

## Knowledge management fit and its implications for business performance: A profile deviation analysis

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### ABSTRACT

Knowledge management (KM) has been regarded as a critical issue for the practitioners and academicians in these years. Studies mentioned that human resource management (HRM) plays an important role in implementing knowledge management activities. Meanwhile, the importance of information technology management (ITM) in facilitating effective KM practices has also been recognized. Therefore, in the case of KM strategy must align with HRM strategy, ITM must be integrated into this relationship to achieve organizational outcomes. Top managers from 173 organizations completed the research questionnaire. Performance implications of fit are examined using profile deviation analysis. Findings showed that the holistic perspective of fit among KM strategy, ITM strategy, and HRM strategy demonstrates a significant impact on business performance.

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### 1. Introduction

Nowadays, knowledge has become a critical asset and potential strategic resource for contemporary firms. Facing the advent of knowledge-based economy, it is important to know how to effectively manage and integrate various kinds of knowledge resources in order to survive and keep competitive advantages. In this vein, knowledge management (KM) is considered to be a pressing and important issue, as corporations must manage their knowledge bases and repositories effectively to gain long-term competitive advantage [1,2]. More specifically, the implementation of KM projects compliant with various KM strategies can provide organizations with dynamic capabilities for improving knowledge quality and quantity, as well as for consolidating the value and practicability of knowledge [3].

Meanwhile, information technology or information systems (IT/IS) can be regarded as effective means to facilitate codifying knowledge and creating networks [4]. It involved management activities of IT resources for an organization [5]. Well-management of IT for helping KM activities is an important concern for executives. For example, “system” KM strategy requires IT tools that allow for explicit knowledge to be formalized and articulated in documents, and shared electronically through IT infrastructures such as

intranets [6]. Therefore, firms should invest in an extensive IT system to codify knowledge. In contrast, “human” KM strategy draws upon interpersonal relationships to exchange and share tacit knowledge across organizations. Thus, a moderate investment in IT to connect experts in organizations is needed. The technologies may include an e-mail system, on-line discussion networks, video-conferencing, and other collaborative tools [7].

Furthermore, the strategic role of human resource management (HRM) focuses on designing and implementing of a set of internally consistent policies and practices that ensure a firm’s human capital (e.g., employees’ knowledge, skills, and abilities) to achieve business goals [8,9]. In KM activities, development and deployment of human resources into various HRM strategies to fit with KM practices are critical concerns for managers [10–14]. For example, according to Hansen et al. [4], different KM strategies should reflect different drivers of their human resources. In “system” KM strategy, adequate HR policies consist of hiring persons who are well suited to reuse of knowledge and implementation of solutions, training people in groups and through computer-based distance learning, and rewarding people for using and contributing to document databases. Additionally, with the “human” KM strategy, suitable HR policies are hiring persons who like problem-solving and can tolerate ambiguity, training people via one-on-one mentoring, and rewarding people for directly sharing knowledge with others. Therefore, both system and human KM strategies highlight the importance of recruitment and selection of employees (HR flow), training and development employment security, teams and job redesign control (work systems), and reward systems.

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The importance of IT/IS-business fit is also acknowledged [15,16]. According to Lee et al. [17], fit theory is one of the top five frequently-used theory out of the 31 listed among the 993 studies in the MIS field. Researchers have come to realize that an absence of strategic alignment probably can cause organizations to be incapable of realizing sufficient value from their IT investments [15,18]. Fit has been found not only to make a great contribution to potential capabilities of an organization's IT infrastructure; it also exerts a significant direct positive effect on organizational performance [19,20]. Conversely, misalignment in organizations results in redundancy and inefficiency in IT functions, and in an increase in costs and delays [21]. More seriously, it can be one of the critical reasons that an organization's performance declines [22,23].

Investigations regarding to integration of various strategies in KM related research is not sufficient. Furthermore, to analyze and design of the organization as a whole is critical to achieve organizational performance [24]. In the practical terms, basic alignment mechanism is "strategy", and it is thought that a fit between strategy and organization is the key driven to effectiveness at realizing intended strategies [25]. Therefore, drawing on the concept of fit, this research aims to examine the fit effect among KM strategy, ITM strategy, and HRM strategy on business performance. The authors posit that business performance, including growth and profitability, will be influenced by fit among these strategies.

