A causal model of human capital antecedents and consequents in the financial services industry

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Abstract

Purpose – Causal models have been used in recent intellectual capital research studies to better understand the various outcomes of antecedent configurations of intangible asset components. These studies have been conducted in various industry sectors including insurance, healthcare, banks, and others. The purpose of this study is to replicate and extend prior research results within a new financial services sub-sector.

Design/methodology/approach – A survey instrument based on prior research was administered to 396 employees from ten credit unions across Canada.

Findings – The results show that the pattern and value of causal paths change slightly from one context to another.

Research limitations/implications – Six research implications are offered which summarize the key academic findings of the study related to how the interdependencies of the constructs alter from one context to another.

Practical implications – The empirical results presented here should lead analysts to recognize that measuring and strategically managing intellectual capital may in fact become the most important managerial activity for driving organizational performance.

Originality/value – The study provides a unique opportunity to test the generalizability and contextual implications of administering a similar survey instrument across various contexts.

Keywords Intellectual capital, Human capital, Knowledge management

Paper type Research paper

1. Introduction and purpose of the study

The idea of taking a knowledge-based view of organizations is not a novel one. During the last decade, the field of intellectual capital has seen a concerted shift towards empirical-based research as an extension from its conceptual roots in the 1990s. In the past decade, an increasing number of organizations in various fields have started employing non-financial performance measures, for example, the Balanced Scorecard, Six Sigma, customer satisfaction indexes, and the intellectual capital Skandia Navigator. One of the latest trends includes the development of causal models to empirically test a set of hypotheses pertaining to a variety of organizational aspects (Ittner and Larcker, 2003). A major advantage of causal

modeling techniques is that they allow assessment and prediction of the effect of organizational strategies on important outcome variables, for example productivity, technology usage, or turnover.

Bontis and Fitz-enz (2002) developed and validated empirically a causal model describing antecedents and consequences of effective human capital management practices in the financial services industry. The model presents a set of constructs and their relationships integrated from the KM/IC, organizational behavior, business policy, human resources, information technology and accounting disciplines. By using this model, organizations are able to predict the effect of human capital management policies on several important outcomes including retention, turnover and business performance. As a result, companies may better allocate their resources to achieve specific organizational goals. To test the generalizability of the findings by Bontis and Fitz-enz (2002), Bontis and Serenko (2008) employed this model in their longitudinal investigation of the non-profit healthcare sector and reported several important insights that should be explored further. As such, they argued that the entire model exhibits different structural relationships depending on the mode of the organization (i.e. commercial versus non-profit sectors). To demonstrate this issue, Bontis and Serenko (2008) emphasized an ambiguous role of turnover.

Specifically, Bontis and Fitz-enz (2002) demonstrated a negative relationship ($\beta = -0.23$) between knowledge sharing and voluntary turnover, and a negative link ($\beta = -0.37$) between business performance and voluntary turnover for the for-profit financial industry. In contrast, Bontis and Serenko (2008) reported that both links did not exist for a non-profit healthcare organization and argued that subjects in each study perceived turnover differently because of dramatic differences in the natures of their organizations and position level of respondents. With respect to organizational differences, they concluded that a negative relationship is likely to exist for profit-oriented companies rather than for goodwill-focused organizations since different factors affect the turnover decision of employees. For instance, in a highly profit-oriented financial company, employees are likely to leave if they believe their colleagues hoard their knowledge, or if the company's financial performance suddenly drops and affects their bonus. At the same time, in a non-profit organization, whose mission is to serve people rather than increase the financial value of stakeholders, employees may stay with the organization regardless of their colleagues' knowledge sharing behaviors or overall organizational performance because of moral obligations or loyalty to the profession. With respect to individual differences, Bontis and Serenko (2008) argue that a negative relationship between knowledge sharing and turnover, and business performance and turnover, is likely to exist for senior executives rather than for middle and lower-level employees. For example, it is easier for higher-level executives to move to another company in a booming financial sector if they do not like some aspects of their job. In sharp contrast, middle and lower-level employees of a healthcare sector may find it more difficult getting a job elsewhere, which may affect their decision to stay regardless of company performance or knowledge-sharing culture. Differences may also be observed with regards to other model relationships.

However, except for the studies above, little research has been done to understand these important issues. Therefore, the main research objectives of this project are to:

(1) replicate the Bontis and Fitz-enz (2002) and Bontis and Serenko (2008) KM measurement studies;

(2) extend the results from the insurance and the healthcare sectors to the financial industry; and

(3) analyze the differences between a for-profit versus not-for-profit organizations.

