำงาน เกี่ยวข้องกับงานด้านเทคโนโลยีสารสนเทศใน 7 ธนาคารชั้นนำของประเทศไทย และทำการวิเคราะห์ ข้อมูลโดยใช้เทคนิคการวิเคราะห์โมเดลสมการโครงสร้าง (Structural Equation Model: SEM) ผลการ วิจัยพบว่าความสามารถของพนักงานเทคโนโลยีสารสนเทศและความสามารถของที่ปรึกษาด้านเทคโนโลยี สารสนเทศส่งผลในเชิงบวกต่อประสิทธิภาพการจ้างบุคคลภายนอกด้านเทคโนโลยีสารสนเทศ อย่างไร ก็ตาม ความสามารถของที่ปรึกษาด้านเทคโนโลยีสารสนเทศส่งผลในระดับที่มากกว่า นอกจากนี้ ความ สามารถของเจ้าหน้าที่ด้านเทคโนโลยีสารสนเทศและความสามารถของที่ปรึกษาด้านเทคโนโลยีสารสนเทศ ยังมีส่วนช่วยในการถ่ายโอนความรู้ภายในโครงการเทคโนโลยีสารสนเทศ และการถ่ายโอนความรู้ระหว่าง กันนี้ทำให้เกิดเรียนรู้ร่วมกัน สุดท้ายจะส่งผลถึงประสิทธิภาพการจ้างงานด้านเทคโนโลยีสารสนเทศในที่สุด

คำสำคัญ: การจ้างบุคคลภายนอกด้านเทคโนโลยีสารสนเทศ, ความสามารด้านเทคโนโลยีสารสนเทศ, การถ่ายโอนความรู้, อุตสาหกรรมธนาคาร

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Influence of Knowledge Transfer Model on IT Outsourcing Performance: An Empirical Evidence of Thai Banking Industry

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Abstract

The banking industry in Thailand is digitalising, so IT projects there must be fast and highly effective given their continuous increase. This research studies the influence of the Knowledge Transfer Model on Thai banks' IT outsourcing performance by distributing questionnaires to the sample, consisting of IT outsourcing staff at the top seven Thai banks. The data from the questionnaires was then subjected to statistical analysis with the Structural Equation Model. The results show that both IT staff competency and IT consultant competency have a positive effect on IT outsourcing performance. However, IT consultant competency has a larger effect. In addition, IT staff competency and IT consultant competency also contribute to knowledge transfer within the project, which creates shared knowledge between them. Finally, this shared knowledge has an impact on IT outsourcing performance.

Keywords: IT Outsourcing, IT Competency, Knowledge Transfer, Banking Industry

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1. Introduction

During the past five years, the Thai government has instituted the digital economy as its main policy for driving national development, as can be seen from the restructuring of various ministries related to it; the digital economy will work with both the government and the private sectors in accordance with the government's digital economy policy. Here, the Thai government encourages the use of information technology (IT) to increase the competitiveness of all industries, including banking, which is facing constantly increasing competition and which uses IT as an important tool for providing efficient services to customers; this has resulted in a crucial role for outsourcing and is consistent with the trends of many other Asian countries like India and China (Mishra & Mahanty, 2019; Liu & Jayaraman, 2019).

The Thai banking industry's situation as it transitions to digital banking is a result of technological advances and consumer demand for speed in conducting financial transactions without visiting a bank. The banking industry everywhere is facing digital disruption as online deposits, mobile transfers, and e-bill payments become more common. Competitiveness among banks relies on gaining more information technology in both service innovation and in business process efficiency. Thus, IT outsourcing projects are becoming more complex (Mehta & Mehta 2017).

In improving such competitivity, collaborative governance mechanisms are an important foundation for effective cooperation between IT consultants and their clients (Mukherjee, 2017). Failures of IT outsourcing may be created by IT consultants lacking an understanding of their clients' business processes, as well as their not maintaining good relationships with their clients' internal IT staff (Mehta & Mehta 2017). In order to increase project performance, IT service managers must build external integration with the client while building internal integration with their IT consultant teams so that these possess specific competency variety (Liu & Jayaraman, 2019).

