The impact of tacit knowledge management on organizational performance: Evidence from Malaysia

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A B S T R A C T

This research paper intends to explore and determine if organizations have strategies for tacit knowledge management which is expected to influence their organizational performance both tangibly and intangibly. The tacit knowledge management is derived from the fundamental knowledge creation dimensions namely socialization, externalization, combination and internalization (SECI model). A quantitative empirical research via survey questionnaires was conducted to fulfil the purpose of this research. The feedback from the respondents were statistically analyzed for demographic profile of respondents, goodness of data measured, reliability of the instrument used and hypotheses testing in determining the correlation between organizational performance and tacit knowledge. The outcome of the statistical analysis showed that tacit knowledge management has significant influence on organizational performance. However, among the four dimensions namely socialization, internalization, externalization and combination, only socialization and internalization contribute towards the significant influences of tacit knowledge management on organization performance. This research findings confirm the importance of knowledge creation and management, especially those of tacit knowledge, to both academics and practitioners. This is particularly important for those from top management of any organization, who are seeking to prosper and enhance their organizational performance for a better business function operations and return on investment.

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1. Introduction

In current dynamic business environment, the competition is getting stiffer and sustainability become an issue. Organizational performance had been key focus in implementing measures to ensure competitiveness and sustainability. Performance is at the core of all activities in organizations as it determines the. organizations' survival (Wang, Bhanugopan, & Lockhart, 2015). In view of this, organizations have to manage money, energy and time effectively and efficiently to optimize the return on investment. This can be achieved through I-TOP model (Muthuveloo, R. & Teoh, A. P., 2013) through its three dimensions comprised of Technology Infinite Possibilities, Outright Environmental Scanning and People (Human Capital Development).

This paper focusesed on the third dimension of I-TOP model called people (Human Capital Development) in order to optimize the organizational performance. The contribution of people towards organizational performance can be classified into two categories namely hardware and software. Hardware and software indicate the skills and knowledge needed to optimize performance respectively. It examines whether knowledge has significant influence on organization performance and how to retain, share and utilize knowledge to enhance organizational performance. As indicated by Kruger & Johnson (2011), it focuses on formulating strategies for knowledge management especially the tacit knowledge which is recognized as main sources of competitive advantage of firms. Fundamentally, people operates at all related functions in an organization and without them, business is basically a null. Hence, this study emphasizes knowledge management of employees as a key business strategy for organizational performance.

OECD (Organization for Economic Co-operation and Development) (2013) indicated that Malaysia is suffering from the shortage of skilled workers and weak productivity growth due to lack of

employee creativity and innovation. It has been noted recently that customers tend to shy away from doing business with the organization upon hearing employee turn-over especially those in critical position such as from quality, engineering, program management and design. The fundamentals behind this customer fear is that, if the organization would still have the required knowledge for business continuity and performance despite the turnovers of key employees. This would eventually lead the mentioned key customers being lost to competitors.

Therefore, in order to achieve superior organization performance, organizations need to focus on employee knowledge management. Specifically, tacit knowledge management is crucial in executing day-to-day job functions effectively and efficiently. This in return, will enhance the performance of organizations. However, the link between knowledge management or specifically the tacit knowledge management within the organization and its impact on organizational performance is still vague with limited correlational relationship studies previously (Hsueh, Guo & Kuo, 2016). This research examined the impact of tacit knowledge management on organizational performance. The exploration of the measures and strategies would look into tapping the tacit knowledge following the SECI Model i.e. socialization, externalization, combination, and internalization.

2. Literature review

The literature review start with introducing I-TOP model and how it influences organizational performance. Then, it covers the two important variables of the research called organizational performance and tacit knowledge management.

2.1. I-Top model

I-TOP is a fluid model that helps managers work towards optimizing the Return on Investment (ROI) in order for them to be the ROI champion in their respective organizations or business community (Muthuveloo & Teoh, 2013). This can be achieved through Technology Infinite Possibilities, Outright Environmental Scanning and People (Human Capital Development). The model propagates the message of BOSS via I-TOP, which means that the organization can only be the leader/at the top, by optimizing Return on Investment. In other words, one (I) only can be top or successful if one (I) could optimize the ROI. This is an adaptable model which utilizes Technology Infinite Possibilities (e.g. blue ocean strategy and disruptive innovation), Outright Environmental Scanning (e.g. global scenario planning and organizational type/structure) and People (Human Capital Development). The I-TOP model shields the organization from business environment volatility by injecting strategic agility into the corporate strategy, leads to growth and sustainability by meeting the Human Needs via Business Needs. Organizations that utilize I-TOP model would be able to form an organization that has worldwide efficiency that is critical for optimizing the ROI that is crucial for business sustainability.

2.2. Organizational performance

Fundamentally, for continuous organizational survival in the current competitive business environment, the performance of the organization cannot be overlooked in formulating corporate strategies. The organizational performance includes both financial and non-financial performances; which the former refers to tangible or the monetary benefits such as the return of investment, revenue, and profit margins, while the latter refers to the customer satisfaction, growth and other intangible benefits. Wang et al. (2015) discussed that performance is at the core of all activities in organization as it determines the organizations' survival as organizational performance is a reflection of the way an organization exploits its tangible and intangible resources to achieve its goals.

In order to achieve a highly performing organization with strong financial results, satisfied customers and high employee morale, an organization should focus on strategies to achieve sustained growth and financial performance; ability to adapt quickly to changes; and spends much effort on developing its workforce (Waal, 2007). Strategic performance capabilities which offer path towards competitive advantage, can be classified into three value disciplines namely product leadership focusing on product-based competition and service innovation; customer intimacy mainly satisfying customers and retaining them; and finally the operational excellence targeting in improving the efficiency of internal operations (Zack, McKeen, & Singh, 2009).