2. Literature review and study model

The main constructs of intellectual capital – namely human, structural and relational capital – have been discussed in detail in previous studies (Bontis, 1996, 1998, 1999, 2001). There is general agreement in academic circles of their conceptualizations.

Intellectual capital consists of three sub-components that are in fact inter-related. Human capital represents the competencies, tacit experiences and overall knowledge-base of individuals in an organization. As such, it is difficult to codify but valued highly. Structural capital encompasses the non-human storehouses of intangible value in the firm. It is typically described as all the knowledge at the company that is not in the minds of employees. It is often described as the value embedded in organizational routines, electronic documents, software programs, databases and files. Relational capital is the knowledge embedded in relationships with customers and suppliers. As such, this is the only sub-component of intellectual capital that technically resides outside of the firm's boundaries.

Managerial leadership is the ability to motivate, inspire, intellectually stimulate, promote, lead, clearly articulate goals, and demonstrate positive experiences of subordinates (Bass, 1999; Bass and Stogdill, 1990; Ilies *et al.*, 2006). Effective leaders may ensure that the values of employees are aligned with those of an organization, offer constructive feedback, and facilitate the retention of key people. As such, effective leaders should be capable of implementing necessary cultural changes to facilitate value alignment in their organizations (Cobb *et al.*, 1998). They must also provide *feedback* on various aspects of subordinates' performance that may affect their self-efficacy, increase job satisfaction, and identify improvement areas (Ilgen *et al.*, 1979; Jawahar, 2006; Murphy and Cleveland, 1995; Shea and Howell, 1999). Feedback, in turn, may improve organizational attitudes, job performance, self-awareness, commitment, autonomy, self-esteem, learning potential and growth, and may contribute overall to organizational human capital.

Organizational learning is one of the most significant characteristics of successful organizations in the long-term. It is usually facilitated through formal *training and development* (T&D) programs. Currently, T&D studies occupy an important position in the management literature given the magnitude of the issue (Clarke, 2004; Goldstein, 1989). T&D is a complex process and its consequences are not yet fully understood. At the same time, the extant literature demonstrates that it is vital to evaluate the effect of organizational training and development initiatives (Yadapadithaya, 2001). There are multiple approaches and instruments for the assessment of T&D consequences. Out of all T&D outcomes, perhaps the most salient is the growth of human capital; it is believed that T&D has a positive direct impact on organizational human capital because it is directly linked with the quality of workforce. First, as a result of T&D programs, employees may upgrade their skills and improve job-relevant knowledge. Second, individuals may perceive T&D as the organizational investment in a company-employee relationship that may further boost their intellectual curiosity and

facilitate life-long learning (Farrell and Rusbult, 1981). Therefore, T&D may have a direct impact on organizational human capital.

Employee sentiment, conceptualized and operationalized through employee satisfaction, commitment and motivation, serves as an antecedent of several human capital and performance-related constructs. *Job satisfaction* is a person's overall attitude towards his or her current job (Judge, 1993; Judge and Ilies, 2004; Spector, 1997), and has been investigated for over half a century (Locke, 1970; Roethlisberger and Dickson, 1956). Despite a variety of projects, the role of job satisfaction is still ambiguous. Some scholars have argued that job satisfaction affects employee commitment, capabilities and organizational citizenship (Bontis and Serenko, 2007; Mayo, 2000; Williams *et al.*, 2000; Williams and Wong, 1999). In terms of this study, it is believed that job satisfaction affects three key variables:

(1) employee commitment;

(2) employee motivation; and

(3) human capital.

These relationships have been identified in prior research projects (Bontis and Serenko, 2007; Farkas and Tetrick, 1989; Tietjen and Myers, 1998). *Employee commitment* is the degree of a person's identification with an organization, and influences overall performance (Allen and Meyer, 1990; Jawahar, 2006). For example, Benkhoff (1997) demonstrated empirically the existence of a commitment-performance link in the banking industry, and Brett *et al.* (1995) indicated that this relationship is stronger for employees under high financial pressures.

