

The Effects of Intellectual Capital, Innovative Behavior, Absorptive Capacity on Organizational Effectiveness: The Moderating Role of Social Capital

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Abstract:

The present study explored the association between intellectual capital, employees' innovative behavior in the workplace, the absorptive capacity of a firm, and organizational effectiveness of the Thai listed companies in the service industry. The survey data were collected from 423 managers from 198 listed companies in Thailand. The results showed that intellectual capital tended to improve the employees' innovative behavior and the firm's absorptive capacity, and finally enhance corporate organizational effectiveness. Furthermore, the results from the moderating effect found that the positive relationship of intellectual capital with both innovative behavior and absorptive capacity tended to be significantly higher for the organization which owns a higher level of social capital. The main findings of this study provide theoretical implications to the field of knowledge management and organizational effectiveness, as well as practical implications for managers in service-oriented companies, given that improving intellectual capital tends to bring enhancement of innovative behavior and absorptive capacity, and finally positively impact organizational effectiveness. Thus, these findings imply that managers should effectively manage intangible organizational assets by recognizing and utilizing those resources to reach organizational effectiveness to a higher extent.

Keywords: Intellectual Capital; Innovative Behavior; Absorptive Capacity; Social Capital; Organizational Effectiveness

INTRODUCTION

In today's fast-changing and increasingly ambitious global business world, organizational capabilities are based on knowledge (Marr, Schiuma, & Neely, 2004; Suteerachai, Meechaiwong, Suksod, & Jermisittiparsert, 2019; Wajeetongratana, Joemsittiprasert, & Jermisittiparsert, 2019), intangible resources are much more highly valued than tangible resources for the purpose of achieving effective management in companies under the current economic environment. Unarguably, knowledge assets and intangible resources have become not only powerful equipment for corporate competition, but also major resources for successful companies (Guthrie, 2001; Shih, Chang, & Lin, 2010). However, resources are unable to create valued assets to the firms unless they are properly and effectively utilized (Gold, Malhotra, & Segars, 2001). To apply these resources effectively for firms to achieve competitive advantage and create value, it is crucial for firms to reinforce their ability to maximally realize and utilize such resources. According to absorptive capacity theory, the absorptive capacity of a firm tends to facilitate organizational performance through identifying, assimilating, transforming, and utilizing knowledge resources (Zahra & George, 2002). In addition, by owning and effectively utilizing intellectual capital, the organization can enhance its employees' innovative behavior in the workplace and innovation (Chen, Wu, & Chen, 2010; Mura, Lettieri, Spiller, & Radaelli, 2012). While developing organizational performance, implemented and emphasized through tangible materials, is commonly adopted by companies in the agriculture and industry sector,

there is evidence that operating service-oriented enterprises is dissimilar from operating another kind of firm (Bowen & Ford, 2002). The service industry is the most heterogeneous sector of all. As is the tendency of a knowledge-intensive economy, data, information, and knowledge are vital, and they are constructed and dealt especially by the service sector (Miozzo, 2003). Therefore, researchers found intangible materials such as knowledge have become a chief element for sustaining competitive advantage, even more than tangible assets, especially in the service industry (Curado, 2008; Gratton & Ghoshal, 2003). Although the topics of intellectual capital and knowledge management have already appeared in the literature, more accumulation of theoretical development and empirical studies are still needed since there are not many studies looking closely to explain the situation of knowledge management in the service industry. There are main questions that bring up purposes to address in this research.

This research not only takes a decomposed view to investigate how intellectual capital can be utilized for developing both innovative behavior and absorptive capacity, but also empirically discusses their associations with the organizational effectiveness of firms, using a sample from the listed companies of the service industry in Thailand. This is particularly important for Thailand, which is an emerging economy driven by some proportion of small-to-medium sized businesses (Suntrayuth, 2016). In particular, Thailand is an upper-middle-income country in Asia, which the services sector has contributed more than 50% of its economy (Koonnathamdee, 2013; Statista, 2019).