Enhancing organizational performance should be the key focus of every manager in every enterprise and need to establish a comprehensive measurement index that provides managers and staff with clear directions and goals set by the organization (Tseng & Lee, 2014). The ability to achieve these organizational goals, the firm should have the "wisdom" of continuous creation of new knowledge transfer and interpreting of this knowledge within existing knowledge contexts of other parts of the organization (Rhodes, Hung, Lok, Lien, & Wu, 2008). This fundamentally support the main aim of this research in knowledge creation or rather specifically tacit knowledge management, for organizational performance and success. One of the key performance indexes in the strategies would be the employees' capability and competencies (Wang et al., 2015), which is referred to knowledge that is referred as tacit knowledge management in this research.

2.3. Tacit knowledge management

Tacit knowledge can be regarded as the key resource for companies, which plays a significant role on the shop floor, where workers develop and use this tacit knowledge in daily duties and activities; these duties are fundamental aspects of efficient manufacturing operations (Nakano, Muniz, & Batista, 2013). From the Resource-Based View theory, mainly by Barney (1991); Drucker (2000, pp. 11–12); Grant (1996) and Penrose (1959), knowledge is recognized as the one and only distinct resource and the key differentiator and crucial for any organization to maintain its' competitive advantage (Suppiah & Sandhu, 2011). These citations explain the need to understand and focus on the importance of knowledge management, especially tacit knowledge for enhanced organizational performance. Harlow (2008), further quoted that the late Peter Drucker saying that knowledge had become the key for economic resource and dominant; perhaps the only source of competitive advantage. Knowledge basically plays a vital role for efficiency and effectiveness in organizational operations; yet the most suitable method for this knowledge management remains as a tough question to address, especially with the challenging task to retain related knowledge especially that of tacit knowledge.

Harlow (2008) defined knowledge management as the formal process of determining what internally held information could be used to benefit a company and ensuring that this information is easily made available to those who need it; in other words, the effective use of systems to collect, use and reuse the knowledge within the firm. In addition, he indicated that tacit knowledge as internal in nature and relatively hard to code and extract, not only does tacit knowledge need to be discovered, extracted and captured; it also has to be creatively disseminated so that this shared knowledge can be efficiently used to extend the knowledge management base.

In a related literature, Peet (2012) referred tacit knowledge as

knowing "more than we can tell", and described it as unconscious and subjective insights, intuitions, and hunches including both technical know-how and know-why. According to Joia and Lemos (2010), when comparison arises between explicit and tacit knowledge, explicit knowledge is that can be codified into something that is formal, structured and systematic, and can be shared, communicated with ease and be accessible to other people. However, they also indicated that tacit knowledge that is highly personal and difficult to formalize, is based on actions and experiences of an individual created here and now in a specific context.

Employees are often unaware of the knowledge they possess or are incapable of expressing something that for them in natural and obvious, irrespective of their qualifications − given these difficulties, organizations are increasingly intensifying their search for ways to learn how to share and transfer tacit knowledge among their employees and teams and prevent the loss of this knowledge through employee turnover; because these individuals are fundamental source of tacit knowledge and they are the key to the success of any knowledge management initiatives (Gubbins, 2012). Thus, organizations need to have an appropriate system for effective tacit knowledge transfer and management system, in ensuring this know-how knowledge remain within organization though related employees leave the organization. The importance of such tacit knowledge management becomes critical for some key positions, who manage daily activities, especially when it requires critical decision makings with their know-how experiences. Besides, these employees also create a good communication platform with customers, supplier, and other stakeholders, which are crucial for business continuity. Thus, it becomes very critical for organizations to implement strategies for tacit knowledge management in sustaining organizational performance.

In tacit knowledge management process or rather the knowledge creation process, the main model of interest frequently used was the Nonaka and Takeuchi (N&T) Model (1995). This cognitive model mainly focuses on both implicit (tacit) and explicit knowledge exchange and how to convert this knowledge to each other, and also how to make this knowledge at all level of organization, such as individual, groups, and organizational (Oskouei, 2013). Four different modes of knowledge conversion were identified in this model, namely tacit knowledge to tacit knowledge; tacit knowledge to explicit knowledge; explicit knowledge to explicit knowledge; and explicit knowledge to tacit knowledge (Karim, 2012). These modes of knowledge transfer are further referred to the abbreviation of SECI process (Nonaka, Byosiere, Borucki, & Konno, 1994), which stands for Socialization, Externalization, Combination, and Internalization. This SECI's knowledge transfer and creation model shall be the foundation of this research in formulating the effectiveness of tacit knowledge management, within the organizations. Knowledge is recognized as an important weapon for sustaining competitive advantage as it plays a significant role and foundation in organizational performance and advantage (Lee & Choi, 2003).

