Transformative Supply Chain System for Ecosystem Well-being

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Doctoral Dissertation

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September 2018

Abstract

Since ecosystem well-being became an important aspect of business development, the concepts of sustainable and environmental friendliness are employed in many parts through a supply chain. However, those concepts became parts of marketing to promote the organization, reduce cost, and increase profits rather than focus on environmental and well-being. In the past decade, the supply chain is accused as the environmental and human well-being disruption by consuming environmental resource to produce products or services. Therefore, it is imperative to transform a conventional supply chain concept into a business concept that helps reduce cost and increase profit, meanwhile, promote the well-being of human and nature. In this regard, a Transformative Service Research (TSR) is developed to improve that well-being of individual, group, and ecosystem. However, TSR is a new research area that is limited to a service research namely, financial, healthcare, and social services. Thus, this study attempts to conceptualize Supply Chain Management (SCM) in a context of TSR to improve sustainability and well-being of supplier, customer, and environment. The purpose of this study is to integrate TSR into the supply chain in order to focus on sustainability and well-being of ecosystem, as well as the profitability of supply chain.

The research is divided into three main parts. The first part is a literature review that provides an overview of SCM components. In order to develop a new supply chain concept, the study of conventional supply chain concept is needed to be considered in order to find problematic gaps in it. Since SCM is a source of value creation for stakeholders, there are many influential factors for constructing a partnership in supply chain network. The influential factors demonstrate different contributions in each phase of the supply chain. Therefore, a literature review of supply chain and TSR were employed to identify the critical components

in the process of supply chain development, and establish the critical phases for creating a Transformative Supply Chain (TSC) concept.

The second part is a construction of TSC development framework. The TSC consists of three entities, including a supply chain, society, and environment. This study aims to propose a TSC by integrating the transformative service concept and supply chain concept. The framework presents the relationship and interaction of each entity in TSC development. Supply chain entities consist of suppliers, company, and customers. Each entity interacts and co-creates value based on the service concepts. Therefore, environmental and society entities influence and interact with supply chain through the resource integration process. Moreover, knowledge is an important factor that influences human behavior and decision making process. Therefore the knowledge and information are contributed as resource integration in the ecosystem.

In order to support the Transformative Supply Chain Management (TSC) as a supply chain concept, the well-being and sustainable development of supply chain ecosystem are needed to be identified. This development can be constructed through value co-creation between providers, recipients, and nature. Therefore, the last part is a validation of TSC concept. There are three sub-studies for validating each part of TSC concept. Sub-study 1 focuses on the TSC concept as a whole, the company with TSC thinking. The case analyses are employed to confirm the impact of social, institution, and environment on a supply chain. Sub-study 2 focuses on the recipient aspect. The empirical study of customer perception on an environmental product is investigated. The three environmental labels of “milk” are employed to capture the customer perception in terms of individual and collective aspects. A total of 618 samples were randomly collected. Multinomial logistic regression was employed as a statistical method to measure the relationship and effect of knowledge, social value, and individual perception of customers on the environmental information provided by the company. The last sub-study aims to identify the important relationship between institution and supply chain in TSC. The case study of AEC is employed as a institution change in supply chain in Thailand.

In summary, the framework of TSC can be served as a guideline for both academic research and practical applications for constructing a supply chain with concern on the well-being of the human and nature, rather than a profit for the individual. The process, key considerations,

and principles of TSC are summarized as key contribution of this study. Moreover, the importance of knowledge and resource integration among entities of TSC is known as a significant part for constructing a supply chain with TSC concept.

Keywords: transformative supply chain, transformative service research, value co-creation, service-dominant logic, supply chain management, customer perception, social value, ecosystem, well-being

Acknowledgments

It is not possible for me to finish this thesis without the great support from the people and institutions that support and encourage in term of knowledge, information, financial, and experience. I would like to take this chance to express my sincere gratitude for everything throughout many years of research.

First of all, I would like to my advisor, *Associate Professor Dr.* Kunio Shirahada, for his supervision. He always understands and supports me in both academic and non-academic aspects. I appreciate his excellent supervision and guidance, which assisted me during the research and study. I have had the best research experience and learning so many lessons under his supervise.