In light of this fact, Thailand can serve as a suitable research context for studying the intellectual capital and organizational effectiveness of service-oriented companies. However, the majority of extant studies are concerned with the effects of either intellectual capital or knowledge management on organizational performance (Marr et al., 2004; Mills & Smith, 2011; Tseng & Lee, 2014), but only a small number of studies have looked into the relationship of intellectual capital with organizational effectiveness regardless of direct or indirect paths. Considering this research gap, one additional question is raised in this research as follows: while intellectual capital has been proposed to enhance employees' innovative behavior in the workplace and the absorptive capacity of a firm, could it be possible that some firms will gain higher enhancement? Therefore, instead of focusing only on the direct effect of intellectual capital on innovative behavior and absorptive capacity, this study also explores whether its positive effects can be moderated by the extent of the social capital of firms. While intellectual capital may generally improve employees' innovative behavior in the workplace and the absorptive capacity of a firm, it is possible that improvement could be more prominent for firms with higher social capital environment. The existing support for the moderating effects of social capital will be discussed in the following section.

LITERATURE REVIEW

Intellectual capital, innovative behavior, and absorptive capacity

Knowledge has developed into a powerful tool for corporate competition (Shih et al., 2010); however, it is hard to measure (Matoskova, 2016). Thus, scholars found intellectual capital is a concept that enables firms to recognize and classify corporate knowledge assets (Teece, 2000). In a general sense, intellectual capital is defined as being composed of three components: the human facets, intra-organizational structures, and external environment (Hussi, 2004). From organizational view, intellectual capital relates to a knowledge stock which is managed and generated through the dynamic processes to create interaction among the flows of knowledge (Bontis, Crossan, & Hulland, 2002; Choo & Bontis, 2002; Rastogi, 2002). Because of this, scholars defined that intellectual capital has been broadening to involve all intangibles in a firm representing employees' skills, know-how, expertise, managerial processes and procedures, organizational structure, cultural values, as well as the intellectual property of an organization (Bontis, 2001).

In the literature to date, the majority of research on intellectual capital has explored its effect on organizational innovation, but fewer studies have focused on the root of innovation, personnel, which is the individual's innovative behavior of an organization (Chen et al., 2010; Cingöz & Akdoğan, 2011). Besides, some evidence shows that intellectual capital has an optimistic effect on employees' innovative behavior in the workplace (Mura et al., 2012). Cingöz and Akdoğan (2011) mention that developing, adopting, and implementing innovations in organizations

relies extensively on employees' innovative behavior in the workplace. In fact, innovative behavior denotes entire individual behaviors that generate, introduce, and apply valuable newness at any level in an organization with the purpose of benefiting a job's effectiveness, the group, or the organization (Janssen, Van de Vliert, & West, 2004; Kleysen & Street, 2001). From the knowledge-based view of a firm, the base of innovativeness relies on corporate intangible assets; besides, it is directly relevant to the capability of a firm to manage its intellectual capital (Subramaniam & Youndt, 2005). That is because the dynamic and continuous transformation and reorganization of various forms of corporate knowledge produce new knowledge (Tovstiga & Tulugurova, 2007). In this study, the author adapts the conceptualization proposed by Bontis, Keow, and Richardson (2000) as the framework for intellectual capital, which is classified as a mixture of the following dimensions. The first dimension, human capital, involves all competences and capabilities of individuals working in an organization (Lynn, 2000). The second dimension, structural capital, contains the whole internal structure of organizations, such as an organization's process or routine (Bontis et al., 2000). The last dimension, customer capital, relates to external intangibles of the organization such as knowledge rooted in the related industry associations or customers (Bontis et al., 2000). The attributes of intellectual capital are similar with some important determinants of individual innovative behavior and innovation or creativity at all levels, which involve resources, structure and strategy, organizational structure, external environment, etc. (Jafri, 2010; King, De Chermont, West, Dawson, & Hebl, 2007).

In addition to the benefit of intellectual capital on innovative behavior, the absorptive capacity of a firm can be impacted by intellectual capital as well. Intellectual capital is intellectual intangibles including information, knowledge, experiences, and intellectual property (Santos-Rodrigues & Figueroa, 2007). Based on the absorptive capacity theory, knowledge sources and experiences significantly affect the corporate absorptive capacity (Zahra & George, 2002). This study is based on the absorptive capacity model of Zahra and George (2002), that absorptive capacity is the dynamic processes as follows: the first process, knowledge acquisition, concentrates on the corporate ability to recognize and attain valuable external knowledge that is dominant to its operator; knowledge assimilation, the second process, comprises the corporate routines and procedures that enable the organization to analyze, deal, convert, and catch on the information generated from the external environment; the third process, knowledge transformation, comprises the capability of developing and extracting the existing knowledge and then combining, acquiring, and assimilating knowledge to reach a new schema; the last process, knowledge exploitation, is the competence to integrate new knowledge into business operations. Given the above support for the impact of intellectual capital, the following hypotheses are proposed:

Hypothesis 1. The intellectual capital of a firm will positively impact the employees' innovative behavior in the workplace.

