

Achieving Balanced Performance of Service Supply Chain through Structural Capital: Evidence from the Life Insurance Agency in Malaysia

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Abstract - Supply chain performance of a company is determined by its strategic resources. These resources may exist in the form of physical, human and structural resources. Despite many studies on these resources carried out in the past, structural resource, an element of intellectual capital, is yet to be further explored, particularly in the supply chain of the service sector. Hence, the main aim of this paper is to determine the impact of the structural capital on the Life Insurance Agency performance in Malaysia. A total of 100 respondents of agency managers of life insurance companies in Malaysia was surveyed. A quantitative approach was used and data collection through questionnaire was analyzed using the Smart-PLS 3 software version 3.0. The results indicated the significant element of the intellectual capital focusing only the on structural capital towards agency performance. Overall results revealed that structural capital have a significant influence on agency performance of Life Insurance Agency in Malaysia.

Keywords— *Intellectual Capital, Structural Capital, Balanced Scorecard Performance, Service Supply Chain*

1. Introduction

Employees are organizational asset and their importance has been acknowledged by many organizations. In the face of stiff competition, employers or managers must focus more on the intangible assets that they own, particularly the intellectual capital (IC) to improve the company's performance [17]. Moreover, IC is seen as a key driver in the growth market firms [8]. In light of the benefits inherent in these sources based on intellectual capital, evaluating IC efficiency has become more critical [29] in managing its supply chain. Focusing on the IC provides competitive advantage to the agency or firm to be more sustainable, therefore, a full concentration is a must for survival of many companies, especially in the service sector.

IC has been described as an intangible asset that can be utilized as a source of sustainable competitive advantage. Past studies have

demonstrated that intellectual capital is emphatically and essentially connected with organizational performance [15]. However, components of the intellectual capital need to interact and create value. One important component of IC is known as structural capital or stored knowledge.

The Malaysian insurance industry needs to translate and shape the existing knowledge-based economic agenda to enhance intellectual capital efficiency, especially in the structural capital element. Over the past few years, the insurance industry has become very competitive. As a result, recently, the industry has been revitalized so that they can survive in a highly competitive business environment and be able to become competitive, dynamic and steady [33]. In this knowledge-based economy driven by information and knowledge, the true value of an organization can only be achieved by developing its capital structure [1]. This is a basic component of present and future supply chain operations, where the service industry is no longer limited to network management, systems, and physical resources.

This study focuses on the effects of the structural capital, a component of IC, on the balanced scorecard supply chain performance of the life insurance agencies. It specifically aimed to empirically assess the impact of capital structure on the internal process, learning and growth, customers and financial aspects the life insurance agencies. The discoveries of this study are valuable advantages to employers as the outcome will add further knowledge on the significance of structural capital practices to the supply chain performance of an organization.

2. Balanced Supply Chain Organizational Performance And Intellectual Capital

2.1 Balanced Scorecard Performance

Performance can be estimated through various devices dependent on financial and non-financial related viewpoints. Performance estimation apparatuses can assist organizations with assessing their asset portion forms so as to decide how assets can be better overseen and conveyed to the fitting channels [1]. Balanced scorecard (BSC) created by Robert S. Kaplan and David P. Norton in 1992 comprises four perspectives, namely internal process perspective, learning and growth perspective, customer perspective, and financial perspective in the firm's strategic management. BSC approach is divided into balancing financial and non-financial measures and encompasses four processes of new management that could assist the objectives for the short-term actions with long-term strategic.

An important role of BSC in the context of knowledge management is the measurement of the intangible asset. There has been numerous literature that analysed the relationship between BSC and intellectual capital [12], [18], [26], [32]. Thus, the BSC is a measurement tool for intellectual capital as well as managing the intangible assets. The financial perspective under BSC shows the results of actions taken. Financial perspective complements the operational perspective such as customer satisfaction, internal process and innovation, and improving the activities of an organization. Operational perspective is the driver for the future of financial performance.

Most firms used the BSC to support a variety of strategic organizational objectives such as the insurance industry in Malaysia. The life insurance industry in Malaysia, particularly the life insurance and family takaful, are working together and forming the Life Insurance and Family Takaful Framework (LIFE Framework), which will significantly affect the business future scene [23]. According to the Life Insurance Association of Malaysia (LIAM) 2016, LIFE Framework is meant to help the economic development and business advancement while offering some benefit of the value proposition to consumers. National Association of Malaysia Life Insurance and Family Takaful Advisors (NAMLIFA) decided to implement BSC as one of the key measures to reinforce advertisement rehearses and the premise to compensate middle people. Additionally, the implementation of BSC is hoped to improve the

service quality and to enhance the professionalism towards customers. Therefore, the implementation of a BSC approach could measure the performance of the company in a more balanced manner, which consists of the financial and non-financial methods.