However, the success or failure of IT outsourcing depends not only on the IT consultant team, but also on the readiness of the bank's personnel, whose IT outsourcing experience directly affects their adoption of new technologies in their organization (Hanafizadeh & Ravasan, 2018). Familiarity with the relevant technologies will help IT staff to accept and to use them (Alshamaila et al., 2013). Studies on the relationship between IT staff competency and IT outsourcing have reached different conclusions, though. Many studies have found that IT staff competency is related to IT outsourcing (Lian et al., 2014; Sultan & Khurram, 2018), while others suggest that IT staff competency has no effect on IT outsourcing (Hanafizadeh & Ravasan, 2018).

Furthermore, still other studies have found that the competencies of IT consultants and of IT staff contribute to one another and are essential to the success of IT outsourcing (Han et al., 2013). Confidence and interaction among project personnel help IT outsourcing succeed, with knowledge sharing increasing the success of IT outsourcing projects (Qi & Chau, 2013). IT developers should therefore have the training capacity and sufficient time to transfer knowledge to the IT staff so they can maintain the bank's system after completing the project (Mishra & Mahanty, 2019).

According to the review of previous studies below, the knowledge transfer model affects IT outsourcing performance. This model consists of several related factors, including IT consultant competency, IT staff competency, and the knowledge transfer process. However, there is a limited number of studies on the influence of the knowledge transfer model on the IT outsourcing performance of the banking industry (e.g. Hanafizadeh & Zaravasan, 2018). This research therefore aims to study the influence of knowledge transfer on the IT outsourcing performance of the Thai banking industry in order to understand the interaction among the relevant factors; as an extension of previous IT outsourcing research, it can reveal a strategy for increasing IT outsourcing performance in the banking industry.

2. Theoretical background and hypotheses

2.1 ITO Performance

Nowadays, IT outsourcing is an increasingly popular method of improving productivity. It is also an important part of the development of work leading to the increase of knowledge and competitiveness of the organization. However, the outcome of outsourcing is different for each organization. Some organizations do not get the desired benefits from IT outsourcing and fail to outsource, while others successfully outsource their IT jobs (McIvor, 2009).

Companies choose IT to outsource as a strategy to transfer work that is not at the heart of their organizations to other companies with specific expertise. Such outsourcing lowers costs while raising quality and enabling businesses to focus on their core competencies. The IT outsourcing performance assessment (ITO Performance) can be measured by the outsourcing's efficiency and effectiveness (Rosin et al., 2019), as well as its strategic benefit, economic benefit, and the overall satisfaction it provides to the company paying for the outsourcing (Qi & Chau, 2015). While some studies measure the success of IT outsources in the successful delivery of IT services (Karimi-Alaghehband & Rivard, 2020).

2.2 IT Consultant and IT Staff Competency

It is not easy to achieve IT outsourcing goals, as IT outsourcing is a complex and collaborative process among multiple sectors (Gottschalk & Solli-Saether, 2005). ITO Performance depends on various factors, including the relationship, knowledge, skills, and capabilities shared between IT staff and vendors (Kern & Willcocks, 2000; Lacity et al., 2011). The competency of both the IT staff and the vendors is especially important for optimizing the effectiveness of IT outsourcing. Many studies on the essential components of their competency for successful IT outsourcing (e.g. Lacity et al., 2011) present an IT outsourcing framework that identifies specific important competencies. The vendor, or IT consultant, possesses knowledge of IT systems, as well as management skills in areas such as risk management, vendor management, cultural distance management, and negotiation. As for the IT staff, significant competencies likewise include knowledge of IT systems and human management skills. For example, Khongmalai et al. (2016) studied professional competency for IT outsourcing in the Thai banking industry, finding that the competencies of IT consultants consist of technical and business knowledge and skills in coaching, customer attention, and project management, as well as in knowledge sharing. The competencies of IT staff, on the other hand, consist of knowledge of their business, project management skills, and an outcome-focused perspective. Earlier, Shi and Sarker (2007) identified IT staff and IT consultant competencies related to successful IT outsourcing, including knowledge of project management, of different cultures, and of work styles, as well as the transfer of knowledge between the staff and the consultants. The study found that knowledge transfer resulted in knowledge sharing, but also various problems. Here, a major factor is the human one, specifically the readiness and ability of the IT staff and the IT consultants to communicate and interpret each other's messages; if there is too wide a competency gap between the parties, it will negatively affect the transfer of knowledge (Shi & Sarker, 2007; Brcar & Bukovec, 2013). Moreover, individual competency factors can also affect the efficiency of IT outsourcing (Aron & Singh, 2005; Aubert, et al., 2012; Brcar & Bukovec, 2013; Dutta, et al., 2011; Lee & Choi, 2011). For example, Lee and Choi (2011) found that the effectiveness of IT outsourcing depends on three factors: 1) the organization's ability, 2) the knowledge transfer itself, and 3) the quality and capability of the IT consultant. On this point, Aron and Singh (2005) state that the factors affecting the success of IT outsourcing include the personnel's technical skills, their ability to work, and the strategic support from their organization. Therefore, the hypotheses are as follows:

Hypotheses 1: IT Consultant competency has a positive effect on IT outsourcing performance.