Hypothesis 2. The intellectual capital of a firm will positively associate with the absorptive capacity of a firm.

Innovative behavior, absorptive capacity, and organizational effectiveness

Organizational effectiveness is seen as the most general and important objectives of organizations presently. It is based on organizational theory (Davis, 2000), which considers an organization as a social system, given inevitable resources and methods, executes its objectives without the loss of its resources and methods and without placing too much pressure on its members. A common agreement in the literature is that organizational effectiveness is affected by knowledge management in an organization (Gold et al., 2001; L. Lee & Sukoco, 2007; Liu, Chen, & Tsai, 2005). That is because knowledge management builds a capacity that enhances efficient management together with information and knowledge flow throughout the organization (Mills & Smith, 2011). Knowledge management is a broad concept, so a more detailed evaluation of knowledge management capabilities tends to provide a more fundamental understanding of organizational performance. According to the framework of Gold et al. (2001), knowledge infrastructure and knowledge process are the knowledge management capabilities. According to the framework, knowledge infrastructure capability involves organizational structure, culture, and technological dimensions. Besides, organizational structure refers to organizational hierarchy, norms, rules, regulations and trust mechanisms (Herath, 2007). The cultural dimension rooted in a knowledge management context is an accumulation of faiths, values, symbols, and behaviors that affect an organization's knowledge management (Ho, 2009). These elements are in consensus with innovative behavior at the organizational level, which relates to networks, knowledge utilization, strategy, structure, resources, culture and climate, and management-related factors (Anderson, Potočnik, & Zhou, 2014). Thus, innovative behavior enables scholars and practitioners to realize and analyze the knowledge resources in a better way to improve their organizational effectiveness. Given that developing innovative behavior at the organizational level extensively relies on personnel, employees' innovative behavior in the workplace is an important asset which is significant to organizational effectiveness and survival in a dynamic business environment (Cingöz & Akdoğan, 2011; Pieterse, Van Knippenberg, Schippers, & Stam, 2010). The other capability of knowledge management, knowledge process, comprises processes of knowledge acquiring, conversing, applying, and protecting, which is in line with absorptive capacity theory, that absorptive capacity is a dynamic ability for an organization to gather, absorb, convert and exploit a series of corporate knowledge, routines, and process (Zahra & George, 2002). As for knowledge protection, it typically incorporates copyright, licensing, as well as information

technology systems (C. Lee & Yang, 2000). So, these knowledges are actually outcomes of knowledge resources that may not exist within some organizations, especially in the service industry. Taken altogether, it is expected as follows:

Hypothesis 3. Employees' innovative behavior in the workplace is positively relevant to organizational effectiveness.

Hypothesis 4. The absorptive capacity of a firm positively impacts its organizational effectiveness.

The moderating role of social capital

Although applying intellectual capital can improve employees' innovative behavior and the absorptive capacity of a firm, the author argues that the positive contribution of intellectual capital for both innovative behavior and absorptive capacity can be contingent on a factor, social capital. Social capital was initially defined by Bourdieu in 1986 as the aggregation of the actual or potential resources associated with possessing a more or less institutionalized network of enduring mutual knowledge recognition (Bian & Qiu, 2000). One perspective of social capital concerns external relations, by indicating social capital as an inherent resource in social networks that connects participants with others, which is so-called bridging view (Girdwichai, Suksod, Saenpakdee, & Jermisittiparsert, 2019). In contrast, according to the insight of internal ties, a bonding view of social capital, concerned with collective actors' internal characteristics and interconnections among individuals or teams of a collectivity for the purpose of providing cohesiveness for the collectivity, and thereby enhancing the incentive to achieve collective goals (Adler & Kwon, 2002). However, some scholars emphasize both bridging and bonding views of social capital. From this perspective, social capital is regarded as actual and potential resources located in, available through, and gathered from the network of an individual or social unit (Zhang, Ma, & Wang, 2012). In addition, Nahapiet and Ghoshal (1998) proposed a classic framework to measure social capital, by categorizing it into relational, structural and cognitive dimensions. To be specific, the structural dimension concerns the overall paradigm of connections between actors, which emphasizes the impersonal aspects of a network, so it concentrates on the internal connections and structural characteristics of social networks such as system, norm, and degree (Iturrioz, Aragón, & Narvaiza, 2015). The relational dimension mainly concerns interpersonal trust, connectedness, and other personal relationships people have in society, so it is the personal aspects of a network (Liao & Welsch, 2005). The cognitive dimension represents the extent of similarity in understanding among network members, which are shared values, explanations, expositions, and systems of meaning (Chiu, Hsu, & Wang, 2006).