Employee motivation is a popular construct in organizational behavior research because it influences a variety of important outcomes (Ambrose and Kulik, 1999; Kleinbeck *et al.*, 1990; Locke and Latham, 2002). In terms of KM/IC, it is suggested that motivated employees tend to share their knowledge to a greater extent. *Internal knowledge sharing* is the degree of intra-organizational collaboration, and includes the communication of ideas, documents, news, "lessons learned", know-how, and other relevant information, both vertically and horizontally. Lin (2007) argues that intrinsic motivational factors – such as reciprocal benefits, enjoyment in helping others and knowledge self-efficacy – have an effect on employees' knowledge-sharing attitudes and behaviors. Hsu (2006) states that motivated employees are likely to share their knowledge, and organizations should encourage their employees by implementing company-wide learning initiatives and performance management systems.

The impact of internal knowledge sharing on various organizational variables has not been explored in depth. At the same time, there is evidence to suggest that knowledge-sharing behaviors may influence *voluntary turnover* intentions. Recently, Jacobs and Roodt (2007) conducted a survey of 530 registered professional nurses in five private and four public South African hospitals and reported a negative knowledge sharing-turnover link. In this study, we investigate the antecedents of voluntary turnover only. The rationale is that, in contrast to involuntary turnover, it is beyond the direct influence of a management team. In many sectors of the Canadian economy, annual voluntary turnover rates reach 20 percent, and this dramatically affects an organization's ability to retain internal knowledge (Stovel and Bontis, 2002). At the same time, there are exemplary organizations that successfully build cultures, develop policies and implement reward systems that help to retain employees and

reduce turnover rates. By conducting a meta-analysis of turnover literature, Griffeth *et al.* (2000) and Hom and Griffeth (1995) argue that the absence of management-subordinate information exchange is one of the vital signs of higher voluntary turnover rates. In fact, when horizontal and vertical communication is missing, internal collaboration suffers, which impedes intra-organizational knowledge exchange. If internal knowledge is hoarded, individuals feel alienated, consider their personal gains only, believe their contribution is not valued, and start looking for prospective employers. This results in higher turnover rates, which dramatically affect overall organizational competitiveness.

Business performance is another factor that is negatively associated with turnover. The human resources literature advocates that turnover has negative consequences for overall organizational and business unit performance (McElroy *et al.*, 2001). The rationale is that involuntary turnover increases re-hiring costs, boosts training expenses, causes expertise losses, and affects culture, thereby decreasing organizational competitiveness and performance. At the same time, there are views that the performance-turnover link is not completely understood and there are potential moderating variables affecting it (Allen and Griffeth, 1999). From the human capital management perspective, there may be an opposite causal relationship so that business performance influences turnover. Given that turnover is a major factor affecting the retention of internal human capital, it is important to investigate its antecedents. As such, it is argued that as business performance decreases, some, especially very talented, productive and educated individuals, who have a greater chance of finding re-employment, may voluntarily leave the organization. Therefore, a negative business performance-voluntary turnover relationship is proposed in this study.

Value alignment is the integration of "hard" organizational components, such as strategies, structures and systems, and "soft" factors, such as working styles, personnel, employee skills and peoples' goals (Peters and Waterman, 1982). The implementation of value alignment requires employees to understand the vision, mission, culture, and overall direction of an organization and managers to ensure that the employees' personal preferences do not interfere with organizational objectives. As such, values should be aligned both vertically, through strategies, objectives and action plans, and horizontally, through the development of cross- and- intra-functional coordination (Kathuria *et al.*, 2007), which may be achieved through the incorporation of various extrinsic and intrinsic motivators (Colvin and Boswell, 2007). Knowledge sharing is an important factor associated with organizational value alignment (Evans and Jukes, 2000). When the values of employees are aligned with those of their organization, they tend to be more open with one another, exchange ideas, transfer information, and share their knowledge. Particularly, knowledge sharing should become part of overall organizational values.

Knowledge generation is a major outcome of human capital management practices. Employees may generate knowledge by embracing innovative solutions, continuously innovating, finding novel solutions to unexpected challenges, reinventing business processes, and developing new ideas. For this, individuals need to be committed to the organization and to employ its structural capital, particularly information technologies. In this study, a link between knowledge generation and process execution is proposed. The rationale is that the generation of new knowledge facilitates a fast exploitation of business opportunities, reduces product or service cycle time,

encourages the development of process-related policies, and ensures that all processes are executed properly. Having structural capital alone is not sufficient to execute related processes effectively and efficiently; structural capital should first be used as the foundation on which to build knowledge, which, in turn, facilitates internal processes.