Socialization refers to a process to convert tacit knowledge into tacit knowledge through social interactions, such as spending time together while sharing experiences and know-hows, in the same living environments (Karim, 2012). Hall and Andriani (2003) suggested that socialization is the process of communicating and enhancing tacit knowledge. A key feature of socialization is that tacit knowledge is passed on between people and not between impersonal media (Argote & Ingram, 2000). Externalization is the "process of articulating tacit knowledge into explicit concepts and metaphors are frequently used to facilitate the process" (Nonaka & Takeuchi, 1995). According to Karim (2012), it is a the process of converting tacit knowledge into explicit knowledge through a codifying process such as concepts, visual, metaphors, analogies,

and others (Karim, 2012). Combination consists of the activities of systemizing concepts and exploiting knowledge into a knowledge system through different media (Johannessen, Olaisen, & Olsen, 2001). Karim (2012) described it as a process of converting explicit knowledge into explicit knowledge through systematic exchange mechanisms, where individuals exchange and combines knowledge via communication and integration. Internalization refers to the process of converting explicit knowledge into tacit knowledge when employees start using the knowledge gained in routine practical work which becomes a base for new routines (Karim, 2012). Much organizational knowledge is transferred informally through socialization and internalization processes (Swap, Leonard, Shields, & Abrams, 2001). Nonaka and Takeuchi (1995) suggested that internalization is closely related to organizational learning. This is because internalization is the process in which learning is achieved by doing. For example, when individuals read the explicit knowledge found in the policy manuals, they internalize and apply what they have read in their daily work. Lahti, Darr, and Krebs (2002) demonstrated that informal knowledge processes like socialization and internalization are important for effective organizational learning and has strong influence on organizational performance.

2.4. Tacit knowledge management and organizational performance

Several studies found that tacit knowledge management has impact on performance of organizations via enhancing employees performance and organizational capabilities (such as Karim, 2012; Lee & Choi, 2003; Siu, 2006). Knowledge management makes a significant difference in company's bottom line (Andreeva & Kianto, 2012) Sigala and Chalkiti (2007) found that knowledge can be a critical competitive tool that can substantially support and foster enterprise adaptation, survival, and enhanced performance; and the strategic role of knowledge resources as they can significantly provide a distinctive competitive advantage by increasing performance. Managing intangibles such as knowledge is perceived to be an important capability for competition (Haldin-Herrgard, 2000). Gharakhani and Mousakhani (2012) had further stressed that the competencies of employees and how they are combined into organizational capabilities have always been a key to economic performance and wise managers have always been aware of the need to utilize and develop knowledge in the interest of the organization.

According to Wu and Chen (2004), knowledge resources are displacing natural resources, capital, and labor as the basic economic resources in the new economy; which is treated as unique and valuable resources linking to firm's competitive advantage. In a related study, it was noted that knowledge capabilities will contribute to organizational performance on their own (Mills & Smith, 2011). Furthermore, tacit knowledge has become more relevant to sustaining organizational performance than the traditional physical capital. It is considered as a very crucial factor affecting an organization's ability to remain competitive (Pathirage, Amaratunga, & Haigh, 2007).

From the above synthesis, it can be observed that knowledge management, mainly tacit knowledge management is crucial in maintaining and enhancing the performance of organizations.

3. Research framework

In order to examine the impact of tacit knowledge management via its' dimensions following SECI model (socialization, externalization, combination and internalization) on organizational performance, a research theoretical framework shown in Fig. 1 is developed based on combination of ideas arises from I-TOP model

(Muthuveloo & Teoh, 2013), Knowledge-based view theory (Grant, 1996) and organizational knowledge creation theory (Nonaka, Toyama, & Byosiere, 2001).

Firstly, I-TOP model emphasizes that one of the important dimension that influence organizational performance is People-Human Capital. Secondly, Knowledge-based View theory emphasizes that knowledge as the most strategically important of the firm's resources. Knowledge is overwhelmingly important productive resource for value adding. Finally, Organizational Knowledge Creation theory highlights that knowledge and its' capability to utilize, is basically important for firms' sustainable competitive advantage especially from tacit dimensions which are needed for continuous innovation and, organizational performance and success. Knowledge creation following SECI model.

Based in the research theoretical framework shown in Fig. 1, the dependent variable and the independent variable are organizational performance and tacit knowledge management respectively. In addition, it also shows that socialization, externalization, combination and internalization are the dimensions of tacit knowledge management.

4. Hypotheses

Based on the Research theoretical framework shown in Fig. 1, one main hypothesis and four sub-hypotheses were formed.

Tacit knowledge which is referred to as work-related practical knowledge learned informally on the job that can be the know-how, is organization's strength in day-to-day business activities and decision-makings. Having skilled and experienced personnel will enhance the effectiveness and efficiencies of business dealing (Nonaka & Takeuchi, 1995; Harlow, 2008; Hedlund, 1994; Lee & Choi, 2003; Siu, 2006; Karim, 2012; Wu & Chen, 2004). Thus, hypothesis 1 examine the influence of tacit knowledge management on organizational performance.

H1. Tacit Knowledge Management has a positive significant influence on Organizational Performance.

Socialization, which refers to the process of converting tacit knowledge into new tacit knowledge through social interactions, which aids knowledge creating and sharing based on experience people socializing within the organization (Argote & Ingram, 2000; Hall & Andriani, 2003; Karim, 2012; Maltz & Kohli, 1996); is expected to equip employees with necessary know-how skills, in executing jobs effectively. Thus, hypothesis 1a examine the influence of socialization on organizational performance.

H1a. Socialization has positive significant influence on organizational performance.

Externalization refers to the process of converting tacit knowledge into explicit knowledge through a codifying processes such as visual, metaphors, procedures, and other physical based learning tools (Karim, 2012; Lahti et al., 2002). This will be able to enhance their knowledge, especially strengthen their know-how in business job execution. Thus, hypothesis 1b examine the influence of externalization on organizational performance.

H1b. Externalization has positive significant influence on organizational performance.

Combination, refers to converting explicit knowledge into new explicit knowledge through systematic exchange mechanisms such as communication, training, and databases for an effective knowledge transfer within the organization (Johannessen et al., 2001; Karim, 2012). Thus, employees will be able to learn more systematically the explicit knowledge, and enhance their skills with learned information, for a better execution of day-to-day business activities and decision makings. Thus, hypothesis 1c examine the influence of combination on organizational performance.

H1c. Combination has positive significant influence on organizational performance.

