SUSTAINABLE SUPPLY CHAIN MANAGEMENT OF THAILAND SMALL AND MEDIUM ENTERPRISE (SME).

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ABSTRACT

The goal of this research develops a comprehensive SSCM driver practices performance model with a focus on antecedent and outcome effects, relating theoretical linkages between driving forces, SSCM practices and commensurate performance outcomes. Sustainable Procurement, Sustainable Design, Sustainable Distribution and Investment Recovery are the focal constructs in the theoretical model, with Organizational Environment Management as an antecedent and Environmental and Cost Performance as consequences Data was collected through survey questionnaires from 500 Thailand small and medium firms to investigate these linkages in an effort to address the knowledge gap. The, reliability, validity and goodness-of-fit of the research model were thoroughly assessed using widely accepted statistical tools. The test of posited hypotheses covering various SSCM drivers-practices-performance theoretical linkages. A Structural Equation Modeling (SEM) method was employed.

INTRODUCTION

The issue of sustainable development is a fast developing area of surveys that represent the interests of business, academia and societies. It is defined and interpreted in various ways and contexts. This concept increasingly points out the direction of the development of economic activity, and that more enterprises are including social and environmental criteria in their activities. However, an effective implementation of the sustainable development idea demands new methods for permanent set-up and tools that enable the integration of different spheres that are so far considered separately. Initiatives for sustainable development in supply chains have been most probably initiated by pioneering organizations (not necessarily concentrating enterprises), and they are expanded into the remaining cells of the supply chain. For example, an organization acting more proactive in the given supply chain starts initiatives towards its sustainable development, and carries out even more tempered practices, which will be later exported to other parts of the supply chain. Having in mind Silvestre's deliberations (Silvestre, 2015), it is noted that the proliferation and acquisition of knowledge can be realized at different rates in individual parts of the supply chain. The process of "disseminating" is not automatic, but rather requires deliberate effort from both the disseminator (i.e., pioneering organization, which initiated action within the supply chain) and the remaining enterprises in supply chains, which will later consume the knowledge and absorb it as long-lasting practices (Sroka et al, 2014).

The concept of the balanced supply chain assumes that all links are involved in creating the added value, which is not only the value given to the participants in the chain; this value also contributes to the common wealth of present and future generations (Rudnicka, 2011). The balanced supply chain can be determined as "the system of connected business activities, including the entire product life cycle, which allows for the value creation

for all stakeholders, simultaneously ensuring the commercial success, which contributes to the increase of the social welfare and the improvement of the environmental status" (Krzysztofek, 2014). The sustainability of supply chain results relate to managing the environmental, social, and business influences, as well as encouraging the application of the best ruling practices in the entire life cycle of products and services. Such a chain is aimed to create, protect, and increase the long-term advancement of the environmental, social, and economic values of all of the stakeholders involved in delivering the products and services into the market (Rezaee, 2018, Sisco et al, 2018). Sustainable development initiatives are undertaken by supply chains because of the threats and possibilities that they meet; these are the two main factors affecting the development of sustainable supply chains (Ross, 2013). It is possible to include crucial factors associated with their outside and inside contexts of functioning among the barriers for the development of sustainable supply chains (Walker et al, 2008).

OBJECTIVE

The objectives of this research overall aim of developing a conceptual SSCM driver practices performance framework, the following objectives are central:

1. To identify the essential SSCM practices along with their associated driving forces.
2. To explore the relationship between SSCM driving forces, SSCM practices and environmental and economic performance.
3. To develop validated and reflective scales to measure the main research clusters of SSCM driving forces, SSCM implementation and performance outcomes.
4. To conceptualism and empirically assess a comprehensive SSCM drivers-practices-performance model.