The general purposes of this study are to contribute to the academia and practice relating to knowledge management fit by pursuing several specific objectives. First, it intends to provide further insights into performance implications within the broad conceptualization of fit among KM strategy, ITM strategy, and HRM strategy. Second, it examines KM fit by using the fit as profile deviation to test for fit among KM strategy, ITM strategy, and HRM strategy. Finally, the authors are devoted to shedding a new light on KM-ITM-HRM fit research to reflect the simultaneous and holistic patterns of interlinkages between KM strategy and other strategies that influence KM activities.

## 2. Theoretical background and hypothesis

### 2.1. The concept of fit

The concept of fit is a key issue in structural contingency theory [26] and is well known and discussed in managerial behavior and organizational analysis [27,28]. Its underlying meaning is that organizational performance is a consequence of fit between two or more factors; such as, fit among organization environment, strategy, structure, system, style, and culture [29]. According to Van de Ven and Drazin [29], fit has three approaches: selection, interaction, and systems approaches; whereas six different perspectives are proposed by Venkatraman [30]: matching, moderation, mediation, gestalts, covariation, and profile deviation. These six perspectives can be classified into two categories according to the number of variables being simultaneously examined. Accordingly, fit as matching, moderation, and mediation can be categorized into the reductionistic perspective, whereas fit as gestalts, covariation, and profile deviation can be regarded as holistic perspective [31].

Fit as moderation is similar to Van de Ven and Drazin's [32] proposition of fit as interaction. From this criterion-specific perspective, fit is the interaction between two predictor variables. This relationship is the impact of a predictor variable (e.g., strategy) on a dependent variable (e.g., performance), which is dependent upon a third variable (e.g., environments) which can be called as a moderator [30].

The underlying conceptualization of fit as mediation is intervention. Within this scheme, an intervening variable (e.g., structure) exists

that has an indirect effect on an antecedent variable (e.g., strategy) and a direct effect on a consequent variable (e.g., performance) in the model. Fit as mediation and fit as moderation are applied to the situation of a single independent variable; a single moderator or mediator; and a single dependent variable [33].

Fit as matching is conceptually related to Van de Ven and Drazin's [32] concept of fit as a selection approach, which views fit as result of natural choice. In the perspective of fit as matching, fit is a theoretically-defined match between two related variables without necessarily considering a criterion variable.

Fit as gestalts, this criterion-free perspective corresponds to Van de Ven and Drazin's [32] system approach, derived from the conceptual framework of system theory, which conceives of organizations as holistic patterns of interdependencies. Miller [34] argues that this concept is a "new contingency approach" that "seeks to look simultaneously at a large number of variables that collectively defines a meaningful and coherent slice of (organizational) reality" (p. 8). According to Venkatraman [30], the underlying conceptualization of this perspective is an internal congruence among a set of strategic variables, which differs between 'high' and 'low' performance businesses. It extends the bivariate fit perspective through a multi-tiered taxonomical approach [35].

Fit as covariation is a criterion-free perspective which is defined as "a pattern of covariation or internal consistency among a set of underlying theoretically related variables, and it can be best described through an illustration" [30] p. 435. Its verbalization follows a strategy proposition that the degree of internal consistency among related variables or constituencies has a significant effect on performance. This concept of fit is similar to fit as gestalts, but these two concepts differ in the degree of specification of the functional form. Gestalts consider fit to be products of cluster analysis, in which observations can be grouped, based upon a set of attributes; whereas covariation is the process of factor analysis, the grouping of attributes based upon a set of observations [30]. This is the reason that Venkatraman [30] stated: "This perspective requires much greater precision in the pattern of logical consistency among the factors and the explication of the underlying logical link among the attributes" (p. 436).