Internalization is the process that converts explicit knowledge into tacit knowledge when physically learned knowledge, are applied and used in practical situations and becomes a base for routines. This knowledge eventually becomes the knowledge of one's own (Karim, 2012; Lahti et al., 2002; Swap et al., 2001). Thus, hypothesis 1d examine the influence of internalization on organizational performance.

H1d. Internalization has a positive significant influence on organizational performance.

5. Methodology

Based on the nature of the variables namely tacit knowledge management and organizational performance which refers to system based organizational indicators, the unit of analysis of this research is organization and the targeted respondents were Managers, Senior Managers or Directors of the organization. The research site selected for this study was the manufacturing organizations both local and foreign companies located in Malaysia and listed in FMM (Federation of Malaysian Manufacturers) directory. From the convenience random sampling technique and face to face data collection method based on self-administered survey questionnaire. The questionnaire items were adapted from Lee and Choi (2003). A total of 108 valid questionnaires were received and analyzed to confirm the hypotheses. The questionnaire used was designed to measure if organization provides platform for knowledge sharing namely through the dimensions of SECI (socialization, externalization, combination and internalization), organizational performance, and also demographic information of the respondents. Descriptive statistical analysis was performed using SPSS software version 21. Data gathered from questionnaires were
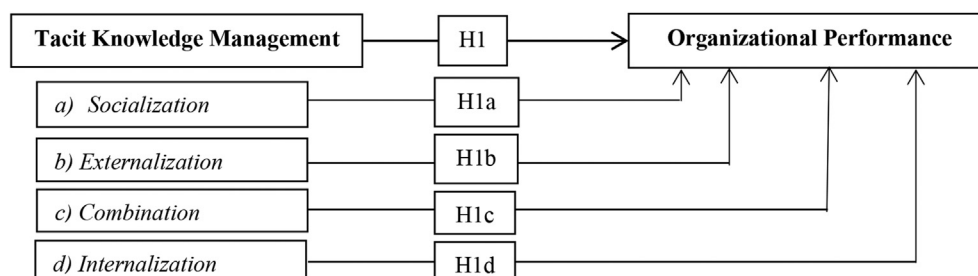

Fig. 1. Research theoretical framework.

analyzed in terms goodness of measure namely convergent validity, discriminant validity, loading and cross-loading, and composite reliability; and test on the developed hypotheses using software PLS-SEM (Partial Least Squares − Structural Equation Modelling).

6. Research findings

Majority of respondents were from electronic based industry (37.0%), followed by Medical and Other industries (25.9%), and least from Pharmaceutical industry (11.1%). Most of the responded organizations were multi-national based (89.8%), while the local based organization was only at 9.3%. 63.9% of the organization exists for more than 20 years. Interestingly, 44.4% of the responded organizations were having exempt staff over 20%, while 29.6% for exempt staff between 11 and 20%. However, the turnover rate of the exempt staffs was rather lower, with 55.6% below 3% turnover rate, while 40.7% between 3% and 10% turnover rate; only 4% of the organization were having turnover rate exceeding 10%. The majority of the respondents were holding Managerial position.

The goodness of measure was generally satisfactory and fulfils PLS-SEM requirements, namely convergent validity, discriminant validity and composite reliability. For the tacit knowledge management which consists constructs of socialization, externalization, combination, and internalization, and also for organizational performance, the descriptive statistics showed respondents basically slightly agrees to agree with the questions, with mean at 4—5.

6.1. Evaluation on goodness of measurement (measurement model)

On convergent validity, referring to Table 1, the AVE were well above 0.5 for all the constructs i.e. dimensions of tacit knowledge management namely socialization, externalization, combination, and internalization; and organizational performance. Thus, the convergent validity is confirmed in this research. In additional to the convergent validity, the loading and cross-loading of the construct, after the eight-item removal from succession planning variable, the loading and cross-loading fulfils the indicator

absolutely the loading requirement of more than 0.40. Table 2 explains this data trend on the individual constructs loading and cross-loading values.

On discriminant validity, referring to Table 3, the square of AVE values were higher for each constructs when compared to other constructs AVE across to other constructs and the loading were also higher than other construct loadings. Hence, discriminant validity was well established.

The composite reliability also fulfils the minimum requirements of data reliability and goodness of measure, which was well above 0.70.

Second order data was generated to determine the overall hypotheses model initiated in this research, and were created for all latent variables namely tacit knowledge management and organizational performance. For tacit knowledge management, the second order data were generated from each of its' dimensions namely socialization, externalization, combination, and internalization, which eventually forms tacit knowledge management. This second order measurement method for the tacit knowledge management is basically a formative measurement model. Since the indicators are not interchangeable among themselves, there is no need to report indicator reliability, internal consistency reliability, AVE, and discriminant reliability. Hence, for formative measurement model, only the indicator's weight, and loading are measured. Tables 4 and 5 show the results of measurement model for second order data. These data were basically fulfils PLS-SEM requirements, especially the main loading, AVE, composite reliability, loading, and cross-loading, wherever applicable based on theory.

6.2. Descriptive statistics of variables

Table 6 explains the variable data distribution, focusing on the mean and standard deviation of each item of each construct. For the tacit knowledge management which consists constructs of socialization, externalization, combination, and internalization, and having Likert Scale 1—6, basically, most respondents basically slightly agrees to agree with the questions, with mean at 4—5.

Table 1
Measurement model of PLS (IVs and Moderator on DV) (n = 108).