LITERATURE REVIEW

Thailand's SME business

Thailand's Gross Domestic Product (GDP) for 2017 recorded a welcome growth of 3.9%, a faster expansion compared with the 3.3% rate of the year before. For the SMEs, their contribution to the year's GDP amounted to 6,551,718 M baht. The figure signified an expansion of 5.1% which surpassed the 4.9% rate of the previous year. The SME generated portion made up some 42.4% of the overall GDP. With their GDP building performance, the SME's respective contributions in terms of enterprise size were: Small Enterprises (SE) contributed 4,637,330 M baht or 30.0% of GDP; Medium Enterprises (ME), 1,914,388 M baht or 12.4% of GDP. These figures represented increases of 5.6% and 3.9% over the previous year. Factors supporting the SME-generated GDP growth had been due largely to the continued expansion of two key sectors of the Thai economy: Trade and Services. For the SME domain, the Services sector was well ahead of the others due to its economic importance to the SME-generated GDP. The next two key players, the Trade & Repairs and Manufacturing sectors, were both contributing favorably towards strengthening SME GDP growth. For 2017, these three sectors together were responsible for contributions to SME GDP at 40.9%, 29.9% and 22.9% respectively (OSMEP, 2017).

Supply Chain Management

The literature review shows that the functioning of the supply chain is not only measured through business, it is also measured through its impact on the environment and the social system. Therefore, if the supply chain is completely sustainable, it will not cause net damages to the

ecosystems or social systems, and at the same time, it will bring profits for the long term (Ashby et al, 2012). The SCM literature has increasingly addressed sustainability challenges in supply over the last two decades. From the diverging starting points of SCM, it is not surprising that sustainable SCM initially conceptualizes from different directions (Ahi and Searcy, 2013). A sustainable supply chain can function as long as the customers wish it. The sustainable supply chain balances three dimensions well: business, environmental, and social. Sustainable supply chain management (SSCM) means actions, including the interconnections between the elements and connections in the supply chain that are taken in order to achieve sustainable development. However, managing the supply chain is a complex task (Beamon, 1999). Sustainable supply chain management can be defined as: "creating coordinated supply chains through [the] voluntary integration of environmental, social, and economic aspects with the most important inter organizational business systems; [they are] designed in order to effectively and successfully manage the flow of materials, information, and capital associated with the supply, [as well as] the production and the distribution of products and services in order to fulfill the requirements of interested subjects and the improvement in the profitability, the competitiveness, and the vulnerability of the organization in short and long-term prospect"(Srivastava, 2007). Sustainable supply chain management (SSCM) shows that every company is part of a great system, which is a part of even greater social–natural system. This involves not only cooperating with suppliers, but also with recipients and other stakeholders and managers to shape the relations between these systems (Fleischmann, 1997). Managing the sustainable supply chain requires identification of the most important components of environmental and social impact, and then involving individual links in actions that will reduce the negative influence of these components (Islam et al, 2017). Seuring and Müller determine the SSCM scope within three crucial characteristics (Carter and Liane, 2011):

- Operational, because it regards material and information flows, and supports the organization or sets organizational activities for creating the value, and hence includes traditional structures of managing the supply chain.
- Transformational, which represents the evolution of the business practice with reference to matters beyond the economic sphere, i.e., environmental and social matters, in the long term.
- Relational, because it is based on relations between members of the supply chain, and also takes the interest of the stakeholders in a wider net into consideration, as well as the relation between economic, social and natural systems. The operational prospect probably dominates in this area;

therefore, it has a large impact on the conceptualization of SSCM.

Environmental Dimension of SSCM

The environment is a key element of the sustainable development; climate changes, global warming, and the rising cost of energy are central points of interest (Johnson, 2002). Sustainable development in the scope of the environment relates to maintaining ongoing access to natural resources, i.e., minerals and the atmosphere, without which mankind cannot exist. In this scope, sustainable development relates to the protection of sources of raw materials that are needed for satisfying human needs. Therefore, as Tsoulfas and Pappis, as well as Min and Kim indicate, the environmental dimension of sustainable development should contain environmentally-friendly production processes and actions for reducing the quantity of waste . The commitment to sustainable production processes frees companies from the release of pollutants. Applying renewable sources in production and re-using materials, whether processing defective or consumed products, are equally essential (Zhang and Chen, 2015). Crucial elements of the environmental dimension of sustainable development include

organizational activities such as the selection of partners in the supply chain based on ecological guidelines, and the commitment of employees to environmental protection programs (Nawrocka et al, 2009). Taking the above studies into consideration, an analytical set of the environmental elements of sustainable development in supply chain management for examinations of small and medium enterprises is established as follows:

- Environmentally-friendly production processes
- Actions for reducing the quantity of waste
- Commitment to production processes that are free from the release of pollutants
- Applying renewable sources in production
- Re-use of materials
- Processing defective and consumed products
- Selection of partners in the supply chain based on ecological guidelines
- Commitment of employees to environmental protection programs
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Social Dimension of SSCM

Social sustainable development regards numerous relationships between human rights and development, including the impact of a corporation's actions on individuals and global poverty, ambiguous business operations, and the consumer's choice without the moral contexts (Kumar and Yamaoka, 2007). Considering the public aspect, it is possible to find a diverse number of elements that relate to sustainable development and are worthy of analysis, e.g., frames of social influence and initiatives connect with the ability to evaluate the social permanence of supply chains. Besides this, the relationships between the business decisions and sustainable development in social areas (Xiang and Ming, 2011; Roh et al, 2015; Seles et al, 2016) are influenced by the company's ethical code towards employees and contractors, and can include honest principles regarding employing the local community, and even delivering employees equipment ensuring hygiene and job security. The indirect influence of enterprises on the local community on the macroeconomic scale is equally essential; this influence expresses itself through companies timely and legally paying taxes and associated charges. The transparency of incomes is the base of the tax calculation, and it is also important to apply ethical norms to business and trade, or even invest and/or participate in investments in infrastructure objects that communities use (Lin and Lan, 2013). Colantonia also gives investments in poverty reduction programs, participation in the charity actions of the local community, and regional and trans regional development initiatives as socially crucial elements of sustainable development (Vanalle et al, 2017). Therefore, for examinations regarding the involvement of small and medium enterprises in managing supply chains that follow the social elements of the sustainable development, the following elements are important:

- Applying an ethical code towards employees and contractors
- Applying honest principles of employing the local community
- Delivering equipment ensuring hygiene and job security
- Investments in infrastructure objects
- Timely and legally paying taxes and associated charges
- Transparency of incomes as the basis of tax calculation
- Applying ethical norms of business and trade
- Investments in poverty reduction programs
- Participation in the charity actions of the local community
- Participation in regional and trans regional development initiatives

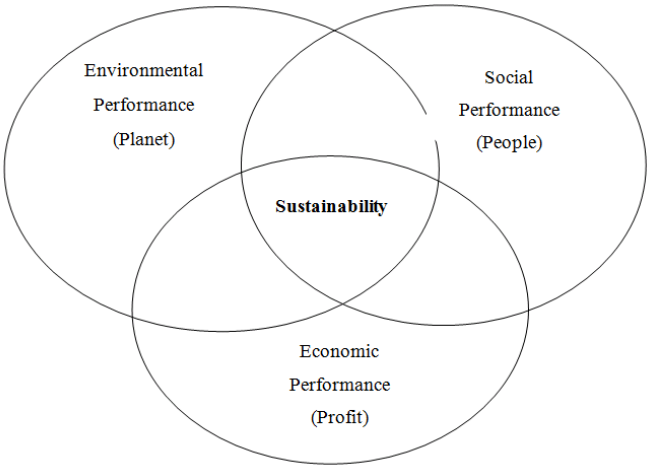

Figure 1 Triple bottom line (TBL) framework (Carter and Rogers, 2008)

The TBL basically captures the intersection of economic, social and environmental performance, where there are activities that firms can engage in which can positively impact society and the natural environment and also lead to long-term economic benefits. This study builds tee foundation of the performance outcomes associated with SSCM on the TBL performance pillars. Figure 1 shows the TBL framework along with its key performance pillars.