Fit viewed as a profile deviation is a criterion-specific perspective which represents the degree of adherence to a specified ideal strategic profile; in turn, the level of fit has a significant effect on performance. Its underlying premise is that configurations, rather than bivariate examinations are important to completely describe a synergistic profile or system. Profile deviation perspective is akin to Van de Ven and Drazin's [29] pattern analysis approach. In this context, an ideal profile is assumed to exist, and deviation from this ideal profile implies a weakness in coalignment, resulting in lower performance. According to Venkatraman [30] p. 434, "this perspective allows a researcher to specify an ideal profile and to demonstrate that adherence to such a profile has systematic implications for effectiveness." For instance, Barki et al. [36] adapted this perspective of fit in the context of a software development project. An ideal pattern for risk management profile was specified for a particular level of risk exposure; a software project's degree of adherence to such a multidimensional profile was found to be positively related to performance if it had a high level of risk management-risk exposure coalignment. The calculation of deviation as a Euclidean distance in an  $n$ -dimensional space is the proper analytical method for testing this perspective of fit.

### 2.2. Hypothesis development

According to previous research, fit between business-related strategy and ITM strategy is a critical issue within organization that has been stated frequently [37]. However, there are few studies that empirically address the issue of strategic alignment

in KM field. This is what Asoh et al. [38], p. 16 called “the missing link in knowledge management research.” It is because contingency researchers were discovering, in the context of strategic alignment, that predicting KM or business performance involved something more complex than isolating specific strategy factors that a more “holistic” configuration perspective needed to be concerned.

As mentioned above, the critical role of ITM to catalyze the movement of KM [2,39]. Studies argue that proper IT management can enhance the speed of knowledge exploration and exploitation from individual to organizational members (e.g., [40–42]). However, owing to the complexity of KM initiatives and various kinds of IT techniques developed, business must pay more attentions to select these right IT solutions to deploy in supporting their KM initiatives [43]. It means that the match of ITM and KM is an important concern for executives. Some researchers manifest that KM-related or ITM-related variables alone are not sufficient for explaining organizational performance [44], since explanations based solely on KM or IT ignored the interactions of contingency variables as well as the synergy they produce [45]. As Fehér [46] indicated “On the strength of using knowledge management practices in organizational, that integration of technologies, techniques and theories of knowledge management, as well as internal environment, and organizational and IT strategy is definitely necessary.” (p. 944). Despres and Chauvel [47] also indicated there are lots of contingency factors (e.g., organizational context, culture, knowledge carrier and media, knowledge transformation and dynamic, etc.) moderate the relationship between KM strategy and its performance in the implementation of a KM project. That is, one must adopts the “Demand pull” strategy in the consideration of different organizational context for identifying proper KM strategy in a holistic perspective instead of the strategy of “Supply push” which is just as a unitary view. On the other hand, if various related contingent factors are not “strategic alignment” with strategy, firms can’t manage and organize available resources. Hence, business performance would be lessened.

It is reasonable to assume that, knowledge-related strategy is part of business strategy leading to achieve organizational goals [10,48]. Since KM is regarded as an important function in shaping business strategy, their relationship can be seen as a balancing act between external domain and internal domain of a firm [49]. For example, Khalifa et al. [39] asserted that KM effectiveness will be achieved in the condition of the adequacy of KM structure which is affected by KM strategy, technology fit, organizational culture, and leadership. Shih and Chiang [12] indicated that fit among KM strategy and HRM strategy are significantly related to better KM effectiveness in terms of process outcome, learning capability, and organizational outcomes. In addition, Chan et al. [50] argued that alignment among IT, knowledge, organizational size, planning sophistication, and environmental uncertainty strongly influenced organizational success. In the perspective of resource-based view, Powell and Dent-Micallef [13] also contended that IT alone would not produced sustainable performance, combining certain human and business resources with IT is the right way to explain significant performance variance.

Therefore, it is reasonable to contend that a positive business performance would be achieved if the relationships between KM strategy and HRM strategy (e.g., [11,12,14]), ITM strategy and HRM strategy (e.g., [11,51]), KM strategy and ITM strategy (e.g., [11,40,45,46]) are well conducted and aligned. That is, KM strategy, ITM strategy, and HRM strategy must be aligned for achieving organizational outcome.

**Hypothesis 1.** The fit among KM strategy, ITM strategy, and HRM strategy has a positive direct effect on business performance

### 3. Research methodology

The components for research methodology and hypothesis testing including measurement development, data collection procedure, assessment of construct validity and reliability, and hypothesis testing. The integrated process is shown as Fig. 1.