Although increasing and accumulating the intellectual capital of a firm is important to help its employee' innovative behavior in the workplace, it is possible that there will be more opportunity to achieve better employees' innovative behavior when a firm has a highly social capital

environment. This suggestion can be explained by a study of Martins and Terblanche (2003), which points out innovative behavior is supported and developed through social network members in a workplace who are embedded within the shared values, systems, and beliefs of the organization. Therefore, information or knowledge flowing and sharing are vital for developing employees' innovative behavior in the workplace. In particular, this role of social capital is in line with the literature related theory which suggests when interactions between individuals happened in a workplace, it leads to greater sharing of resources and information (Hezlett & Gibson, 2007); moreover, it also suggests that if the organizational processes within an organization promotes the development of trust among members in a network of collectivity or society, it will be conducive to the sharing of ideas and information (Adler & Kwon, 2002). This is also consistent with social capital theory, that members' channels to an extent of resources and information are affected by the quality of network relationships. Thus, social capital tends to encourage cooperative behavior, which can eventually enhance employees' innovative behavior in the workplace. Moreover, this study also predicts the absorptive capacity of an organization will be greater in organizations that nourish and raise social capital. Based on the model of absorptive capacity (Zahra & George, 2002), it involves four

components. Aribi and Dupouët (2015) mention that each component is executed by dissimilar actors in various organizational parts, the absorptive capacity thereby requests that knowledge flows through the internal and external edges of the organization. In particular, absorptive capacity lies on the corporate capacities to distribute knowledge and internal communication (Lane, Koka, & Pathak, 2006). Based on theoretical studies, many scholars underline that social capital has important effects on the absorptive procedure to move knowledge from one stage to the other, as it allows the necessary flows of information and knowledge to take place. In addition, to better absorb acquired information and knowledge, social capital is also meaningful in boosting the understanding of those resources due to the fact that it offers a shared code among members of a network (Upadhyayula & Kumar, 2004). According to the opinions of the discussion above, the hypotheses below are deduced:

Hypothesis 5a. The positive influence of intellectual capital on employees' innovative behavior in the workplace will be increased when organizations possess a greater extent of social capital.

Hypothesis 5b. The positive influence of intellectual capital on the absorptive capacity of a firm will be improved when organizations possess a greater extent of social capital.

Consequently, this study develops a conceptual model as shown in Figure 1.

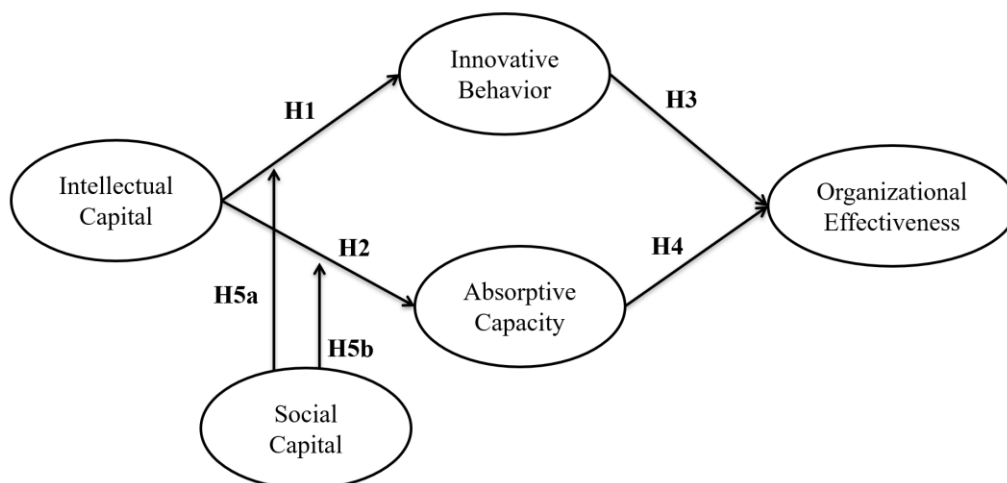


Figure 1. The conceptual model (Author own source)