Latent variable	Number of Items	Number of Items Deleted	Question Items	Main Loading	AVE	Composite Reliability (CR)	R^2
Combination	5	None	C1	0.844	0.799	0.952	−
			C2	0.847			
			C3	0.943			
			C4	0.902			
			C5	0.929			
Externalization	5	None	E1	0.897	0.807	0.954	−
			E2	0.928			
			E3	0.939			
			E4	0.928			
			E5	0.790			
Internalization	4	None	I1	0.931	0.865	0.962	−
			I2	0.945			
			I3	0.934			
			I4	0.909			
Socialization	5	None	S1	0.780	0.696	0.919	−
			S2	0.833			
			S3	0.757			
			S4	0.866			
			S5	0.925			
Organization Performance	5	None	OP1	0.887	0.769	0.943	**0.540**
			OP2	0.907			
			OP3	0.864			
			OP4	0.874			
			OP5	0.852			

Table 2
Loadings and cross loadings (n = 108).

	C	E	I	OP	S	SP
C1	**0.844**	0.737	0.692	0.499	0.609	0.537
C2	**0.847**	0.627	0.651	0.454	0.503	0.486
C3	**0.943**	0.686	0.740	0.573	0.564	0.578
C4	**0.902**	0.656	0.778	0.552	0.594	0.674
C5	**0.929**	0.736	0.789	0.600	0.647	0.651
E1	0.705	**0.897**	0.751	0.566	0.691	0.725
E2	0.769	**0.928**	0.794	0.579	0.712	0.612
E3	0.681	**0.939**	0.720	0.532	0.657	0.580
E4	0.731	**0.928**	0.728	0.539	0.671	0.637
E5	0.534	**0.790**	0.568	0.352	0.530	0.540
I1	0.780	0.796	**0.931**	0.556	0.662	0.665
I2	0.741	0.751	**0.945**	0.658	0.671	0.657
I3	0.765	0.722	**0.934**	0.643	0.707	0.665
I4	0.768	0.714	**0.908**	0.546	0.632	0.625
OP1	0.470	0.457	0.515	**0.888**	0.487	0.525
OP2	0.568	0.547	0.596	**0.907**	0.555	0.582
OP3	0.523	0.421	0.528	**0.862**	0.606	0.510
OP4	0.447	0.514	0.513	**0.876**	0.566	0.585
OP5	0.607	0.590	0.668	**0.851**	0.681	0.668
S1	0.591	0.569	0.646	0.544	**0.780**	0.650
S2	0.552	0.585	0.591	0.502	**0.833**	0.561
S3	0.353	0.470	0.389	0.465	**0.757**	0.492
S4	0.518	0.629	0.579	0.569	**0.866**	0.642
S5	0.674	0.759	0.747	0.674	**0.925**	0.711

Note: Bold means values are loading for items which are above 0.5.

Table 3
Discriminant validity of measurement model (n = 108).

	C	E	I	OP	S
Combination (C)	**0.894**				
Externalization (E)	0.770	**0.898**			
Internalization (I)	0.819	0.801	**0.930**		
Organization Performance (OP)	0.603	0.582	0.650	**0.877**	
Socialization (S)	0.654	0.732	0.720	0.668	**0.834**

Note: Values in the diagonal (bolded) represent the square root of the AVE while the off-diagonals are correlation.

Similar observation noted for organizational performance, which had similar Likert Scale and mean value around 4–5. For moderating variable namely succession planning, the respondents distributed between disagree to agree, with mean fluctuation between 2 and 3.

6.3. Evaluation on hypotheses testing (structural model)

The analysis was split into two sections; the first section describing the results of the direct relationship between dimensions of tacit knowledge management construct namely socialization, externalization, combination, and internalization, and organizational performance. The second section describing the overall relationship between tacit knowledge management as second order constructs of overall tacit knowledge management and the organizational performance.

In the first section analysis i.e. the relationship between tacit knowledge dimensions and organizational performance, the PLS-SEM analysis showed that the overall R-squared value was 0.513; which means 51.3% variances were having an explainable relationship between the four tacit knowledge management dimensions namely socialization, externalization, combination, and internalization, against dependent variable organizational performance. This 51.3% explainable relationship is considered moderate explanation. However, further data computation of path co-efficients showed that two dimensions of tacit knowledge, gives significant influence on organizational performance. These two dimensions are the Socialization and Internalization. These two constructs had path coefficient t-values at 3.040*** and 1.773* respectively, which indicates the significance of the relationship. The other two constructs namely Externalization and Combination, having path coefficient t-values of 0.407 and 1.100, which were not significant. Table 7, Figs. 2 and 3 illustrate these results.

In the second section analysis i.e. the relationship between tacit knowledge management as second order data and organizational performance, the PLS-SEM analysis shows that the overall R-squared value was 0.538. This means 53.8% variances were having an explainable relationship between overall Tacit Knowledge Management to Organizational Performance. This 53.8% explainable relationship is considered having a moderate relationship. In terms of PLS-SEM path coefficient t-value, Tacit Knowledge Management had t-value of 5.851*** which is rather significant and supports the relationship. Table 8 shows this finding.

The summary of the hypotheses testing can be illustrated as in Table 9. The result shows that two of the tacit knowledge management constructs dimensions namely Socialization (H1a) and Internalization (H1d) supports or rather influences Organizational Performance. However, the other two constructs i.e. Externalization (H1b) and Combination (H1c), does not influence Organizational Performance. Despite the split in the results of the individual constructs of Tacit Knowledge Management, the overall Tacit Knowledge Management (H1) significantly influences Organizational Performance, as could be seen from the path coefficients itself.