3. Methodology and results

In order to test the study's model and answer related research questions, a questionnaire based on the items developed by Bontis and Fitz-enz (2002) was administered to 396 employees from ten credit unions in Canada. Since the instrument was initially designed for the insurance sector, several modifications were made to accommodate the financial industry. To assess the face validity of the survey items, a number of credit union managers were consulted, and their feedback was implemented. All items were measured on a seven-point Likert-type scale.

A credit union is a co-operative financial institution that is owned by its members and operates for their benefit. Credit unions are subject to provincial regulation and are locally oriented. The credit union organizations that participated in this study were invited by CUMIS, which is a large national supplier to the credit union industry. Overall, 30 organizations were invited to participate, which represented every credit union organization that attended CUMIS's national conference. The ten organizations that decided to participate were judged to be a representative sample of the industry as a whole. A representative from CUMIS compared the demographic results of the survey with the national membership statistics and found that the data were consistent across age, tenure, and education.

The respondents to the survey study had an average age of 48 year. An average employee had spent 4.5 years in his/her current position, and had been with the organization for 8.9 years. In terms of their highest level of education, 42 percent had completed secondary or high school, 38 percent had a college diploma, 16 percent possessed a Bachelor's degree, and 3.8 percent had obtained a Master's. Almost 70 percent had a professional certification, license or designation. The breakdown for employment status was: 88 percent, 10 percent and 1 percent for full-time, part-time and casual employees, respectively. Employment locations were divided up as 66 percent, 26 percent and 8 percent at a local branch, head office, or other places, respectively.

3.1 Measurement model

In order to analyze the study's model, the data from all credit unions were aggregated into a single dataset. PLS-Graph v.3 was employed to test both the structural and measurement models. PLS is a variance-based structural equation modeling technique that assesses both the measurement and structural models simultaneously. This analytical technique has been frequently used in various management studies including knowledge management (Bontis *et al.*, 2007; Bontis *et al.*, 2002).

First, since Cronbach's α (Cronbach, 1951) exceeded the cut-off value of 0.8 for confirmatory research (Nunnally and Bernstein, 1994), construct reliability was assured. Second, to further estimate inter-item consistency reliability, corrected item-to-total correlations for all items were calculated, and they all surpassed the commonly accepted 0.5 value. Third, a principal-components confirmatory factor

analysis done in SPSS demonstrated that all item loadings were 0.7 and above, thereby capturing at least half of a construct's variance, which is considered a gold standard in management research. Fourth, the average variance extracted (AVE) and internal consistency values were calculated, and were above the commonly established thresholds of 0.7 and 0.5, respectively. Table I outlines the construct statistics.

Fifth, convergent validity measures were assessed by the *t*-tests for the item loadings (Anderson and Gerbing, 1988; Hatcher, 1994). It was found that all *t*-values were significant at the 0.001 level and all questionnaire items effectively measured their corresponding constructs.

Sixth, to test discriminant validity, two matrices were generated:

(1) a matrix of cross-loadings; and

(2) a correlation matrix (see Table II), where the diagonal values represent the square root of AVE, as suggested by Fornell and Larcker (1981).

In the matrix of loadings, except for one case, each indicator loaded higher on its construct than on all other constructs. In the correlation matrix, except for the same relationship (knowledge generation-process execution), all values alone the diagonal were above inter-construct correlations, which assures discriminant validity.

It is noted that the correlation between knowledge generation and process execution constructs exceeded the square root of AVE. However, this does not affect the discriminant validity of the instrument. As such, these constructs represent an independent and a dependent variable that are supposed to correlate to produce a strong structural relationship. As discussed by Straub *et al.* (2004, p. 25), "loadings across what are traditionally known as independent and dependent variables are not relevant to the issue of construct validity and such tests may/should be avoided in PCA [principal component analysis]". Similar arguments were made by other researchers (Dow *et al.*, 2006). Overall, it was believed that the measurement model has met the necessary reliability and validity requirements.

3.2 Structural model

Figure 1 presents the structural model with data from ten credit unions. The results of bootstrapping with 200 re-samples indicate that all links are significant at the 0.001 level. The strengths of the structural relationships and predictive power of this study's model were compared with those of two prior projects that employed a similar model (see Tables III and IV). Based on Table III, Pearson correlations between betas were calculated to estimate differences in the strength of the model's structural relationships depending on the type of the industry. In addition, average differences in betas were obtained for three pairs of studies (see Table V).