#### 3.1. Measurement development

Four constructs were measured in this study: HRM strategy, KM strategy, ITM strategy, and business performance. The fifth construct, strategic alignment, is regarded as a latent variable for these four antecedent strategies abovementioned. A multiple-item method was used to develop the questionnaire. Each item was based on a 7-point Likert scale ranging from “1 = strongly disagree” to “7 = strongly agree”. Wherever possible, for measurement validity, this study adopted well-established research instruments, with only minor changes in wording. The measurement items are listed in the Appendix A. For the representation of each construct, this present study used mean value by computing the average number for the total items’ scores of each construct.

KM strategy in our study is defined as “the set of tactical and/or operational activities executed by an organization in response to its knowledge strategy.” It includes two components: system strategy and human strategy. This present research operationalizes it using 8 items adapted from Choi and Lee [52] and Hansen et al. [4] classification system.

ITM strategy is defined as “the portion of an organization’s overall management strategy that relates to the IT group” [5]. It includes two dimensions: IT environment scanning, representing the extent a firm’s capability to detect and react to technological changes relative to its competitors; and strategic use of IT, representing the extent to which firms use IT to improve their productivity, profitability, quality and performance [53]. Totally, this present research used 11 items to measure this construct.

Concordant with Bae et al. [54] and Shih and Chiang [12], this study used three broad HRM policy areas to define a continuum of bundles of HRM strategy: HR flow (recruitment, selection, training and development; four items); work systems (control, team work, job specificity; three items); and reward systems (wages and performance assessments; four items).

Since conceptualization and operationalization of business performance is a difficult issue in strategy research [55], strategic management and IS/IT researchers have offered a variety of

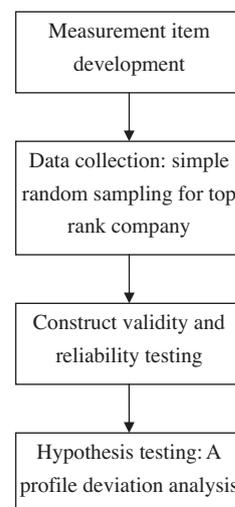


Fig. 1. Process for research methodology.

measures of organizational performance. Dess and Robinson [56] argue that, while measuring organizational performance, the subjective approach and the objective approach produce similar results. According to Khandwalla [57], subjective measures are widely used instead of objective measures, because subjective measures have been shown to capture a broad concept like business performance. In IS/IT research, several studies (e.g., [58–60]) have used subjective approach successfully to investigate the relationship between strategy and business performance. Consequently, this study employs subjective measures of business performance. This present research defined business performance as ‘the measures of growth and profitability of a firm through its business endeavors and deployment of organizational and technology resources’. It is operationalized using Venkatraman’s [60] instrument and measured from a multi-dimensional perspective. Of eight items involving 7-point Likert scales, respondents were asked to indicate their perceptions of how their firm performs relative to the main competitor in market on two dimensions (i.e., growth, and profitability) in term of sales growth rate, market share gains, ROI, net profit, return on sales, and financial liquidity.

3.2. Data collection procedure

This present research used survey research and cross-sectional research method. Mailing lists are excerpted from “Common Wealth Magazine” database, including top 1000 companies of manufacturing industry, top 500 companies of service industry, and top 100 companies of finance/banking industry in Taiwan. A total of 1100 questionnaire were then distributed to those companies. Overall, a total of 181 responses were returned, yielding 173 valid samples. As a result, the gross response rate is 15.73%.

3.3. Assessment of construct validity and reliability

Structural Equation Model with an EQS technique was used to assess the measurement model. Constructs validity was assessed from an estimation and respecification of the measurement model by confirmation factor analysis (CFA). The important step in scale validation is to assess the strength of measurement between items and associated constructs. Four measurement models are estimated respectively. In each estimated model, items that demonstrate cross load, poor loadings and reliability are dropped and the model is re-estimated. This is done to ensure that data is good fit to the measurement. The value of 0.5 is used as threshold value for factor loading assessment [61].

After removing weak loadings items, the CFA model is been re-examined. Consequently, the parameter estimates, fit indices imply that each of the dimensions demonstrates a good fit for the observed

covariances among their item measures. Furthermore, construct reliability ( $\rho$  value) and Cronbach’s  $\alpha$  coefficient are also greater than the recommended value of 0.6 [62] and 0.7 [63], respectively.