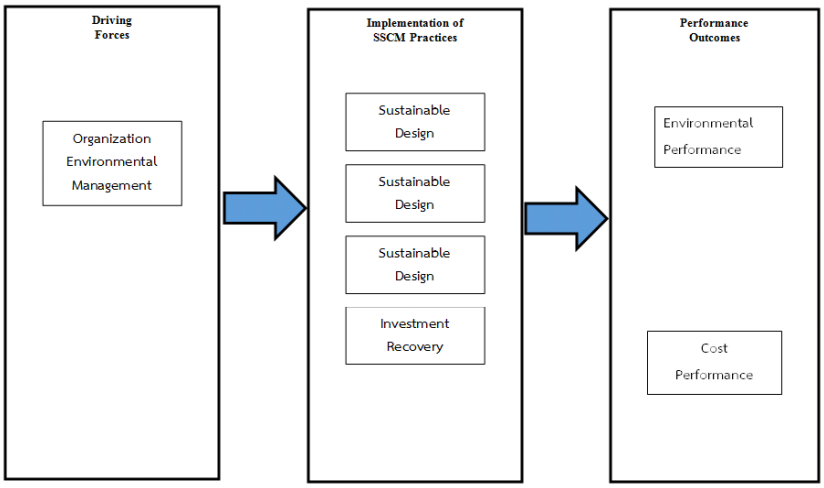

Figure 2 Initial SSCM drivers practices-performance model

Overall, our initial model was developed using the theoretical anchors of SCM theory and also theoretical reasoning concerning organizational performance and the causation rationale. Furthermore, the holistic and integrated perspective of the research model allows this study to effectively assess the impact of the implementation of SSCM practices on performance outcomes with the inclusion of the effects of SSCM driving forces.

METHODOLOGY

For this research, the quantitative survey based applied to examine the outcome of SSCM implementation on firm's performance outcome. In data analysis section, structural equation modeling(SEM) is applied that SEM is capable of identifying new relationships in the model and suggesting any potential relationships that can statically exist based on modification indices(Kaplans, 2000, Shumacker and Lomax, 2010). In other word, SEM estimates all of possible relationships between the embedded variables of the model, which assist the researcher to ensure that all potential relationship theorized. 500 small and medium entrepreneurs in Thailand were selected as a sample (Hair et al, 2010) and were collected data with questionnaire survey.

RESULTS

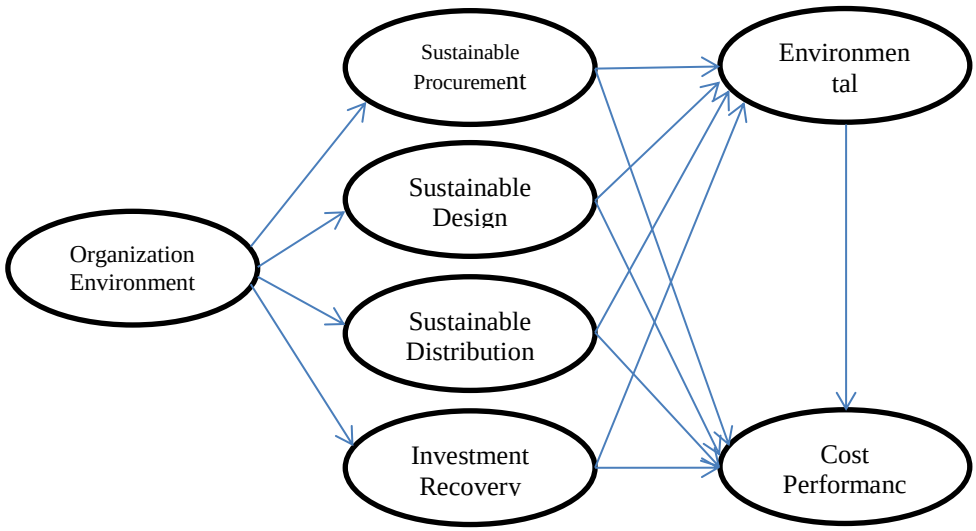

Figure 3 Comprehensive SSCM drivers practices-performance model

The research theoretical model is a path analytical model with six latent variables (see in Figure 3); organization environmental management (OEM), sustainable procurement (SP), sustainable design (SD), sustainable distribution (SDIST), investment recovery (IR), environmental performance (EP), and cost performance (CP). Each of relationships depicted in the research model is theorized as being direct and positive. Generally, the SSCM practices of sustainable procurement, sustainable design, sustainable distribution and investment recovery are the focal constructs in the theoretical model, with organization environmental management as an antecedent and environmental and cost performance as consequences.

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