4. Discussion

Recall that the purpose of this project was to replicate the previous human capital measurement studies by Bontis and Fitz-enz (2002) and Bontis and Serenko (2008), to extend the findings to the financial industry, and to analyze potential differences between for-versus non-profit organizations. Six research implications are offered.

	Construct	Mean	SD	α	Composite reliability	AVE
1	Employee satisfaction	5.22	1.23	0.89	0.921	0.701
2	Employee commitment	5.51	1.09	0.87	0.808	0.663
3	Employee T&D	5.30	1.32	0.91	0.929	0.725
4	Employee motivation	5.31	1.20	0.80	0.874	0.700
5	Value alignment	4.95	1.23	0.85	0.898	0.688
6	Retention of key people	4.83	1.43	0.87	0.920	0.793
7	Human capital	5.14	1.09	0.90	0.918	0.615
8	Structural capital	5.30	1.21	0.83	0.887	0.612
9	Relational capital	5.51	1.18	0.92	0.860	0.551
10	Management leadership	5.34	1.38	0.97	0.970	0.766
11	Process execution	4.91	1.44	0.89	0.907	0.663
12	Knowledge generation	5.12	1.29	0.88	0.911	0.673
13	Knowledge sharing	5.08	1.32	0.88	0.909	0.668
14	Knowledge integration	4.82	1.28	0.83	0.879	0.593
15	Business performance	5.89	1.02	0.81	0.876	0.638
16	Feedback	5.57	1.36	0.92	0.943	0.768
17	Turnover	2.92	2.06	0.85	0.902	0.696

Table I.
Item statistics

4.1 Research implication I: the replication of prior human capital measurement works
This study demonstrates that knowledge management is a critical organizational initiative that affects four outcome variables:

(1) key people retention;

(2) relational capital;

(3) business performance; and

(4) turnover.

Particularly, a successful replication of both the measurement and structural model demonstrates that this methodology may be successfully utilized to assess the impact of various human capital management practices. Consistent with previous findings, it is argued that employee sentiment is an important cluster of constructs that may influence the outcome of KM initiatives. Specifically, employee satisfaction leads to employee commitment (0.706) and, to a lesser extent, employee motivation (0.278). Employee commitment facilitates the generation of new knowledge (0.369) and boosts motivation (0.594) that further facilitates knowledge sharing (0.244). Overall, the strength of the employee satisfaction-knowledge sharing behavior is 0.24 (0.244*(0.278 + 0.706*0.594) + 0.706*0.369*0.845*0.707*0.463). In other words, if people are satisfied with their jobs, they are more committed and motivated to generate new and share existing knowledge.

Employee commitment has an impact on two outcome variables:

(1) key people retention (0.583); and

(2) business performance (0.491 = 0.369*0.400 + 0.343).

Therefore, as employees become more committed to an organization, they stay with it longer and perform better. Managerial leadership is a vital antecedent of the model because it affects value alignment (0.500), structural capital (0.407), performance

Construct	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 Employee satisfaction	0.837																
2 Employee commitment	0.706	0.814															
3 Employee T&D	0.654	0.543	0.851														
4 Employee motivation	0.689	0.791	0.599	0.837													
5 Value alignment	0.766	0.686	0.673	0.740	0.829												
6 Retention of key people	0.753	0.682	0.621	0.661	0.756	0.891											
7 Human capital	0.687	0.731	0.635	0.753	0.712	0.709	0.784										
8 Structural capital	0.530	0.579	0.511	0.600	0.579	0.537	0.653	0.782									
9 Relational capital	0.408	0.549	0.457	0.518	0.458	0.416	0.536	0.591	0.742								
10 Management leadership	0.481	0.477	0.463	0.564	0.500	0.486	0.496	0.407	0.372	0.875							
11 Process execution	0.522	0.591	0.473	0.594	0.604	0.616	0.606	0.659	0.570	0.489	0.814						
12 Knowledge generation	0.615	0.639	0.553	0.683	0.658	0.636	0.697	0.679	0.567	0.513	0.845	0.820					
13 Knowledge sharing	0.591	0.596	0.548	0.654	0.638	0.590	0.605	0.605	0.473	0.532	0.621	0.714	0.817				
14 Knowledge integration	0.513	0.574	0.507	0.608	0.604	0.570	0.606	0.676	0.566	0.450	0.708	0.728	0.702	0.770			
15 Business performance	0.564	0.598	0.465	0.587	0.523	0.543	0.626	0.590	0.534	0.446	0.574	0.619	0.485	0.550	0.799		
16 Feedback	0.470	0.478	0.430	0.565	0.487	0.458	0.505	0.442	0.369	0.843	0.488	0.515	0.551	0.517	0.490	0.876	
17 Turnover	−0.515	−0.427	−0.366	−0.402	−0.488	−0.544	−0.396	−0.310	−0.235	−0.374	−0.395	−0.405	−0.345	−0.330	−0.339	−0.342	0.834