Hypotheses 2: IT staff competency has a positive effect on IT outsourcing performance.

Hypotheses 3: IT consultant competency has a positive effect on knowledge transfer.

Hypotheses 4: IT staff competency has a positive effect on knowledge transfer.

2.3 Knowledge Transfer and Shared Knowledge

In the digital economy era, the development of information technology is changing rapidly, affecting business operations in many industries (McGrath, 2013). Businesses therefore must pay more attention to their core competencies to innovate business models that can most meet the needs of the market. Banking in particular requires much adjustment to address the new situation in which it no longer monopolises financial services. Many new players, such as financial technology start-ups, are competitors, so banks must adapt to customer demands by investing in digital technology and applying it to financial transactions, with emphasis on convenience, speed, and flexibility.

In the banking industry, most information technology jobs are outsourced to specialized organisations (Brcar & Bukovec, 2013). Previously, IT outsourcing was done by a single vendor, or IT consultant. Presently, outsourcing is conducted with many vendors to meet banks' IT needs. Therefore, the collaboration between the IT staff within the organisation and the IT consultant is now more complicated (Faraji & Abdolvand, 2016; Gurung & Prater, 2006), so banks try to find processes that will maximise the efficiency of their IT outsourcing. Many research studies on the factors related to IT outsourcing find that the knowledge transfer relationships between companies and vendors are central (Gerbl et al., 2015; Gewald & Dibbern, 2009; Hsu et al., 2007; Lian et al., 2014; Lin & Chen, 2012).

Knowledge transfer is the transfer of knowledge from one person to another person who needs that knowledge. Distanont et al. (2012) and Szulanski (1996) viewed knowledge transfer as a form of communication. The transfer process can be considered as sending messages from a source to a recipient in a given context. In the knowledge transfer process, the sender and the recipient play an important role. Anyone who has the skills and background knowledge on the subject to be transferred well, willing to share, have the ability to absorb capacity, and share will achieve the goal of knowledge transfer. The successful knowledge transfer also depends on the level of the sender-recipient relationship. The closer the personal relationship is, the more efficient the transfer. Moreover, the nature of knowledge and how it is transferred

also important (Distanont et al., 2012; Distanont et. al., 2014; Pardo et al., 2006; Sarker et al., 2005; Xu & Ma, 2008). Each method of knowledge transfer is appropriate for each specific situation. It depends on the type of knowledge to be transferred and how it is transferred (Distanont et al., 2012). Some transfer methods are suitable for some types of knowledge but not for others. Therefore, it is helpful to categorize the knowledge to be transferred. Many researchers have classified the types of knowledge to be transferred, such as tacit knowledge and explicit knowledge (Distanont et al., 2012; Nonaka, 1994; Polanyi, 1962). In brief, there are four fundamental elements: source, the message, the recipient, and the context. Knowledge transfer can occur within the organization (intra-firm knowledge transfer) or across company boundaries. Knowledge transfers between companies can be downstream (with customers), upstream (with suppliers, universities, and other organizations), or with competitors, which is the process of learning from each other. Nowadays it is difficult for companies to rely solely on internal knowledge and skills or control all knowledge within the organization which is inter-organizational learning (Chen et al. 2006). The knowledge transfer between each other is important and necessary for work and innovation to occur, but it is not easy. As there are many challenging factors: sender, receiver, and transfer

method, that is suitable for each subject and related context (Vaghefi et al., 2018). The more knowledge transfers between organizations, the more complicated it becomes, because the work will consist of personnel of various nationalities who have both basic ideas and different working methods. Therefore, it is necessary to focus on the factors that affect the success of knowledge transfer and lead to the success of the work (Foss & Pedersen, 2004; Persson, 2006; Vaghefi et al., 2018), especially in the field of information technology. The nature of the work itself is complex and not easy to transfer knowledge between each other, as well as the ability to communicate background knowledge and skills in various fields of both the sender and the receiver. These are challenging factors that can affect knowledge transfer and lead to the effectiveness of IT projects. In the context of information technology outsourcing (ITO), knowledge transfer is divided into two dimensions: business-specific knowledge, which is transferred from the outsourcing client to the provider during the opening transition phase of the project, and technology-specific knowledge is transferred from the vendor to the outsourcing client during the closing transition phase of the project (Blumenberg, 2009; Kristjansson et al., 2014; McGowan Poole, 2020). However, it is not easy to transfer knowledge between IT consultants and IT staff (Ko et al.,