METHODS

Sample and data collection

The sampling frame encompasses the public companies of the industry groups of Services, Property & Constructions, and Financials on the Stock Exchange of Thailand (SET) and Market for Alternative Investment (MAI). Three sub-sections of Property & Constructions, Construction Materials, Construction Services, and Property Fund & Real Estate Investment (REITs), were excluded from this study since they do not belong to the services industry according to the General Agreement on Trade in Services (GATs)

concept. A structured and self-administered questionnaire survey was applied for data collection. For the sake of the survey's validity and reliability, the questionnaire was pre-tested through a pilot study. After a revision on the basis of the results from the pilot study was made, the final version of the questionnaire, along with a cover letter, were distributed in several channels, including personal emails, companies' official telephone, postal mail, and contact persons. Of the 289 public companies that were reached, 482 managerial officers of 199 companies responded, which accounts for a 68.51 percent response rate at the

organizational level. Of this amount, 59 managers had not answered properly, so their answers were removed. Overall, 423 questionnaire surveys of 198 companies were valid. Table 1 summarizes the demographic and organizational characteristics of the participants. The majority of the respondents were male (84.4 percent), and the average age was around 36 years old. It can be concluded that most managerial positions are occupied by male managers in Thai public companies. The average number of years established for public companies in this study is 34.77 years, which indicates that most of these companies have been competing in the dynamic business world for decades. It is important to note that most of these public companies have more than 100 employees (76.4 percent), which means there are a large number of employees in the majority of public companies in Thailand; thus, it is vital for each manager of the company to properly manage and coordinate their subordinates.

Table 1. Demographic and organizational characteristics

Demographic characteristics	Descriptive statistics
Gender	Male: 232 (54.8%) Female: 191 (45.2%)
Age (in year)	Mean: 36.02 Standard deviation: 8.536
Level of Education	Less than a bachelor's degree: 11 (2.6%) Bachelor's Degree: 339 (80.1%) Master's Degree: 73 (17.3%) Doctoral Degree: 0 (0%)
Organization tenure	Less than 2 years: 68 (16.1%) 2 to 4 years: 136 (32.2%) 5 to 8 years: 93 (22%) More than 8 years: 126 (29.8%)
Organizational characteristics	
Age (in year, till 2019)	Mean: 34.77 Standard deviation: 18.438
Size	Less than 50: 44 (10.4%) Between 50 to 99: 56 (13.2%) 100 and more: 323 (76.4%)
Industry Group	Financials industry group: 79 (18.6%) Property & Construction industry group: 83 (19.6%) Services industry group: 261 (61.6%)
ROA	Mean: 5.25% Standard deviation: 11.199
ROE	Mean: 14.85% Standard deviation: 14.859
Market capitalization	Mean: 34479.596 million Baht Standard deviation: 111628.143

Measures

All of the scales used to measure the factors in the hypotheses were adapted from prior research. In this study, the main dependent variable, organizational effectiveness, was focused on only non-financial outcomes, so it was

measured by 10 items adapted from previous studies (Dang, Le-Hoai, & Kim, 2018; Eydi, 2013; Gold et al., 2001; Omoregie & Popoola, 2018). Employees' innovative behavior was measured by 9 items, which were adopted from a study of Janssen (2001). Absorptive capacity of a firm was based on the model of Zahra and George (2002), so the questionnaire constructed by Cassol, Gonçalo, and Ruas (2016) was adapted, which involves 10 items for covering four processes of absorptive capacity. For the main independent variable, intellectual capital, 14 items were selected from a questionnaire presented by Cassol et al. (2016). Likewise, for the moderating variable, social capital, 14 items were adapted from the studies of Sahin (2010), Van Dijk, Hendriks, and Romo-Leroux (2016), and (Chiu et al., 2006).

In addition to the main independent and dependent variables illustrated in the hypotheses, this study also controlled for individual and organizational characteristics that can influence organizational effectiveness. Control variables of individual-level include gender, age, level of education, and organization tenure (measured by the number of years managers have taken actions in their respective departments). At the organizational level, control variables are represented by organizational size (measured by the number of full-time employees in the organization), organization's age (measured in its established years), subsection of the service industry, return on assets (ROA), return on equity (ROE), and market capitalization (measured in million Baht).