The relationship between tacit knowledge dimensions and organizational performance, the PLS-SEM analysis showed that the overall R-squared value was 0.513; which means 51.3% variances were having an explainable relationship between the four tacit knowledge management dimensions against organizational performance. However, only two dimensions gives significant influence on organizational performance namely Socialization (H1a) and Internalization (H1d). The other two constructs namely Externalization (H1b) and Combination (H1c) did not support the hypotheses. Nevertheless, the relationship between tacit knowledge management and organizational performance showed that the overall explainable relationship was 53.8% (R-squared was 0.538). On PLS-SEM path coefficient t-value, Tacit Knowledge Management had strong relationship to organization performance

Table 4
Measurement model of PLS (IVs and Moderator on DV) (n = 108) for Second Order Data.

Latent variable	Question Items	Main Loading	AVE	Composite Reliability	R Square
TKM	C	0.842	–	–	–
	E	0.807			
	I	0.906			
	S	0.931			
Organization Performance	–	1.000	1.000	1.000	**0.538**

Table 5
Loadings and cross loadings (n = 108) for second order data.

	OP	TKM
Combination (C)	0.600	**0.842**
Externalization (E)	0.575	**0.807**
Internalization (I)	0.646	**0.906**
Socialization (S)	0.664	**0.931**
Organizational Performance (OP)	**1.000**	0.713

Note: bold means values are loading for items which are above 0.5.

and hypothesis (H1) was supported.

7. Discussions

Though the tacit knowledge dimensions showed mixed results yet overall tacit knowledge management supported this hypothesis. This could well due to the mean response distribution, which basically shows that respondents agree that their organization does have the best practices in knowledge sharing of all the four tacit knowledge dimensions (socialization, externalization, combination, and internalization). However, with minimally scoring between agree to slightly agree to agree. This agreeing tendency supported the relationship developed when most respondents agreed that they are typically better than the competitions. The majority of the respondents were from MNCs. As we are aware knowledge sharing and creation especially of that know-how or rather tacit knowledge had been a focused point for top management in creating excellences in operations while sustaining the competitive edge. MNCs focuses more on this since they believe the overseas operating plants such as in Malaysia should be equipped with sufficient knowledge sharing and creation in running high volume business environment for a better organizational performance.

Another point to ponder is the industries which are highly controlled by regulatory such medical, insurance and pharmaceutical. These industries operate with stringent regulatory requirements besides highly skilled workers (Yung, Pai, & Yung, 2016). From the respondents' profile, a total of 37% of respondents were from these regulated industries i.e. 25.9% and 11.1% respectively for medical and pharmaceutical. These organizations in general, emphasizes in knowledge workers; hence placing plenty of efforts in creating, sharing and sustaining this valuable information for the business environment. In fact, key talent retention programs are also highly focused in these industries, in order to retain the skills and knowledge within the plant for continual enhanced organizational performance.

Socialization and Internalization supported the hypotheses developed. The rationale could be firstly due to the questionnaire design itself for these dimensions; it mainly focuses on information sharing from all perspective, from both internal and external environments. The ownership structure of most of the respondents were multinationals (MNCs) at 89.8%; besides the respondents are companies operating in the Malaysian context. Typically, MNC top

Table 6
Means and standard deviations for survey indicators (n = 108).

Construct	Liker Scale	Question Items	Mean	Std. Deviation
Organizational Performance	1–6	OP1	4.50	1.019
		OP2	4.49	1.106
		OP3	4.33	1.160
		OP4	4.35	1.122
		OP5	4.35	1.179
Socialization	1–6	S1	4.38	1.083
		S2	4.79	6.045
		S3	3.38	1.358
		S4	4.03	1.307
		S5	4.38	1.213
Externalization	1–6	E1	4.17	1.293
		E2	4.39	1.101
		E3	4.31	1.234
		E4	4.41	1.283
		E5	3.89	1.218
Combination	1–6	C1	4.08	1.326
		C2	4.45	1.256
		C3	4.57	1.104
		C4	4.56	1.097
		C5	4.39	1.134
Internalization	1–6	I1	4.45	1.027
		I2	4.33	1.059
		I3	4.44	1.061
		I4	4.44	1.097

Table 7
Significance of direct effects- Path coefficients (n = 108) for tacit knowledge dimensions (socialization, externalization, combination, and internalization) to organizational performance (OP).

Hypotheses	Relationship	Beta-value	Standard Error	t-value	Decision
H1a	Socialization → OP	0.414	0.136	3.040***	**Supported**
H1b	Externalization → OP	−0.058	0.143	0.407	Not Supported
H1c	Combination → OP	0.154	0.140	1.100	Not Supported
H1d	Internalization → OP	0.273	0.154	1.773*	**Supported**