2005; Kristjansson et al., 2014; Rottman, 2008; Sudhakar, 2013; Teo & Bhattacherjee, 2014). It depends on various factors that affect the knowledge transfer process in terms of the type of knowledge that must be transferred during work, which includes skills knowledge, process knowledge, domain knowledge, and work and culture norm, in which the domain knowledge, and work and culture norm are mostly tacit knowledge which is difficult and challenging to transfer (Britto et al., 2018; Cairo Battistutti & Bork, 2017; Huong et al., 2011; McGowan Poole, 2020; Pantic-Dragistic & Soderlund, 2018; Park et al., 2011; Strasser et al., 2019). In addition, client motivation, vendor willingness to share, knowledge codifiability, prior experience with vendor, and client and vendor capability are also important factors influencing the success of the transfer knowledge in the ITO (Battistella et al., 2016; Cairo Battistutti & Bork, 2017; Hodosi et al., 2017; Jain & Khurana, 2016; McGowan Poole, 2020; Nurye et al., 2019; Pantic-Dragistic & Soderlund, 2018; Strasser et al., 2019; Teo & Bhattacherjee, 2014).

In the context of IT outsourcing, knowledge transfer is the exchange of information, knowledge, skills, experience, or even problems throughout the team. Knowledge transfer creates shared knowledge, which helps more efficient work models (Khongmalai, 2019; Paulin and Suneson, 2012). Shared knowledge thus acts as an intermediary to increase the success of IT outsourcing projects (Blumenberg et al., 2009; Qi & Chau, 2013).

Therefore, the hypotheses are as follows:

Hypothesis 5: knowledge transfer has a positive effect on shared knowledge.

Hypothesis 6: shared knowledge has a positive effect on ITO performance.

Figure 1. Research Model
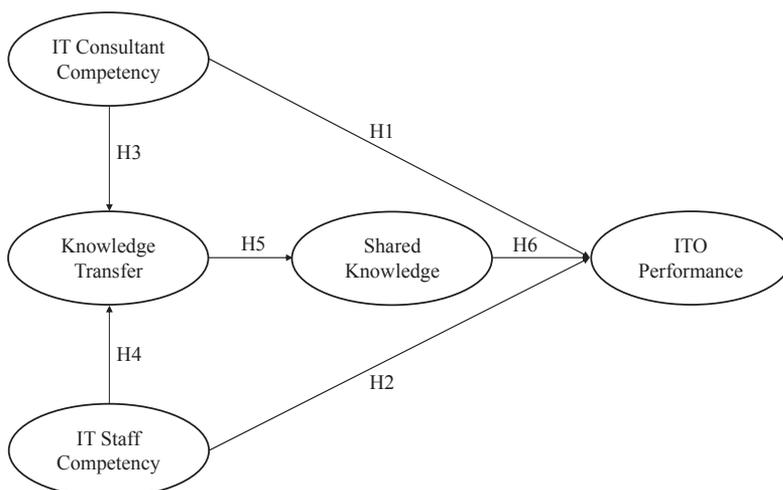
3. Methodology

3.1 Population and sampling method

This research aims to study IT outsourcing in the Thai banking industry, with the scope of the top seven Thai banks ranked Bank of the Year 2018 by Money & Banking Magazine, consisting of Bangkok Bank, Siam Commercial Bank, Kasikorn Bank, TISCO Bank, Thanachart Bank, Kiatnakin Bank, and Bank of Ayudhya (Money & Banking Magazine, 2018). The sample consisted of 700 personnel from 7 banks (100 from each bank) who had experience in IT outsourcing projects for 1 year or over.