Besides my advisor, I would like to thank my co-advisor, *Assistance Professor Dr.* Suthathip Suanmali from Sirindhorn International Institute of Technology (SIIT). She always provides suggestions, ideas, and be patient with me. Without her supervision and perpetual support, this dissertation would not have been complete.

In addition, I would like to sincerely thank *Professor* Michitaka Kosaka, and *Professor* Yukari Nagai for their responsibility as sub-supervisor. Their knowledge and wisdom significantly influence on this dissertation.

I am extremely thankful to the members of my examination committee, *Professor* Naoshi Uchihira, *Professor* Huynh Nam Van, and *Professor* Mitsuru Ikeda for their valuable and constructive comments and suggestions. Special thanks go to *Associate Professor Dr.* Karnjana Sanglimsuwan for her kind comments and useful information. Without their advice, my thesis would never have been completed.

I am truly thankful to all reviewers and editors of the international conferences and international journal, including Portland International Center for Management of Engineering and Technology Conference (PICMET 2016), JAIST World Conference (JWC 2018), Service SIG (SERVSIG 2018), Global Marketing Conference (GMC 2018), International Journal of Supply Chain Management (IJSCM), International Journal of Sustainable Society (IJSSoc), and The Service Industries Journal (SIJ) to provide opportunities to contribute and publish my research. Besides that, I also got the great chance to enhance my research through the explicit and tacit knowledge that can be employed in this thesis.

My sincere thanks also go to Japan Advanced Institute of Science and Technology (JAIST), Sirindhorn International Institute of Technology (SIIT), and National Science and Technology Development Agency (NSTDA) who provided the SIIT-JAIST dual degree program scholarship for the Ph.D. program. I have also greatly benefited from the Japan Advanced Institute of Science and Technology and Japan Student Services Organization (JASSO) for all the financial support. Moreover, a part of this work is supported by JSPS KAKENHI Grant Number 26380459.

I also wish to extend my thanks to all the experts and respondents who cooperated and participated in my work. Moreover, the authors would like to thank the Mae Fah Luang Foundation for their kind support, an opportunity, and all the necessary information.

Finally, I would like to thank my family and friends who always support and encourage me.

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This dissertation was prepared according to the curriculum for the Collaborative Education Program organized by Japan Advanced Institute of Science and Technology and Sirindhorn International Institute of Technology, Thammasat University

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Table of Abbreviation

Abbreviation	Explanation
AEC	ASEAN economic community
ASEAN	Association of Southeast Asian nations
CO_2	Carbon dioxide
CSR	Corporate social responsibility
FP	Foundation premise
G-D logic	Good dominant logic
GSCM	Green supply chain management
IT	Information technology
KM	Knowledge management
MLR	Multinomial logistics regression
NGO	Non-government organization
NPO	Non-profit organization
S-D logic	Service-dominant logic
SCI	Supply chain integration
SCF	Supply chain flexibility
SCM	Supply chain management
SCP	Supply chain performance
SSCM	Sustainable supply chain management
TSR	Transformative service research
TSC	Transformative supply chain
WTP	Willingness to pay

Chapter 1
Introduction

1.1 Research Background

Supply chain management (SCM) has been concerning as an important topic to increase productivity and profitability of an organization (Beamon, 1999, Gunasekaran et al., 2004a). The SCM is considered to be a system of three or more entities that pass materials, products, services, finances, information between upstream and downstream, and deliver to their end customers (Mentzer et al., 2001). It is complex systems within dynamic environments (Defee et al., 2010). In the globalization era, business entities are mainly concerned with performance improvement rather than focusing on the isolated organization (Zailani and Rajagopal, 2005). Therefore, SCM directly influences the ability of a business and competitive advantage (Craighead et al., 2009, Khattab et al., 2015).

SCM facilitates the efficiency and effectiveness of whole processes, from sourcing to the end-consumers. It is the flow of goods, services, finance, and information (Vijayasarathy, 2010). SCM is concerned with improving both efficiency cost reduction and efficient customer service (Mentzer et al., 2001). It helps to increase quality, and reduce overall costs by managing issues in a supply chain, such as inventory management, warehousing,

purchasing, transportation, manufacturing, supplier management, and negotiations (Dawson, 2002).