Statistical analysis

Ordinal least squares (OLS) regression was the statistical technique used for examining the data of the main hypotheses since it allows researchers to estimate the relationship among all independent and dependent variables (Nazim & Ahmad, 2013). In addition to the main hypotheses, hierarchical multiple regression analysis was used to investigate the moderating effect of social capital, which allows researchers to control for some variables or group of variables, so researcher can examine the contribution by adding more predictors (Jeger, Sušanj, & Mijoč, 2014). The analysis was performed by using IBM SPSS statistics version 23.

RESULTS

Since the questionnaire was adapted from prior studies, the questionnaire was tested for both the content reliability and construct validity in order to reassure that the questionnaire fits the Thailand context. The reliability of each variable and its specific dimensions was tested via Cronbach Alphas (α) coefficient. The results are reliable since the Cronbach Alphas (α) coefficient of each variable and its dimensions range from 0.746 to 0.947, which exceeds the widely suggested value of 0.7. Furthermore, an Exploratory Factor Analysis (EFA) was performed in order to assess the construct validity. Before performing the EFA, Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test were tested, and the results show that KMO for overall variables were

greater than 0.7; in the meanwhile, the P value of Bartlett's test was 0.00, less than 0.05, so there was a nice construct validation in this sample and EFA could be continued as suggested by Hair, Black, Babin, Anderson, and Tatham (2006). An EFA using varimax rotation was applied on the 57 items, and the loading values are more than 0.5 as suggested by Hair et al. (2006).

Pearson correlation coefficients were used for analyzing bivariate correlations among variables in order to explore

the one-on-one relationships between five key variables. The results, as illustrated in Table 2, show that the association of intellectual capital on innovative behavior and absorptive capacity were significantly highly positive, with correlation coefficients at 0.530 and 0.663 accordingly. Besides, there were significantly positive correlations between organizational effectiveness and its determinants, innovative behavior, and absorptive capacity, with correlation coefficients at 0.636 and 0.810 accordingly.

Table 2. Correlation among variables

Variables	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. INN.B	.530**	.594**	.636**	.480**	-.005	.027	-.036	.007	.124*	-.011	.082	-.057	-.121*	-.036
2. IC	1	.663**	.691**	.669**	.057	.006	-.065	-.110*	.156**	.055	.115*	-.023	-.124*	.115*
3. ACAP		1	.810**	.614**	-.038	.024	-.007	-.075	.090	-.042	.070	-.049	-.110*	.052
4. OE			1	.583**	-.039	.009	-.064	-.086	.142**	.011	.079	-.066	-.178**	.069
5. SC				1	-.035	-.034	-.034	-.081	.089	-.017	.063	-.032	-.081	-.027
6. YEAR					1	.249**	-.140**	.018	.142**	.122*	.066	-.087	.026	.139**
7. SIZE						1	-.028	.043	.035	.027	.025	.146**	.019	.144**
8. TYPE							1	.073	-.071	-.008	-.047	-.035	-.033	-.224**
9. SEX								1	-.062	-.090	.067	.059	.041	.004
10. AGE									1	.269**	.435**	.055	.018	-.001
11. EDU										1	.076	-.012	-.032	-.039
12. WE											1	.070	.019	.070
13. ROA												1	.294**	.062
14. ROE													1	.006
15. MC														1

The Variance Inflation Factor (VIF) was evaluated for checking the possible problem of multicollinearity among all variables in each equation. The results reveal that there were no problems of multicollinearity among variables due to their value of VIF were less than 10. Table 3 reports the results from OLS regression analysis for the main hypotheses, and hierarchical multiple regression analysis for interaction term.

Model 1 reports the results from Hypothesis 1. The result supports a positive relationship between intellectual capital with innovative behavior ($\beta=0.715$; $p<0.001$). Model 2 reports the results of Hypothesis 2, that intellectual capital positively associated with absorptive capacity ($\beta=0.712$;

$p<0.001$). Model 3 reveals Hypothesis 3, that innovative behavior in the workplace is statistically significantly and positively related to organizational effectiveness ($\beta=0.548$; $p<0.001$). Model 4 reports on Hypothesis 4, that the relationship between absorptive capacity of a firm and organizational effectiveness is also positive and statistically significant ($\beta=0.879$; $p<0.001$). The increase in r-square in Model 5 indicates when both innovative behavior in the workplace and absorptive capacity of a firm exist in the regression model, the 70.8% of organizational effectiveness can be explained, which is greater than when only one of them occurred in the model.