Note: $^*p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$; OP = Organizational Performance.
R^2 value between Tacit Knowledge constructs (Socialization, Externalization, Combination, and Internalization) to Organizational Performance = 0.513.
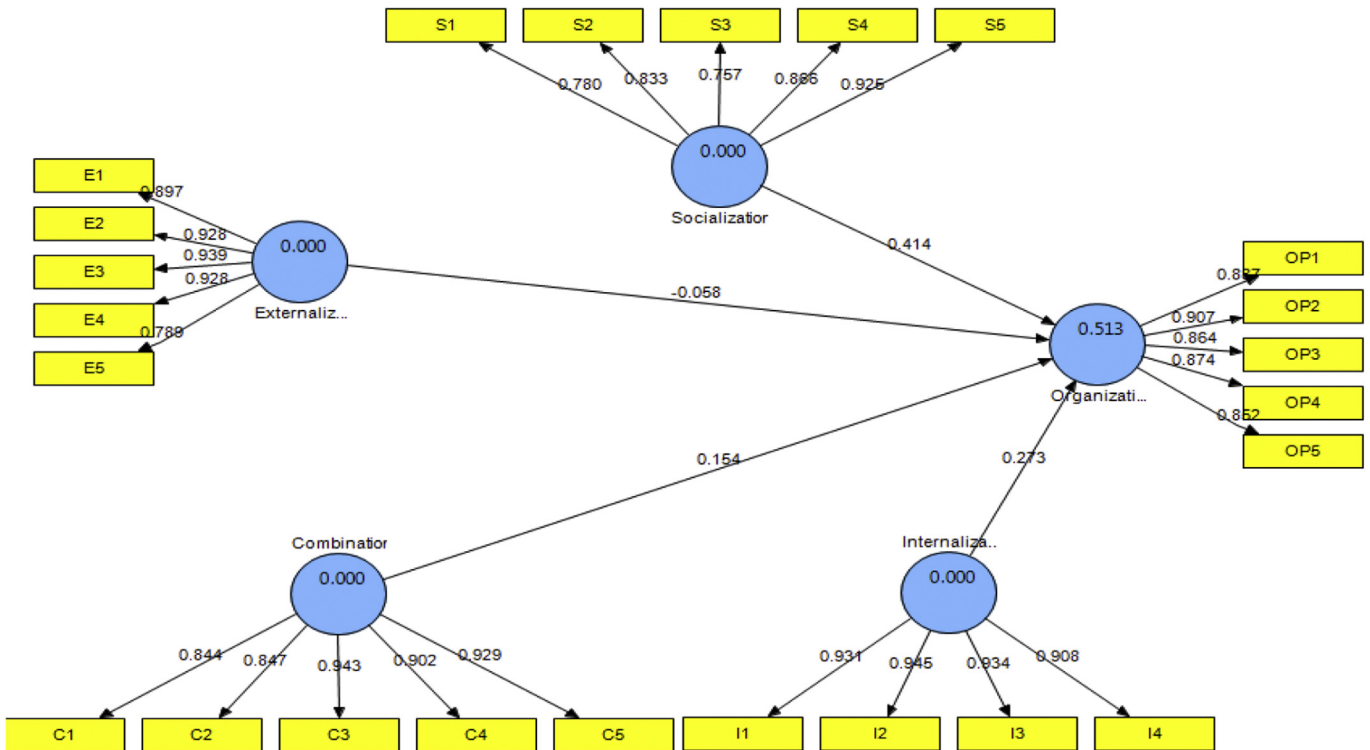
Fig. 2. PLS-Path analysis of Beta value and R-square values (n = 108) for tacit knowledge dimensions (socialization, externalization, combination, and internalization) to organizational performance.
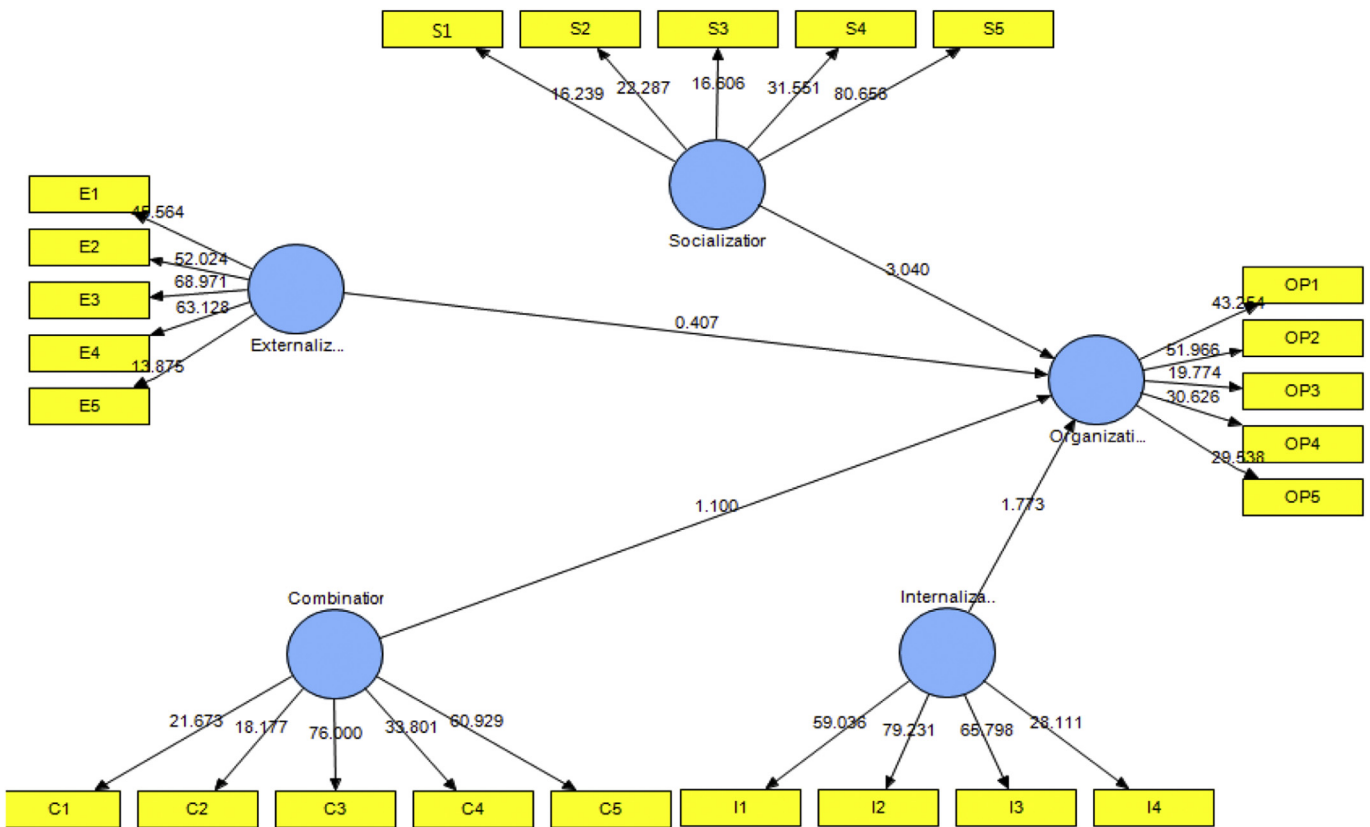

Fig. 3. PLS-Path analysis of t-values (n = 108) for tacit knowledge dimensions (socialization, externalization, combination, and internalization) to organizational performance.