Table II.
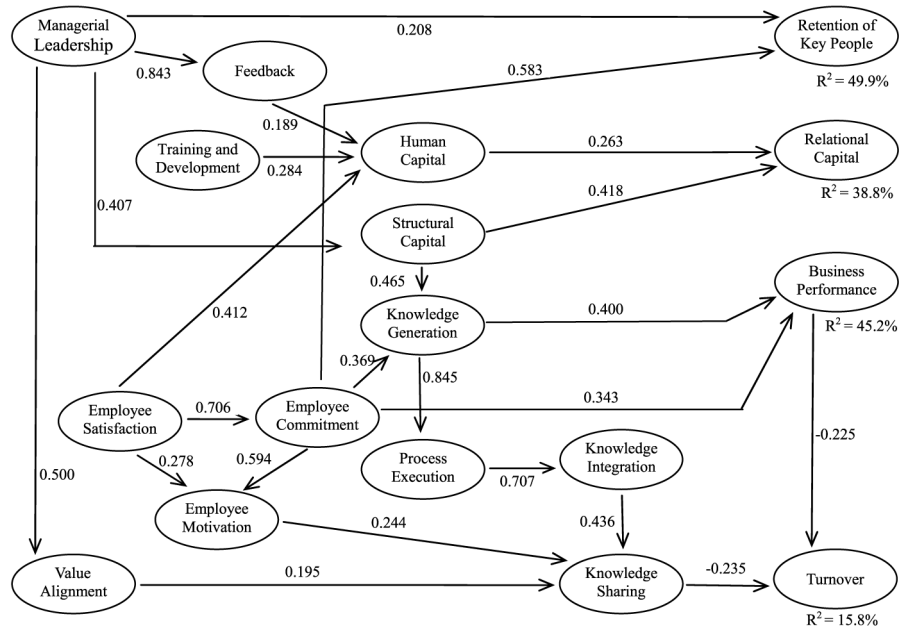Correlation matrix and discriminant validity assessment

Figure 1.
Structural model, all credit unions (all betas are significant at the 0.001 level)

Note: All Betas are Significant at 0.001 Level

feedback (0.843), retention (0.208) and human capital (0.159 = 0.843*0.189). It is confirmed that one of the most important qualities of a successful manager is his or her ability to provide feedback on various aspects of a subordinate's performance.

4.2 Research implication II: a positive relationship between knowledge generation and process execution

This study proposed a positive relationship between knowledge generation and process execution that was not tested in previous projects. As theorized, this link was found to be strong, significant and in expected direction (0.845). This means that newly developed knowledge may be utilized in organizational processes to make them more effective and efficient.

Intuitively, one recognizes the direct relationship between knowledge generation and process execution when one thinks of how innovation and creativity leads to new efficiencies. For example, when an analyst designs a new macro for a spreadsheet, the amount of time it would take that same employee to process various financial scenarios should drop significantly compared to the historical process. Therefore, the link between knowledge generation and process execution should be positive given that a new innovative practice is expected to lead to more efficient execution of a process.

4.3 Research implication III: findings compared with those by Bontis and Fitz-enz (2002) and Bontis and Serenko (2008)

Based on the values presented in Tables III and V, two observations can be made. First, there was the strongest correlation between the betas in the present and Bontis and Fitz-enz (2002) study (0.788, $p < 0.000$). This correlation for the present and Bontis and