2.2 Intellectual Capital (IC)

As the world economy is moving at speedy pace towards the industrialization era, the information and knowledge have becoming a significant role, and the firm focuses on its management of information, knowledge, and development to earn more cash [18]. The information sources can create value that is known as the intellectual capital (IC) [21]. Organizations start to move to the new phase of the knowledge-based economy, which is referred to as the intangible assets and in this economy knowledge is the crucial element for the competitive advantage for organizations [18]. The success and survival of the organizations are based on the implementation of intangible assets so that it can create a new area of study at the management level. One the most popular topics that is constantly being studied in these intangible assets is related to intellectual capital, which has three elements, namely human capital, structural capital and relational capital.

IC in an organization is an intangible assets [34] that could make an incentive for the organization, and the achievement of an organization relies upon the capacity to manage their assets. The measurement of intellectual capital is important to compare companies, estimate their value and also can improve their controls. IC provides knowledge, financial resource, expertise, and strategy of operations; thus, serving as a potential resource to enhance the organizational performance [2].

Previous researches have shown that the relationship between IC and organizational performance is positive and significant [15], [18], [29]. Theorists often describe IC as an important component of the replacement cost of its assets and the market value of the firm [10]. Actually, their investigations have given a positive contribution of IC to add up to the firm performances.

Different theories have been developed to describe and analyze the contribution of IC in relation to the value creation. Each theory describes the concepts in different terminology, different way and the view from dissimilar perspectives because of the different usage by the financial analyst or investors. For example, this study investigates the value-relevance of an IC resource by using the theory of intellectual capital (ICV) and the theory of resource-based view (RBV). However, some scholars stated that to understand and decompose

IC for measuring, managing and disclosing such asset requires a more multi-theoretic approach [20], [34]. Therefore, the development of research hypothesis related to this study is based on two main theoretical perspectives known as the resource-based view theory and the intellectual capital theory.

2.3 Structural Capital

Structural capital is an important part of IC. It is the “stored knowledge” which remains within an organization in a long time [6]. Furthermore, structural capital incorporates the storage facilities of information, for example, manuals processes, charts of organizational, daily routine, policies, and strategies [10]. Structured capital is a knowledge asset comprising corporate properties such as the administrative system, software, computer network, document, other knowledge artifacts, methodology, model, process, copyright, trademark, and patent [31]. This finding is supported by [4], who stresses that structural capital is related to the infrastructures or processes controlled by the organization and support human capital. It is also intended as a procedure and general system for innovations and solving problems [13].

A data warehouse is a decision support software and structural capital that can help people to use data. The process of knowledge management converting human capital to structural capital is to be a guidance to the employees on the work process, work culture, work routine, rule and procedures in a firm, so it becomes shareable [31]. It is developed step by step and from time to time, adapting the changes in a business environment to ensure that a firm is functioning effectively towards making a profit.

Limited studies on structural capital have been done in the past [11]. In this study, they have effectively exhibited that structural capital is related to the performance of business organizations for the services and non-service industries in Malaysia. However, the impact studies on balanced supply chain performance such as BSC has yet to be further investigated.

3. Model Development

This section introduces the model balanced scorecard performance and its relationship with the structural capital. Figure 1 depicts the proposed model.

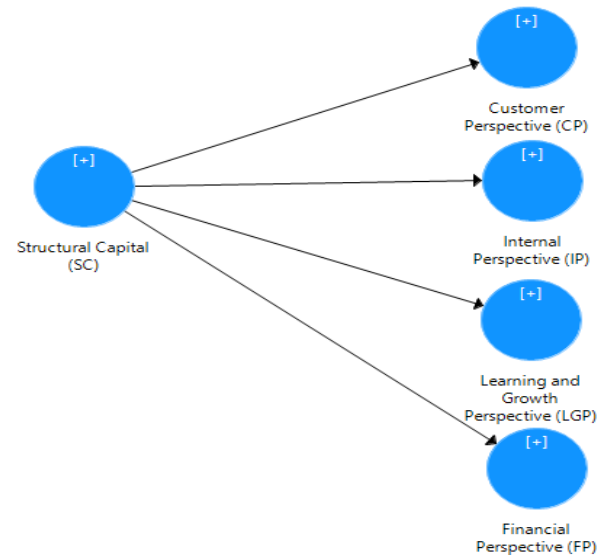


Figure 1. Conceptual model for Structural Capital and balanced scorecard performance