Table 8
Significance of direct effects- Path coefficients (n = 108).

Hypothesis	Relationship	Beta-value	Standard Error	t-value	Decision
H1	TKM - > OP	0.501	0.086	5.851***	**Supported**

Note: *p < 0.10, **p < 0.05, ***p < 0.01; OP = Organizational Performance.
R^2 value between Tacit Knowledge constructs (Socialization, Externalization, Combination, and Internalization) to Organizational Performance = 0.538.

management makes critical decisions in their corporate level, which usually situated in United States, Europe or other countries than Malaysia. These business decisions mainly involve strategic action plans in enhancing business with reference to lean activities, competitors' comparison, customer expectations and needful information for decision making. This information is typically shared with all employees in all subsidiaries operating plants in ensuring employees are aware of the course of actions for business sustainability. The media for such information sharing could be by newsletters, town-hall meeting, managers meeting, operational meetings, and/or memorandums. The main respondents in this research were the Managers (48.1%) and Senior Managers (28.7%), who are aware on the criticalness of information sharing and they are the first information receiver from corporate management in disseminating such information to people in shop floor, and they do understand the importance of sharing this information to all employees.

Secondly could be due to employees and middle management always emphasize on activities namely teamwork and information sharing for continual organizational performance and sustainability. Moreover, employees would also seek to explore, understand and digest this information during their routine operations to equip them with necessary and required skills in order to perform better in their work, which eventually subject them to appraisal and job security, besides career advancement.

Externalization and Combination did not support the developed hypotheses. This could be firstly due to these dimensions are informal in nature and sharing of information takes place in routine communication; this externalization is a more formal information sharing structure via proper codifying processes such as preparing visuals, documentations and other formal media. Such work or process need a coordinated effort in ensuring it takes place and hence may not be a popular decision and information sharing method. As 89.8% respondents were MNCs whom mainly runs high volume manufacturing in Malaysia's plant with minimal involvement in research, design and development activities. Thus, there will be lesser opportunities for critical, logical and evident thinking because most of the meeting and other communication platforms will be focused on resolving routine operational issues. Besides, this could be the nature of industry type itself whereby a total 37% respondent represents medical and pharmaceuticals; these industries are basically highly regulated and controlled by international regulatory bodies and standard, such as ISO13485, besides special control of individual countries such as MDD (Medical Device Directives) in Europe and FDA (Food & Drug Authority) in the USA. These requirements do not give flexibilities in logical thinking and exchange of ideas; instead jobs or tasks are executed based on required procedures and system.

8. Research implications

This research finding could be generally an eye opener for readers especially those from management or top management of any organization, who are seeking to prosper and enhance their organizational performance. It explains the importance of knowledge creation and management, especially those of tacit knowledge for better organizational performance. The result also highlights that the key benefits that an organizational could gain from knowledgeable workers is the decision-making ability, whereby decision-making process requires an in-depth understanding of the situation and consider all the related advantages and disadvantages prior to making a decision. Hence, only those with adequate knowledge and experience could make such decision, which implies the importance to have knowledgeable employees. Besides that, these experienced and knowledgeable employees typically tend to have an excellent relationship with both suppliers and customers. The management should create a platform to facilitate knowledge creation and in this case, it is based on SECI model (socialization, externalization, combination, and internalization).

From academic perspective, the findings from this paper highlights the relevant and importance of I-TOP model, Knowledge-based view theory and organizational knowledge creation theory in understanding better the fundamentals of knowledge management which is least explored in enhancing organizational performance; especially in niche industries such as medical, automotive and pharmaceutical.

9. Conclusions

This research initiated to determine the impact of tacit knowledge management via its SECI based dimensions (socialization, externalization, combination and internalization) on organizational performance. Overall tacit knowledge has significant influence organizational performance. It indicates that knowledge creation, sharing and retention should be given priority in order to optimize the organizational performance. Out of four dimensions only two dimensions called socialization and internalization has significant influence on organizational performance. Among the main reason identified for combination and externalization for not having significant influence on organizational performance are the fundamental managerial understanding on the importance of knowledge, retaining knowledge and formal and informal mode of information sharing. It can be noticed that many organizations operating in developing countries focus mainly on hardware or skills needed to meet the volume and profit targeted by the organization, instead of quality and knowledge management. In nutshell, tacit knowledge being the software of People-human capital propagated by I-TOP has significant influence on organization performance. It is critical for optimizing the organizational performance that in turn will optimize the return on investment that crucial for business sustainability.

Table 9
Summary of hypotheses test results.

Hypotheses	Relationship	Beta-value	Standard Error	t-value	Decision
H1a	Socialization → OP	0.414	0.136	3.040**	**Supported**
H1b	Externalization → OP	−0.058	0.143	0.407	Not Supported
H1c	Combination → OP	0.154	0.140	1.100	Not Supported
H1d	Internalization → OP	0.273	0.154	1.773*	**Supported**
H1	TKM → OP	0.501	0.086	5.851***	**Supported**

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