	Causal path	Present study	Bontis and Serenko (2008)	Bontis and Fitz-enz (2002)
1	Management leadership → value alignment	0.500	0.662	0.751
2	Management leadership → feedback	0.843	0.850	N/A
3	Management leadership → structural capital	0.407	0.652	0.475
4	Management leadership → retention	0.208	0.654	0.506
5	T&D → human capital	0.284	0.200	0.530
6	Feedback → human capital	0.189	0.283	N/A
7	Employee satisfaction → human capital	0.412	0.336	0.358
8	Employee satisfaction → employee commitment	0.706	0.653	0.734
9	Employee satisfaction → employee motivation	0.278	0.606	0.456
10	Employee commitment → employee motivation	0.594	0.179	0.429
11	Employee motivation → knowledge sharing	0.244	0.204	0.430
12	Value alignment → knowledge sharing	0.195	0.146	0.285
13	Structural capital → knowledge generation	0.465	N/A	N/A
14	Knowledge generation → process execution	0.845	N/A	N/A
15	Process execution → knowledge integration	0.707	0.769	0.394
16	Knowledge integration → knowledge sharing	0.436	0.576	0.262
17	Employee commitment → knowledge generation	0.369	0.611	0.491
18	Human capital → relational capital	0.263	0.233	0.326
19	Structural capital → relational capital	0.418	0.574	0.307
20	Employee commitment → retention	0.583	0.213	0.442
21	Employee commitment → performance	0.343	0.308	0.439
22	Knowledge generation → performance	0.400	0.352	0.327
23	Knowledge sharing → turnover	−0.235	NS	−0.233
24	Performance → turnover	−0.225	NS	−0.372

Table III.
Beta values: all credit unions

	Endogenous construct	Present study	Bontis and Serenko (2008)	Bontis and Fitz-enz (2002)
1	Retention of key people	49.9	60.9	68.2
2	Relational capital	38.8	54.9	N/A
3	Business performance	65.3	35.1	44.1
4	Turnover	15.8	N/A	28.5

Note: Figures shown are percentages

Table IV.
R^2 values

	Present study-Bontis and Serenko (2008)	Present study-Bontis and Fitz-enz (2002)	Bontis and Fitz-enz (2002)-Bontis and Serenko (2008)
Coefficient	0.509	0.788	0.363
t-value	0.022	0.000	0.139
p-value	< 0.050	< 0.001	NS
Beta mean difference	0.154	0.140	0.176

Table V.
Person correlations for betas and beta mean differences from Table III

Serenko (2008) project was somewhat lower (0.509, $p < 0.05$), and it did not exist in the Bontis and Fitz-enz (2002) and Bontis and Serenko (2008) pair. Second, the highest difference in the average beta values was found between Bontis and Fitz-enz (2002) and Bontis and Serenko (2008), and the lowest between the present-Bontis and Fitz-enz (2002) pair. Recall that in the present and Bontis and Fitz-enz (2002) projects, for-profit businesses were studied. In sharp contrast, a non-profit healthcare organization was examined by Bontis and Serenko (2008). Therefore, the study's context – specifically, the mode of enterprise – plays a pivotal role in affecting perceptions and behaviors of employees, which leads leads to another research implication.

4.4 Research implication IV: mode of an enterprise (i.e. for-profit versus non-profit) is an important moderating variable in knowledge management models
A moderator is an external variable that may potentially change the strength or sign of a causal relationship between independent and dependent variables (Carte and Russell, 2003; Sharma *et al.*, 1981). In most social science and business administration research domains, there exist a growing number of moderators (Judge *et al.*, 2001; Serenko *et al.*, 2006; Sun and Zhang, 2006; Turel *et al.*, 2006). The rationale is that the inclusion of a moderator may dramatically augment a model under investigation, make recommendations more situation, environment- or context-specific, and reconcile mixed and inconsistent findings of prior investigations. In terms of KM/IC, Bontis and Serenko (2007) discovered that organizational KM practices may serve as a moderator in a human capital management model.

Based on the results of this project, it is concluded that human capital management practices have a different effect in for-profit versus non-profit organizations. There are dramatic differences between these two types of an organization (Borins, 2001; Borins *et al.*, 2007). Non-profit organizations tend to be risk-averse, conservative, and non-innovative. They also employ bureaucratic structures, utilize different resources, serve other categories of customers, and are expected to act in a socially responsible manner. Non-profit organizations produce intangible outputs that are often difficult to measure objectively. In addition, there are more managerial constraints in the public sector that makes it more difficult to effectively use both extrinsic and intrinsic rewards.