4. Results

4.1. Sample characteristics

The characteristics of the samples are described as follows. Largest number of respondents is from manufacturing industry, representing 57.1% of the responding companies. Most of companies have 100–499 employees (37.9%). Approximately 60.2% of the respondents have experiences more than 6 years.

4.2. Hypothesis testing

To test the evidence that strategic alignment relationships bring into existence among these three strategies, a holistic perspective, namely the profile deviation approach is used. This approach views strategic alignment as the degree of adherence to a specific profile or pattern of some underlying dimensions or variables [26] and are applicable to theory testing [64]. Accordingly, the present research adopted this perspective to test strategic alignment effect. Previous studies have adopted this method to test the fit effects successfully on performance (e.g., [26,64–67]).

Contingency model hypothesizes that, if the distance between an organizational profile and the ‘ideal profile’ increases, organizational performance will decrease. The ideal type can be formed either theoretically or empirically. To operationalize these deviations from an ideal profile, the Euclidean distance score is calculated [26], which, in effect, represents the degree of fit. Its underlying notion is that the extent to which the distance scores in the pattern from an ideal profile are negatively and significantly correlated to performance measures determines the strength of support for the presence of a strategic alignment relationship.

$$\text{The Euclidean Distance or Misfit} = \sqrt{\sum_{j=1}^7 (X_{ij} - \bar{X}_{ij})^2} \quad (1)$$

**Table 2**  
Relationship between misfit and performance.

	Performance measures	
	Growth	Profitability
Misfit	-0.36*** (n = 152)	-0.40*** (n = 155)

\*\*\* p < 0.001.

**Table 1**  
The calculation of misfit value for company X to ideal sample.

Variable	Mean score		Misfit value for company X to ideal sample
	Ideal sample <sup>a</sup> (n = 21) <sup>b</sup>	Company X	
System (kss)	5.66	5.59	0.2988 <sup>c</sup>
Human (ksp)	5.49	5.33	
IT environment scanning (iye)	5.88	5.69	
Strategic use of IT (iyu)	6.11	6.02	
HR flow (hrf)	5.58	5.49	
Work systems (hrw)	5.53	5.52	
Reward systems (hrr)	5.58	5.50	

<sup>a</sup> Each mean score of variables for ideal sample is calculated by the mean value of measurement items for each variable for all of these 21 companies.

<sup>b</sup> The cut value for top 10% of mean growth performance is 5.82 for the sampled firms. Thus the company number of mean growth performance that above 5.82 which we defined as calibration sample is n = 21.

<sup>c</sup> Misfit =  $\sqrt{(5.59 - 5.66)^2 + (5.33 - 5.49)^2 + (5.69 - 5.88)^2 + (6.02 - 6.11)^2 + (5.49 - 5.58)^2 + (5.52 - 5.53)^2 + (5.50 - 5.58)^2} = 0.2988$ .

where  $X_{ij}$  = the score for the unit in the study sample along the  $j$ th variable;  $\bar{X}_{ij}$  = the mean for the calibration sample along the  $j$ th variable and  $j = 1, 2, 3, 4, 5, 6, 7$  (the seven variables in this study).

In this research, the ideal type is defined empirically using two criterion variables, business performance related to growth and business performance related to profitability. In accordance with the research of Venkatraman and Prescott [31] and Bergeron et al. [64], top 10% of the sampled firms (a more severe criterion than the 15% or 20% they sampled) in terms of growth and profitability were used as the ideal or calibration sample ( $n = 21$  for growth and  $n = 18$  for profitability performance

assessment). Accordingly, mean scores for each of the seven variables (i.e., system, human, IT environment scanning, strategic use of IT, HR flow, work systems, reward systems) of each calibration sample were calculated to specify the ‘ideal’ profile empirically. As in Drazin and Van de Ven [26], strategic fit (or more appropriately ‘misfit’) was measured for remaining subgroup ( $n = 152$  for growth and  $n = 155$  for profitability performance) as the Euclidean distance metric from individual pattern of scores of each company to the ideal pattern, for the seven variables. Table 1 showed the example of calculation of misfit for the Company X.