The following research hypotheses were constructed based on the above model:

H1a: Structural capital has a positive effect on customer perspective performance

H1b: Structural capital has a positive effect on internal perspective performance

H1c: Structural capital has a positive effect on learning and growth perspective performance

H1d: Structural capital has a positive effect on financial perspective performance

4. Methodology

A total of 104 responses from agencies manager of Life Insurance Company were received, but four responses were discarded because of the incomplete answers. The questionnaires used quantitative approach, sent by an online WhatsApp survey using Google form and based on the 5-point Likert scale. Data were collected and then classified using the SPSS version 23 and the Smart-PLS 3.0.

5. Findings

Under the reflective measurement model, two types of validity, namely convergent validity and discriminant validity were employed. Convergent validity is the degree to which an indicator of a specific construct converge or share a high proportion of variance in common [28]. As suggested by [22] and cited by [28], factor loadings, composite reliability (CR), and average

variance extracted (AVE) were used to assess convergent validity. The results are depicted in Table 1.

Loadings that exceeded the recommended value of 0.708 [22] were retained. Items with low loadings were subsequently dropped. However, Table 1 shows a few loadings were lower than 0.708; [28] stated that indicators with loadings lower than 0.708 can be kept when the minimum of AVE result of 0.5 is achieved. Moreover, all constructs met the threshold value for CR and AVE where all CRs were greater than 0.7 and all AVEs were greater than 0.5 after the process of item deletion [22]. Thus, the constructs of the studies have met the reliability and convergent validity requirements.

Additionally, the discriminant validity model was tested. The indicators should load more strongly on their own constructs than on other constructs of the model, and the average variance shared between each construct and other constructs [19]. Table 2 shows that all construction has sufficient and satisfactory discriminant validity [19], where the square root of AVE (diagonal) was larger than the correlations (off-diagonal) of all reflective constructs.

The model's predictive accuracy was evaluated via the coefficient of determination score. R^2 is the measure of the model's predictive accuracy, and it can also be viewed as the combined effect of exogenous variables on endogenous variables. In other words, the determinant score that represented the amount of variance in the endogenous constructs was explained by all of the exogenous

constructs that linked to it. The effect ranges from 0 to 1 with the higher values indicated the higher levels of predictive accuracy. Table 3 shows the result of R Square. The R^2 values of CP, FP, IP, and LGP can be considered substantive [14].

The predictive relevance of the path model was analysed as well. The result of Q^2 value larger than 0 indicates that the exogenous constructs have a predictive relevance for the endogenous construct under investigation [28]. Table 4 displays the total result of Q^2 . The results are stated in the right column (1- SSE/SSO). The result of Q^2 for CP, FP, IP, and LGP have predictive relevance because the Q^2 values exceeded zero.

Table 5 presents the path coefficients between human capital and balanced scorecard performance. The path coefficients' results suggest that all constructs had a positive effect on the balanced scorecard performance.

All results findings of H1a, H1b, H1c, and H1d were based on the Smart-PLS outputs as depicted in Table 6. Figure 2 presents the final model of the study. According to the analysis of the path coefficients, it can be concluded that all hypotheses were accepted. The results of hypotheses testing are displayed in Table 6.

Table 1. Measurement Model

Construct	Items	Loadings	AVE	CR	
Structural (SC)	SC3	0.751			
	SC4	0.715			
	SC5	0.684	0.577	0.916	
	SC6	0.769			
	SC7	0.830			
	SC8	0.794			
	SC9	0.701			
	SC10	0.818			
	Customer perspective (CP)	CP1	0.853	0.770	0.909
		CP2	0.908		
CP3		0.870			
Internal process perspective (IP)	IP1	0.887	0.723	0.886	
	IP2	0.867			
	IP3	0.795			
Learning and growth perspective (LGP)	LGP1	0.552	0.577	0.789	
	LPG2	0.791			
	LGP3	0.894			
Financial perspective (FP)	FP1	0.870	0.817	0.901	
	FP2	0.939			

Table 2. Discriminant Validity using Fornell and Lacker Criterion

	CP	FP	HC	IP	LGP
CP	0.877				
FP	0.649	0.905			
HC	0.388	0.537	0.850		
IP	0.388	0.551	0.575	0.759	
LGP	0.375	0.525	0.698	0.498	0.759

Table 3. R Square results

Constructs	R Square
CP	0.141
FP	0.275
IP	0.487
LGP	0.248

Table 4. Total result of Q^2

Constructs	SSO	SSE	$Q^2 (=1-SSE/SSO)$
CP	300.000	242.362	0.099
FP	200.000	160.814	0.206
IP	300.000	269.120	0.331
LGP	300.000	257.249	0.106