3.2 Questionnaire Development

The research model consists of IT consultant competency, IT staff competency, knowledge transfer, shared knowledge, and ITO performance. Measurement of five factors in the research model were initially constructed based on the relevant previous studies. Expert interviews were then conducted to validate the content of these five constructs. Seven experts from Thai banking industry with over seven years of experience each were asked whether these question items adequately represent all relevant constructs under the study. Then, the questionnaire was developed based on the items validated by the experts. The pilot test was conducted with 30 IT staff. The Cronbach's alpha coefficient was calculated to ensure the reliability of the questionnaire and the internal consistency of all the scales used. A reliability coefficient of 0.70 or higher was accepted for the newly developed instruments (Nunnally, 1978). All the scale exhibited a satisfactory alpha ranged from 0.71 to 0.95.

3.3 Data analysis

Data from the completed questionnaires were analysed by the Exploratory Factor Analysis (EFA) and the Structural Equation Model (SEM). First step, the EFA was employed. Principal component analysis with Varimax rotation was used to reduce the dimensionality and extract factors representing all constructs in research model. Then, the SEM was used for testing the research model and the interrelationships between factors. It is an effective technique for conceptualising a theoretical model, confirming relationships between variables and gaining insight into the causal nature and strength of the identified relationships.

4. Results

4.1 Descriptive statistics

Data for analysis were based on 569 questionnaires of which 700 were distributed, representing 81% rate of return. All respondents had experience in IT outsourcing projects ranging from 1 year to more than 10 years. 70% of them participated in projects as team members, 29% of them participated in projects as project managers, and 1% of

them participated in projects as directors of IT division. All of them had experience working in collaboration and knowledge transfer with IT consultants in various phases of projects. 69% were IT systems for financial products and customer services and 31% are IT systems for corporate management.

4.2 Exploratory Factor Analysis: EFA

The results of factor analysis from EFA were based on the criteria: 1) the eigen value of each factor must be above 1, and 2) factor loading must be higher than 0.5. The objective in the stage of survey factor analysis is to identify the relationships of factors that affect the ITO performance.

Based on an examination of the inherent relationships among the items under each factor, the following grouping was made. The first construct, the IT consultant construct consists of four factors i.e. factor 1 was termed "technical lead- business knowledge"; factor 2 was termed "coaching and customer focus skills"; factor 3 was termed "project management skills"; factor 4 was termed "knowledge sharing attitude". The names of these factors were derived from the factor using the items with the largest loading factors (Table 1).

Table 1.

IT Consultant Construct	
Technical Lead Business Knowledge	Factor Loading
Fundamental technology knowledge of the bank	.829
Specific technical knowledge of the bank	.816
Knowledge of the bank's business process	.773
Note: Variance Explained = 65.058 Percent	

Coaching and Customer Focus Skills	Factor Loading
Skills in developing IT staff skills	.786
Skills in building good cooperation with IT staff	.772
Skills in building trust for IT staff	.731
Skills in transferring knowledge to IT staff	.712
Skills in changing the form of technology transfer	.676
Skills in responding to IT staff requirements	.650
Skills in building relationships with IT staff	.590
Skills in introducing appropriate technology	.584
Note: Variance Explained = 23.884 Percent	

Project Management Skills	Factor Loading
Skills in implementing project activities	.793
Skills in planning operation clearly	.792
Skills in monitoring and evaluating project progress	.764
Skills in negotiating to reduce conflicts	.693
Skills in building cooperation in working as a team	.642
Skills in using technology to support all parties	.638
Note: Variance Explained = 29.871 Percent	

Knowledge Sharing Attitude	Factor Loading
Sharing knowledge with team members is important.	.857
Transferring knowledge to customers is important.	.856
Effective communication is important.	.812
Managing the scope and requirements is important.	.803
Working efficiently is important.	.795
Developing efficient IT solutions is important.	.783
Creativity is important.	.778
System quality testing is important.	.768
Cross functional teamwork is important.	.746
Role model in transferring knowledge is important.	.664
Knowledge transfer will lead to better returns.	.608
Note: Variance Explained = 59.825 Percent	

The IT staff construct consists of three factors i.e. factor 1 was termed "practical business knowledge"; factor 2 was termed "project management skills"; factor 3 was termed "result oriented attitude" (Table 2).

Table 2.