Table 3. Regression results

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Intercept	0.747*	1.1978***	1.791***	0.319	0.208	3.360***	3.793***
<i>Control variables</i>							
Organization's age	-0.002	-0.003*	-0.002	-0.001	-0.001	-0.002	-0.002*
Organizational size	0.063	0.048	-0.002	-0.007	-0.012	0.062	0.047
Type of Organization	-0.011	0.006	-0.006	-0.016	-0.012	-0.008	0.008
Gender	0.111	-0.009	-0.111*	-0.015	-0.035	0.107	-0.012
Age	0.006	0.001	0.006	0.006*	0.004	0.004	0.000
Educational Level	-0.100	-0.115*	-0.001	0.043	0.046	-0.065	-0.078
Working Experience	0.003	0.000	0.002	-0.004	-0.006	0.013	0.010

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
ROA	-0.003	-0.002	-0.001	-0.001	0.000	-0.003	-0.002
ROE	0.000	0.000	0.000*	0.000***	0.000**	0.000	0.000
Market Capitalization	0.000*	0.000	0.000*	0.000	0.000	-0.000	0.000
<i>Independent variable</i>							
Intellectual capital	0.715***	0.712***				0.320***	0.301***
Innovative behavior			0.548***		0.206***		
Absorptive capacity				0.879***	0.727***		
<i>Moderator</i>							
Social capital						0.226***	0.246***
<i>Interaction</i>							
IC x SC						0.123***	0.114***
R-square	0.308	0.456	0.439	0.674	0.708	0.397	0.590
ΔR-square	0.290	0.441	0.424	0.665	0.699	0.377	0.577
Maximum full VIF	1.371	1.371	1.373	1.366	1.374	1.969	1.969

Model 6 and Model 7 report the results from hierarchical multiple regression analysis that include the moderating effect of social capital. To avoid multicollinearity arising when testing regression model among variables, the process of centralizing variables was conducted before generating interaction terms (Cohen, Cohen, West, & Aiken, 2013). Model 6 shows that interaction between intellectual capital and social capital was statically significant and positively related to innovative behavior ($\beta=0.123$; $p<0.001$). In addition, the control variables together accounted for 39.7% of the variance in innovative behavior ($R^2=0.397$), which

higher was than simple effects (without the moderating effect) plus the effects of the control variables in Model 1. On the other hand, Model 7 indicates there was statically significant and positive correlation within the interacting variable and absorptive capacity ($\beta=0.114$; $p<0.001$). Together with control variables, 59% of the variance in absorptive capacity can be explained by this model ($R^2=0.590$), which has higher percentages than Model 2. They also support Hypothesis 5a and 5b. The moderating effects are illustrated in Figure 2.

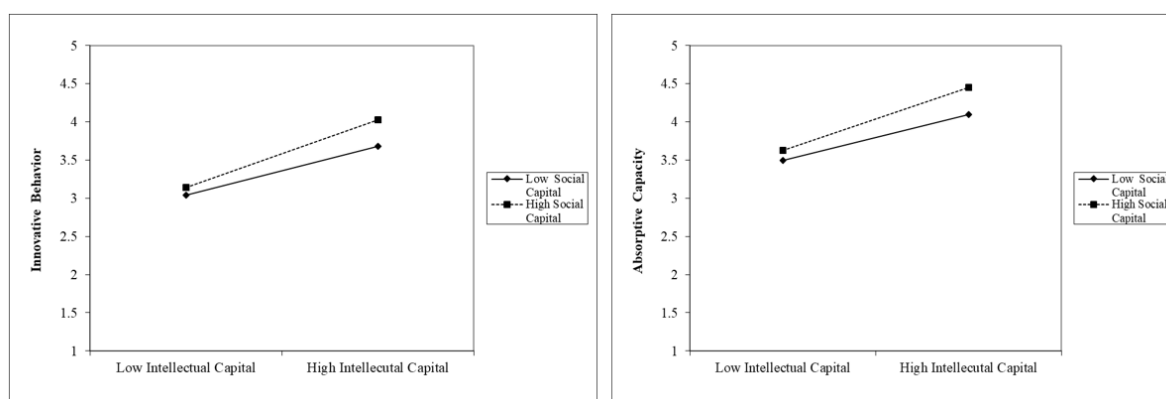


Figure 2. Interaction effects

DISCUSSION

The intention of this study was to observe associations with intellectual capital, which can reinforce innovative behavior in the workplace and absorptive capacity's influence on organizational effectiveness as its two determinants of the listed companies in the service industry in Thailand. In addition to the main effects of intellectual capital, the