Table 5. Path Coefficients

	Original sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	T Table
SC -> CP	0.375	0.395	0.076	4.929	1.96
SC -> FP	0.525	0.534	0.075	7.022	1.96
SC -> IP	0.698	0.699	0.060	11.630	1.96
SC ->LGP	0.498	0.518	0.076	6.575	1.96

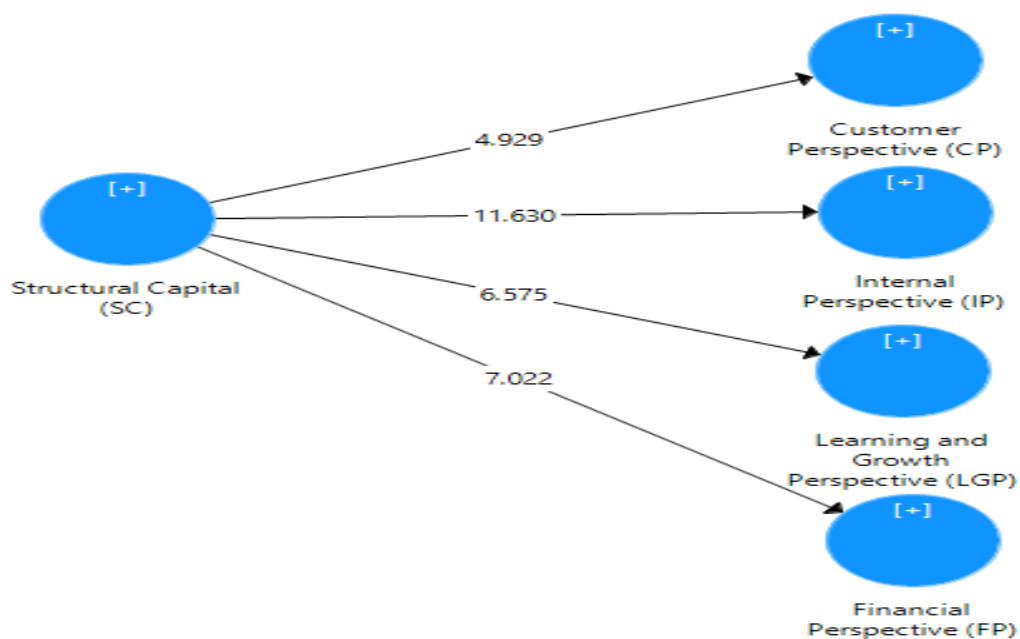
**Figure 2.** Final Model of the study

Table 6. Results of Hypotheses Testing

Independent variable (IV)	Dependent variable (DV)	Result
Structural capital (SC)	Customer Perspective (CP)	H1a: Accepted
	Internal Process Perspective (IP)	H2a: Accepted
	Learning & Growth Perspective (LGP)	H3a: Accepted
	Financial Perspective (FP)	H4a: Accepted

6. Discussion

The above results proposing the effects of structural capital on the balanced supply chain scorecard performance. This result is in agreement with the findings by [10] who stated that the relationship between structural capital and business performance are essential regardless of the industry.

The beta coefficient for this relationship is positive and significant for the service industries compared to the non-service industry. On the off chance that an organization has frail methodology and frameworks to follow its activities, the general intellectual capital won't arrive at its fullest potential [7] organizations with significant structural capital will have a strong culture that permits people to attempt new things, to learn, and to fall flat. Structural capital is the basic connection that permits intellectual capital to be measured at the organizational degree of analysis.

It is highly recommended that the Life Insurance Company to execute programs and activities to strengthen its structural capital to achieve better and balanced organizational supply chain performance. The findings likewise suggest that the significance of structural capital ought to be stressed not exclusively to the Life Insurance Company, yet also to different organizations. Nevertheless, this study has some limitations, for instance, the small sample size used in this study due to difficulties in accessing personal information such as telephone numbers and emails. In this manner, the discoveries of the study may be extended to investigate different businesses for better understanding of the concept across organizations.

7. Conclusion

The objective of this study was to determine the impact of the structural capital on the BSC performance in the life insurance companies in Malaysia. The empirical results of the study showed that the structural capital has a positive effect on the balanced scorecard supply chain performance of the life insurance industry in Malaysia. The findings of the study could benefit the practitioners, life insurers, and top level of managers, in regards to the importance of the structural capital management towards balanced scorecard supply chain performance.

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