**Table 3**  
A schematic representation of fit as profile deviation for business performance in terms of growth.

Variable	Mean score <sup>1,2</sup>						
	1	2	3	4	5	6	7
System (kss)					Xr	Xc	
Human (ksp)					Xr	Xc	
IT environment scanning (iye)					Xr	Xc	
Strategic use of IT (iyu)					Xr	Xc	
HR Flow (hrf)				Xr	Xc		
Work systems (hrw)				Xr	Xc		
Reward systems (hrr)				Xr	Xc		

<sup>1</sup> Xc: calibration samples are the top 10% in business performance re: growth ( $n=21$ ;  $X_{kss}=5.66$ ;  $X_{ksp}=5.49$ ;  $X_{iye}=5.88$ ;  $X_{iyu}=6.11$ ;  $X_{hrf}=5.58$ ;  $X_{hrw}=5.53$ ;  $X_{hrr}=5.58$ )  
<sup>2</sup> Xr: remaining samples ( $n=152$ ,  $X_{kss}=4.68$ ;  $X_{ksp}=4.59$ ;  $X_{iye}=4.90$ ;  $X_{iyu}=5.01$ ;  $X_{hrf}=4.49$ ;  $X_{hrw}=4.41$ ;  $X_{hrr}=4.56$ )

**Table 4**  
A schematic representation of fit as profile deviation in business performance in terms of profitability.

Variable	Mean score <sup>1,2</sup>						
	1	2	3	4	5	6	7
System (kss)					Xr	Xc	
Human (ksp)					Xr	Xc	
IT environment scanning (iye)					Xr	Xc	
Strategic use of IT (iyu)					Xr	Xc	
HR Flow (hrf)				Xr	Xc		
Work systems (hrw)				Xr	Xc		
Reward systems (hrr)				Xr	Xc		

<sup>1</sup> Xc: calibration samples are the top 10% in business performance re: profitability ( $n=18$ ;  $X_{kss}=5.70$ ;  $X_{ksp}=5.44$ ;  $X_{iye}=5.66$ ;  $X_{iyu}=5.85$ ;  $X_{hrf}=5.81$ ;  $X_{hrw}=5.47$ ;  $X_{hrr}=5.67$ )  
<sup>2</sup> Xr: remaining samples ( $n=155$ ,  $X_{kss}=4.70$ ;  $X_{ksp}=4.62$ ;  $X_{iye}=4.94$ ;  $X_{iyu}=5.06$ ;  $X_{hrf}=4.49$ ;  $X_{hrw}=4.44$ ;  $X_{hrr}=4.57$ )

The results of correlation analysis between the degree of misfit and performance measures are shown in Table 2. The correlation coefficients are  $r = -0.36$  ( $p < 0.001$ ) and  $r = -0.40$  ( $p < 0.001$ ) between misfit and growth and profitability, respectively. The results imply that, as deviation from the ideal profile increase, the performance decreases. Therefore, the profile-deviation approach supports the research hypothesis.

Furthermore, looking at the mean scores presented in Tables 3 and 4 for profile deviation pertaining to business growth and profitability, one must note that it is in the HRM strategy dimension, as opposed to either the KM or IT strategy dimensions, where the top-performers tend to differ most from the remaining firms, on average. This implies that firms seeking to achieve greater growth and profitability should strive to reduce the gap between themselves and the top-performers, in terms of human resource management practices.

## 5. Discussion and conclusion

In conclusion, results of this study corroborated the utility of “ideal profile” methodology in KM. Development of an ideal profile showed what strategy research calls the “holistic” approach to test fit. In summary, the holistic perspective, using the approach of fit as profile deviation, definitely recognized the pattern of strategic alignment has a positive impact upon business performance. Specifically, the result showed that the firms which are good at aligning ITM strategy and HRM strategy with KM strategy demonstrating a high performance level. Hence, firms must employ right IT management and HRM practices with KM strategies. For example, according to prior research, successful firms that use a system-oriented (codification) KM strategy utilize extensive selection and training procedures and have relatively high job security in their HR flow practices; compensation and promotion decisions tend to be tightly connected to employees’ work performance; these companies generally use broadly defined jobs with enriched design; they utilize team-based work organization; and they usually rotate jobs among employees to familiarize them with their colleagues’ work. All this is done to ensure that reused codified knowledge can store abundant expertise derived from different employees. Furthermore, firms that use system-oriented (codification) KM strategies focus their ITM strategies on strategic use of IT, meaning that they not only collect operational knowledge to connect people with reusable codified knowledge, they also focus on generating large overall revenues.