IT Staff Construct	
Practical Business Knowledge	Factor Loading
Knowledge of the bank's business process	.859
Fundamental technology knowledge of the bank	.850
Specific technical knowledge of the bank	.840
Note: Variance Explained = 72.174 Percent	

Project Management Skills	Factor Loading
Skills in building cooperation in working team	.798
Skills in choosing technology to support all parties	.793
Skills in developing a project	.776
Skills in applying modern tools	.776
Skills in building relationships with IT consultants	.772
Skills in building relationships with key users	.772
Skills in responding to key users' requirements	.769
Skills in communicating requirements completely	.761
Skills in monitoring and evaluating project progress	.753
Skills in modifying the form of knowledge transfer	.748
Skills in negotiating to reduce conflicts	.706

Note: Variance Explained = 58.704 Percent

Result Oriented Attitude	Factor Loading
Developing efficient IT solutions is important.	.822
System quality testing is important.	.821
Learning new technology is important.	.812
Continuous self-improvement is important.	.810
Creativity is important.	.767
Compliance with rules and regulations is important.	.754
Cross functional teamwork is important.	.753
Knowledge transfer will lead to better returns.	.652
Role model in transferring knowledge is important.	.635

Note: Variance Explained = 58.005 Percent

The knowledge transfer construct consists of three factors i.e., factor 1 was termed "people"; factor 2 was termed "process"; factor 3 was termed "context" (Table 3).

Table 3.

Knowledge Transfer Construct

People	Factor Loading
Willingness to share knowledge from time to time when requested	.804
Willingness to share knowledge with familiar project team members	.772
Willingness to share knowledge during the closing phase	.752
Willingness to share knowledge during the execution phase	.565

Note: Variance Explained = 31.132 Percent

Process	Factor Loading
Transfer knowledge by organizing meetings, seminars, and trainings	.769
Transfer knowledge using Thai language	.749
Transfer knowledge by preparing manuals and procedures for using the system	.740
Transfer knowledge through face-to-face meetings	.719
Transfer knowledge completely that meets the needs	.714
Transfer knowledge in a sufficient period to meet the needs	.701
Transfer knowledge using technical language	.659
Transfer knowledge using various channels such as email and telephone	.593

Note: Variance Explained = 18.758 Percent

Context	Factor Loading
The bank's project work culture facilitates knowledge transfer	.864
The bank has clearly set a policy for knowledge transfer	.855
The executives provide support for knowledge transfer such as money, time, and place	.740

Note: Variance Explained = Percent

The shared knowledge construct and the ITO performance construct have only one factor (Table 4-5).

Table 4.

Shared Knowledge Construct

Shared Knowledge	Factor Loading
Complementarity of knowledge between IT Consultant and IT Staff	.908
Designing of software applications for specific group of users within the banks	.907
Customizing the appropriate IT solutions for solving operation problems	.906
System manual that includes the operation manual, maintenance manual, and additional information of use after the IT staff begin using the information technology solutions	.862

Note: Variance Explained = 80.263 Percent

Table 5.

ITO Performance Construct

ITO Performance	Factor Loading
The developed system is easy to use.	.890
The developed system can satisfy end users.	.888
The system has been completed within the specified scope.	.879
The developed system is stable.	.870
The system was completed within the specified budget.	.833
The developed system is flexible and can be adjusted according to the needs of users.	.825
The system was completed within the specified time.	.793

Note: Variance Explained = 78.632 Percent

    4.3 Structural equation modelling: SEM

        After that, the results from EFA analysis were used to analyze the structural equation model (SEM). SEM was used for testing both the research model and the interrelatioships between factors. The overall model testing is presented in Figure 2. The results of the research model suggest that the overall fit of the model with the data was good (CMIN/df 1.844, GFI 0.982, AGFI 0.960, RMSEA 0.038)