analysis also took into consideration the moderating effect of social capital. Overall, the results from the regression analysis supported all proposed hypotheses. First and foremost, the analysis showed that the intellectual capital of an organization is positively related to both employees' innovative behavior in the workplace and absorptive capacity of a firm, and eventually enhances corporate

organizational effectiveness. In particular, the path of intellectual capital to innovative behavior is based on resource-based theory. The findings of this positive relationship provide additional support to resource-based theory in the field of strategic management, which suggested that valuable, rare, inimitable, non-substitutable resources, capabilities, and core competencies can contribute to a firm's acquiring and sustaining performance (Newbert, 2007). This finding is also consistent with an empirical study of Mura et al. (2012), which found a direct effect of intellectual capital on practitioners' innovative work behavior. This is an indicator, where managers realize and understand that intellectual capital is an important factor to facilitate their employees' innovative behavior in a firm, they should recognize their strategic possibilities as an organization to promote the organization's intellectual capital. Furthermore, the findings of positive linkages between intellectual capital, absorptive capacity, and organizational effectiveness lend empirical support for absorptive capacity theory (Zahra & George, 2002), that states knowledge source and experience significantly affect the absorptive capacity of a firm and then benefit organizational competitive advantages. It suggests that an organization should continuously collect knowledge resources and experiences in order to facilitate is absorptive capacity. To our knowledge, this is the first study to demonstrate positive relationships between innovative behavior and absorptive capacity with a firm's organizational effectiveness. Thus, the findings not only provide additional evidence to the work of Gold et al. (2001), but also support the statement of Mills and Smith (2011), that consider a decomposed view of knowledge management capabilities. As a consequence, for organizations without achievement of innovation, managers can put effort into enhancing employees' innovative behavior in the workplace because there will be a similar effect on organizational effectiveness. Besides, it is significant for managers to assist in exploring, assimilating, transforming and applying the knowledge and experiences resources for achieving greater and more effective performance.

Lastly, this study extended the intellectual capital examination regarding social capital. The results from the moderating effect analyses support the study of Mura, Moustaghfir, Lettieri, Radaelli, and Spiller (2013), that found social capital has a relevant moderation effect on the linkage between knowledge sharing and innovative behavior. Contrary to the studies of Lin and Huang (2005) as well as Zheng, Wu, and Xie (2017), which did not find the support of the moderating effect of social capital, the results in this study found significant evidence to support the interaction term of intellectual capital and social capital. In addition to the moderating role of social capital, the analyses found that social capital is an important construct for employees' innovative behavior in the workplace and absorptive capacity of a firm, which is consistent with previous studies (Upadhyayula & Kumar, 2004; Xerri & Brunetto, 2011; Yu, 2013). Based on these findings, it is

important for managers to build trust and maintain good relationships among organizational members.

CONCLUSION

In conclusion, this research has provided empirical evidence to support the importance of intellectual capital's impact on employees' innovative behavior and absorptive capacity of a firm, and eventually benefit a firm's organizational effectiveness in the listed companies of the service industry in Thailand. In general, the findings from this study provide extra contributions to previous research that proposed the benefits of applying intellectual capital to improve employees' innovative behavior in the workplace and an organization's absorptive capacity. The study also filled the research gap by indicating an indirect association between intellectual capital and organizational effectiveness. Lastly, the study shows an important step in demonstrating different results under the impacts of intellectual capital by having different degrees of social capital in the organizations.

Limitation

Nevertheless, there are some limitations in this study. The first limitation is derived from the fact that the investigated factors were measured as one-dimensional concepts, which is not able to analyze the inter-relationships among multiple variables in a model for having a more detailed perspective. So future studies may look into each facet of variables for analyzing each dimension separately. The second limitation is the measure of organizational effectiveness, which was based on the perceptions of the managers rather than on objective performance data. Managers' perception about effectiveness may not reflect the actual effectiveness and performance of an organization. Therefore, future studies could consider the perspective data along with object performance data to measure organizational effectiveness. Next, cross-sectional data was used according to the time limitation of the study, so it was not able to look over the construct in an extended period. For instance, the extent of organizational effectiveness in an organization may be different at different points of time. Lastly, this study investigated the listed service-oriented companies in the Thai context, so future studies could apply this model in the service industry in different developing countries, such as in China, for providing more stable outputs.

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