On the other hand, firms that use human-oriented (personalization) KM strategies must have reward systems that encourage workers to share knowledge directly with others; instead of providing intensive training, employees are encouraged to develop social networks, so that tacit knowledge can be shared. Such companies focus on ‘maintaining’ not ‘creating’ high profit margins, and on external IT environment scanning, supporting the latest technologies, so as to facilitate person-to-person conversations and knowledge exchange.

## 6. Implications

### 6.1. Implications for researchers

Integrated investigations into various strategies used within organizations remain limited. Furthermore, using a holistic perspective in organization design is important for a business to achieve maximal benefit. A successful KM project must take various attributes into account, to ensure a positive outcome. In such a context, organization, process, human resources, and IT are thought to be the key elements and enablers for best KM practices [68]. Thus, cogitating and integrating various factors related to KM area are considered by researchers to be most important tasks.

Even though a voluminous body of research has been proposed to develop the linkages between knowledge management and business performance, and though there has been much theorizing in this area, few validated instruments have been developed for empirical testing of these theories, especially for the perspective of fit. Because the importance of strategic alignment of IT/IS is acknowledged and regarded as having a significant positive direct effect upon business performance [19,69,70], one must take into account the realities of strategic alignment in KM field. Current research views strategic alignment in a manner that reflects its ‘internal consistency’ or ‘internal congruence’ [30], and establishes the fact that such a fit has a significant impact upon performance. Consequently, the results support the proposition.

### 6.2. Implications for practitioners

This research demonstrates that the fit among KM strategy, ITM strategy, and HRM strategy is conspicuously linked to business performance, as measured in terms of growth and profitability. This evidence supports prior research findings in large firms, and implies that fit affects business performance. The underlying meaning of this study is that merely using KM strategy alone cannot lead to successful attainment of higher business performance. Firms also must consider complementary resources to synthesize the effects of KM practices. Selecting and managing information technology and human resources effectively in KM projects is the way to success.

Furthermore, when ones take into account the bi-variate relationships among these strategies, some meaningful consequences will be addressed. Firms should aim at integrating human resources and IT solutions in KM activities, rather than just focusing on KM strategies. For example, if firms try to develop social networks to promote sharing of knowledge person-to-person, there must be a reward system encouraging this, and companies must scan the external IT environment and support the latest IT in order to enhance person-to-person communication. Firms that want to develop high-quality and reliable information systems to codify, store, disseminate, and reuse knowledge, must provide extensive training to employees, must have clear, definite job definitions, must tightly link compensation to work performance, and must use IT strategically to connect people with reusable codified knowledge. Only then will higher growth be achieved. All of the above benefits require that CEOs or managers take an active role in seeking KM strategic alignment.

## 7. Limitations and future directions

This research represents a careful and systemic effort to incorporate elements from distinct theory, examining the impact of a KM fit model on business performance within the context of Taiwan’s top companies and testing the framework using an empirical study. However, it is not without limitations. First, this study measured ITM strategy and HRM strategy with their original variables, since other related research used median values to break samples into two groups (e.g., ‘buy-bureaucratic’ and ‘make-organic’ HRM strategies, and ‘high’ and ‘low’ use of IT) as proxies for investigation. Future research should use these categories to test the relationship between fit and business performance.

Another limitation of this research concerns the causal relationships among fit of KM strategy, ITM strategy, and HRM strategy and business performance. Other factors could influence fit and business performance. For example, Asoh [10] used fit as mediation to examine strategic alignment between business strategy and knowledge strategy, and discovered that fit has a positive direct effect on organizational performance. In a case study at Buckman Laborato-

ries, Abou-Zeid [49] proposed a KM strategic alignment model (KMSAM) to unravel the critical roles analyzing and assessing alternatives strategic choices. Furthermore, Khalifa et al. [39] indicated that KM effectiveness will be achieved with adequacy of KM structure, which is affected by KM strategy, technological fit, organizational culture, and leadership. Shih and Chiang [12] also indicated that fit among KM strategy, corporate strategy, and HRM strategy is significantly related to improved KM effectiveness in terms of process outcome, learning capability, and organizational outcomes. Thus, future research may include business strategy in the KM fit model, to verify its integral effect on KM or business performance.