(Table 6). These values were consistent with empirical data, and when they were analyzed using the model, as shown in Figure 2, the p-value was significant at .001 (***), .01 (**), and .05 (*). The results of the linear structural relationship test among parameters in the model through path analysis can be used to conclude the relationship among parameters as presented in Figure 2 and Table 7.
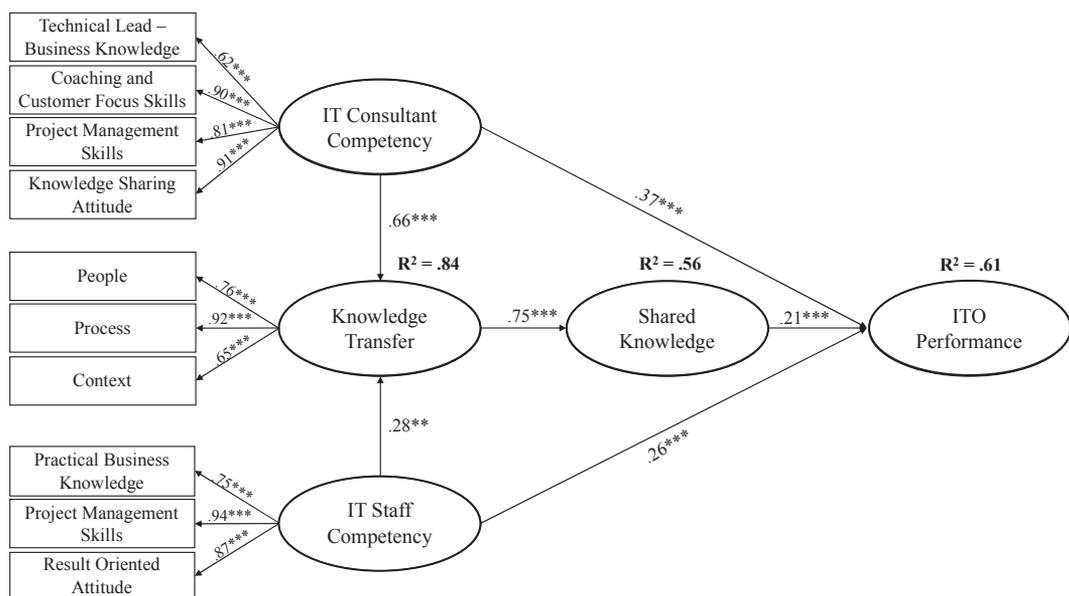
Table 6.

Goodness-of-fit-indices and measure

Measurement indices	Recommended Value	Results
minimum sample discrepancy function (CMIN/df)	< 3.00 *(Acceptable)*	1.844
P-Value of CMIN	< 0.05 *(Acceptable)*	0.002
Goodness-of-fit index (GFI)	> 0.90 *(Acceptable)*	0.982
Adjusted Goodness-of-fit index (AGFI)	> 0.90 *(Acceptable)*	0.960
Root mean square error of approximation (RMSEA)	< 0.05 *(Acceptable)*	0.038

Figure 2.

Relation Parameter results

CMIN = 64.553   df = 35   P = 0.002   CMIN/df = 1.844
GFI = .982   AGFI = .960   RMSEA = .038
Note: ***p<0.001, **p<0.01, *p<0.05

Table 7.

Parameter results

Hypothesis	Parameter		Beta	P
H1	ITO Performance	<--- Shared knowledge	0.213	0.000***
H2	ITO Performance	<--- IT Consultant Competency	0.371	0.000***
H3	ITO Performance	<--- IT Staff Competency	0.264	0.000***
H4	Shared knowledge	<--- Knowledge Transfer	0.747	0.000***
H5	Knowledge Transfer	<--- IT Consultant Competency	0.656	0.000***
H6	Knowledge Transfer	<--- IT Staff Competency	0.277	0.003**

As shown in the model and Table 7, H1, H2, H3, H4, H5, and H6 are all supported by the data. The shared knowledge construct and the ITO performance construct have only one component. The knowledge transfer construct consists of three factors, namely, people, process, and context. Process is the most important factor (parameter estimate = 0.92), followed by people (parameter estimate = 0.76), and context (parameter estimate = 0.65).

The IT consultant competency construct is composed of four factors, the most important of which is knowledge sharing attitude (parameter estimate = 0.91), followed by coaching and customer focus skills (parameter estimate = 0.90), project management skills (parameter estimate = 0.81), and technical lead – business knowledge (parameter estimate = 0.62). On the other hand, the IT staff competency construct consists of three factors, the most important of which is project management skill (parameter estimate = 0.94), followed by results-oriented attitude (parameter estimate = 0.87), and practical business knowledge (parameter estimate = 0.75).

As shown in Figure 2, the direct effect analysis indicates that IT consultant competency, IT staff competency, and shared knowledge simultaneously contributed 61 percent of the ITO performance (R^2 0.61). IT consultant competency has the most influence (parameter estimate 0.37), followed by IT staff competency (parameter estimate 0.26), and shared knowledge (parameter estimate 0.21). Based on the indirect effect analysis, IT consultant competency and IT staff competency together positively contributed 84 percent of knowledge transfer (R^2 0.84). Additionally, knowledge transfer positively contributed 56 percent of shared knowledge (R^2 0.56).