The factors mentioned above may potentially explain the differences among the models in three studies. For example, the employee motivation-knowledge sharing link was weaker for the non-profit sector (0.204 for non-profit versus 0.244 and 0.430 for commercial). Individuals working for an extrinsically motivated and money-driven business may feel a greater need to share their knowledge if they are highly motivated to achieve success for the entire organization, which, in turn, may affect their bonus. The value alignment-knowledge sharing relationship was also weaker for a non-profit organization (0.146 versus 0.195 and 0.285). One of the explanations for this is that in a goodwill-oriented healthcare field, some people continue sharing their knowledge regardless of the alignment of their personal values with those of the organization since they believe that doing so may benefit the public. In other words, healthcare sector employees may be so altruistic that they disregard the official values of their organizations when they make knowledge-sharing decisions. Moreover, if public organization employees see successful examples of knowledge integration, they are likely to spread this knowledge throughout the entire organization rather than hoarding it (recall that the knowledge integration-knowledge sharing link was 0.576 for

non-profit versus 0.436 and 0.262 for commercial organizations). Therefore, even though knowledge hoarding is generally believed to be stronger in the public sector (Liebowitz and Chen, 2003), this may not be true in the healthcare field.

4.5 Research implication V: the role of turnover and retention in the non-profit and commercial sectors
Consistent with the findings of Bontis and Fitz-enz (2002), there was a negative relationship between knowledge sharing and turnover (-0.235), and performance and turnover (-0.225). In sharp contrast, no such link was observed for the non-profit healthcare sector. Three possible explanations are offered. First, as argued in the previous research implication, organizational mode moderates these relationships. In a for-profit company, organizational performance directly affects extrinsic motivational factors such as salary, stock options, and bonuses. Therefore, when a financial or insurance company succeeds, individuals benefit financially; this in turn reduces their likelihood of leaving. At the same time, financial incentives linked to organizational performance are not a major factor affecting the voluntary turnover decisions of employees of a goodwill-oriented healthcare provider. Instead, there may be some other intrinsic motivators – for example self-expression and moral obligation – that makes people stay. Even if employees feel that their colleagues hoard their knowledge for personal benefit, they may not want to quit because they believe they should continue serving those who need their assistance.

Second, the type of survey respondent may also influence this relationship. In the present and Bontis and Fitz-enz (2002) projects, the survey respondents were well-educated credit union employees and senior executives of a financial organization, respectively. It is believed that if these individuals become dissatisfied with some aspects of their employment, such as business performance or lack of knowledge sharing, they may voluntarily leave the company because they can easily acquire a similar position somewhere else. At the same time, the lesser educated middle and frontline workers surveyed by Bontis and Serenko (2008) may find it very difficult to secure a comparable job if they leave. Therefore, they may tend to stay even if they are dissatisfied with intra-organizational relationships or overall performance.

A third potential moderator of the relationship between turnover and its antecedents is the condition of the job market. This moderator depends not only on the overall current economic situation, but also on a specific industry and company location. For a non-profit healthcare organization in a relatively small town, there may be a tight job market, which makes it relatively difficult for individuals to get new employment. Therefore, their turnover decisions are unlikely to be affected by internal knowledge-sharing practices and organizational performance. For example, when people believe that organizational performance declines and colleagues tend to hoard their knowledge, they may still stay with the organization simply because their chances of moving to another employer are relatively low. At the same time, at the day of the survey, both the financial and insurance industries performed relatively well with ample job opportunities available. Therefore, if a company's performance suffers or people feel that their co-workers hoard their knowledge, they have a higher tendency to leave voluntarily.

Overall, it is suggested that a negative relationship between business performance and turnover, and knowledge sharing and turnover is affected by the following moderating variables:

- incentives structures;
- nature of employees; and
- job market conditions and organization location.

4.6 Research implication VI: KM is a critical factor for organizational success
The overarching thesis of this study is that the correct combinations of antecedent variables should lead to higher performance outcomes. Traditionally, knowledge management and intellectual capital theorists hypothesized that knowledge-sharing processes coupled with human capital development would lead to positive organizational outcomes. This paper actually shows in a causal map configuration what the optimal path of those processes should be. Clearly, one should not manage human capital, training and development, KM practices, or leadership development in a vacuum. These antecedent drivers must be coordinated in their investment.

5. Conclusion
Business practitioners and academic researchers should be appreciative of the power intellectual capital management can have on business performance. The study of intellectual capital antecedents and their corresponding outcomes can produce a tremendous amount of energy, energy that can take companies far beyond their current strategic vision. The outcomes of this study require both practitioners and academics to rethink their attitudes on the elusive management of intangible assets. The empirical results presented here should lead analysts to recognize that measuring and strategically managing intellectual capital may in fact become the most important managerial activity for driving organizational performance.

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