Furthermore, because the data we collected were coming from manufacturing industry, service industry and finance/banking industry, these companies are aggregated as a single data pool to analyze the fit effect. Since difference industries/companies may have different activities with respect to fit practices, future studies may use case study or compare the differences among different industries to examine the fit effects.

Finally, understanding the requirement of a successful fit among strategies is of interest to both practitioners and academics. The overall picture emerging from this study highlights the performance implication of fit among KM strategy, ITM strategy, and HRM strategy. Future studies, may apply the fit concept to another fields. For example, in the supply chain environment, companies also have to take most advantage of various resources to vertical integration of their suppliers and retailers [71–75]. Thus the fit issue among organizational context variables and environment is a critical topic that can be done for our researchers and practitioners.

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## Appendix A. Measurement items for this research

### A.1. KM strategy: system

kss1: In my organization, our knowledge (know-how, technical skill, or problem solving methods) is well codified.

kss2: In my organization, our knowledge can be acquired easily through formal documents and manuals.

kss3: In my organization, results of our projects and meetings should be documented.

kss4: In my organization, our knowledge is shared in codified forms like manuals or documents.

### A.2. KM strategy: human

ksp1: In my organization, our knowledge can be easily acquired from experts and co-workers.

ksp2: In my organization, it is easy to get face-to-face advice from experts.

ksp3: In my organization, informal dialogues and meetings are used for knowledge sharing.

ksp4: In my organization, our knowledge is acquired by one-to-one mentoring.

### A.3. ITM strategy: IT environment scanning

iy1: In my organization, we use an external information network to identify our requirements in information technology.

iy2: In my organization, we know the information technology used by our competition.

iy3: In my organization, we institute a technology watch in order to rapidly change our information technology when necessary.

iy4: In my organization, we ensure that our choice of information technology follows the evolution of our environment.

iy5: In my organization, we use the information technologies that will permit a rapid reaction to environmental pressure.

### A.4. ITM strategy: strategic use of IT

iyu1: In my organization, we use IT to reduce our production costs.

iyu2: In my organization, we use IT to generate substantial savings.

iyu3: In my organization, we use IT to improve our firm's productivity.

iyu4: In my organization, we use IT to increase our firm's profitability.

iyu5: In my organization, we use IT to improve the quality of products or services.

iyu6: In my organization, we use IT to respect the deadlines requested by our customers.

### A.5. HRM strategy: HR flow

hrf1: In my organization, we recruit innovative employees with high technical standards.\* (D)

hrf2: In my organization, we seldom lay off employees.

hrf3: In my organization, we provide extensive training to workers.

### A.6. HRM strategy: work systems

hrw1: In my organization, we rotate jobs among employees to familiar them with their colleagues' work.

hrw2: In my organization, we have clear and definite job definitions.\* (D)

hrw3: In my organization, we have plans to let workers become owners of our company.

### A.7. HRM strategy: reward systems

hrr1: In my organization, our promotion decisions mainly are based on performance, and not on seniority.

hrr2: In my organization, compensation is tightly connected to employee performance.

hrr3: In my organization, employee compensation relates primarily to one's rank within the company. (D)

hrr4: In my organization, our performance appraisal largely is used as a developmental tool.

### A.8. Business performance: growth

opg1: The sales growth position has been outstanding relative to competition.

opg2: The sales growth has been outstanding relative to competition.

opg3: The market share gains have been outstanding relative to competition.

### A.9. Business performance: profitability

opp1: The return of corporate investment has been outstanding relative to competition.

opp2: The net profit position has been outstanding relative to competition.

opp3: The ROI position has been outstanding relative to competition.

opp4: The return on sales has been outstanding relative to competition.

opp5: The financial liquidity position has been outstanding relative to competition.

Note: 1. (D) Item deleted with poor loading.

2. \* Reverse coded item.

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