5. Discussion and Conclusion

Previous studies indicate that some outsourced projects failed because of poor coordination between IT staff and vendors (Narayanan et al., 2011). However, this study and others find that the effectiveness of an IT outsourcing project depends on numerous factors, including the relationships, knowledge,

skills, and capabilities of IT staff and vendors (Kern & Willcocks, 2000; Lacity et al., 2011). A too-great gap between them in any of these abilities will have negative effects the communication and knowledge transfer between them (Shi & Sarker, 2007; Brcar and Bukovec, 2013).

The research results contribute to research on IT outsourcing projects by systematically showing what components of the knowledge transfer model affect IT outsourcing performance, and how are each component is related to the others. Most essentially, it is found that for the knowledge transfer process to have an effect on IT outsourcing performance, the readiness of both IT consultants and the bank's IT staff are needed (Wang & Wang, 2019).

Previous studies have shown that knowledge transfer influences ITO performance, but the findings of this research are different: knowledge transfer does not directly influence ITO performance, but knowledge transfer must actually result in shared knowledge between IT consultants and IT staff so it can affect ITO performance. In addition, the research results also revealed that knowledge transfer needs support from IT consultant competency and IT staff competency that will lead to ITO performance. The first factor is knowledge transfer that must focus on the transfer process, which includes the type of knowledge and the format to be transferred. Working in

the context of ITO, tacit knowledge in terms of skills and problem solving occurs all the time. Organizations need to focus on their efforts to convert tacit knowledge into explicit knowledge in the form of manuals and system implementation procedures, documents collecting problems and solutions, etc., for easy forwarding and transfer knowledge. Also, the transfer format is important. It needs a format that is appropriate for the type of knowledge to be transferred and the actual context in which it occurs. The second factor, in the part of IT consultant competency, important competences include coaching and customer focus skills and knowledge sharing attitude, which are considered the key that leads to knowledge transfer in the ITO project. The organization's strategy for hiring an IT consultant in ITO work should be specified in the contract on the subject that the IT consultant must be able to develop the skills of the IT staff, as well as having good cooperation with IT staff to build mutual trust that will lead to an open mind to transfer knowledge between each other. Moreover, the attitude of knowledge sharing attitude must be emphasized for vendors so as to prepare personnel to see the importance of working as a team between vendors and IT staff of the organization and agree to develop a working model according to the scope and requirements. It is also important to develop an IT solution

to adapt to knowledge transfer between each other for maximum efficiency. Finally, important factors in the IT staff competency are project management skills and result oriented attitude. The organization itself should have a plan in development and upgrading of personnel working in ITO to have knowledge and skills in project management as well, which can create an atmosphere of teamwork, having the skills to choose the right technology to support the work of all parties, and having skills in building relationships between IT consultant and IT staff both during and after work. In addition, the organization needs to have a strategy to develop an attitude of IT staff to focus on result oriented. It may start from creating an attitude to develop IT with the highest efficiency and quality, and ready to learn and develop oneself in order to achieve the most productive work. The research results are different from the results from previous studies that most of them stated that the competencies of IT consultants and IT staff that should be in the matter of motivation, willing to share, absorptive capacity, social ties, and trust, etc. (Battistella et al., 2016; Cairo Battistutti & Bork, 2017; Hodosi et al., 2017; Jain & Khurana, 2016; McGowan Poole, 2020; Pantic-Dragistic & Soderlund, 2018; Strasser et al., 2019; Teo & Bhattacherjee, 2014).

In conclusion, these results demonstrate the importance of the knowledge transfer model on ITO performance in the context of the Thai banking industry, which itself generally reflects the outsourcing project work culture of East Asian countries. This study thus broadens the IT outsourcing perspective on the general Asian context, as there are similar views in countries like China, which is currently experiencing a high growth in IT outsourcing. Studies in China indicate that the integration capability between IT consultants and IT staff has a particular impact on ITO performance, especially if both parties have such a learning capability (Qi & Chau, 2015; Wang and Wang, 2018), a finding that is similar to this study.

However, in China knowledge sharing does not have a significant effect on IT outsourcing success because of China's unique 'guanxi' culture, a part of its general collectivism, under which knowledge sharing occurs only between long-term trading partners (Ramasamy et al., 2006). This study finds a different working culture among Thais; in other words, they maintain an open culture in which a bank's IT staff have a results-oriented attitude and project management skills that are ready for the knowledge transfer process with the IT consultants and for building the kind of shared knowledge relationship with them that is critical to ITO performance.

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