A main goal of SCM is to create seamless coordination across members in a chain (Zailani and Rajagopal, 2005). A higher level of SCM results in higher levels of supply chain performance (SCP) (Sukati et al., 2012). SCP is the ability of a supply chain to respond to any fluctuations, with the dynamic collaboration of the members. Likewise, it is directly related to any activities within a supply chain, including manufacturing, logistics, materials handling, distributing, and transporting functions (Ibrahim and Hamid, 2014). The higher performance in an effective supply chain can be measured by many factors, including customer and supplier relationships, redundant process reduction, an increase of information flow and material, (Zailani and Rajagopal, 2005), and flexibility (Thoméa et al., 2014).

However, over the past decade, environmental problems have become a significant issue in global sustainable development and have drawn significant attention from all actors in a business development and a supply chain (Walker et al., 2008, Aschemann-Witzel and Zielke, 2017). Both customers and companies are consuming the environment and generating a negative impact on the environment and social well-being. Therefore, the integration of transformative service research (TSR) concept in SCM creates the value co-creation between customers and companies, which is a key strategy for businesses to satisfy the customers and to achieve a truly sustainable business development (Zhang and Chen, 2008). Environmental factor significantly influences on customer behavior, buying decisions, and willingness to pay (Kumar and Kapoor, 2017, Pothitou et al., 2016, Mei et al., 2016, Kwok et al., 2016, Karaosmanoglu et al., 2016, Yang et al., 2015, Thakur and Aurora, 2015, Isaacs, 2015, Joshi Yatish and Rahman, 2015, Biswas and Roy, 2015, Kanchanapibul et al., 2014). Therefore, the understanding of the interaction and value co-creation among supply chain, customer, environment, and society is essential to develop a supply chain concept that concern on the well-being of both human and nature.

Sustainability and well-being have been increasing concern in business and service research (Silvestre, 2015, Tang et al., 2016, Rosenbaum et al., 2011). This is because living creatures are surviving by consuming environmental resources (Shirahada and Fisk, 2014, Markman and Krause, 2016) and human activities such as supply chains are encroaching on environmental resources (Pagell and Shevchenko, 2014, Anderson et al., 2013, Gupta and

Palsule-desai, 2011). The growing concerns about sustainability and well-being have left the question of how can the supply chain create well-being and contribute to global sustainability rather than eager human activities. Sustainable supply chain management (SSCM) was developed to address the impact of three main dimensions: society, the economy, and nature (Kumar and Rahman, 2016, Formentini and Taticchi, 2016). However, SSCM has focused on reducing environmental impact, not eliminating it (Pagell and Shevchenko, 2014) and environmental concern became a marketing or a tool to promote and increase a profit to the company (Suki, 2016, Aibek and Ariffin, 2015, Huang et al., 2014b). Resulting in a decrease in the well-being of customers and the ecosystem (Polonsky, 2011, Papadas et al., 2017). Therefore, it is imperative to transform the relationship between society, the economy, and the environment in order to support human well-being and truly sustainable development for future supply chains (Anderson et al., 2013) with the aim of transforming a sustainable concept from a business supporter to a primary goal of business development.

Due to the increase in global consciousness about the well-being of humans and nature (Rosenbaum et al., 2011), the transformative service research (TSR) perspective highlights the well-being of individuals, communities, and ecosystems through a service concept (Rosenbaum et al., 2011, Kuppelwieser and Finsterwalder, 2016). Therefore, the integration of TSR and SCM concepts leads to a better approach to creating the well-being of a supply chain ecosystem. The purpose of this research is to conceptualize the transformative supply chain (TSC) concept to transform the objective of SCM from profits based to be truly sustainable and focus on well-being. Then identify the procedure to conduct TSC in the real world situation for creating sustainability of an ecosystem. Therefore, TSC is established to overcome and achieve the unfinished goal of SSCM. The study constructed a concept of TSC by integrated a TSR lens. The study focuses on the components and interactions of each entity of supply chains in the TSR lens and how to transform traditional supply chains into TSCs by using a transformative service platform.

1.2 Research Objectives and Research Questions

Supply chain management research is mainly considered on the manufacturing side, which is a focus on the cost reduction, responsiveness, and flexibility of the member in the supply chain. In this research, TSC management focuses on the customer, society, and environmental well-being by producing and consuming products. The term “well-being” in this research refers to the good status of the ecosystem that covers both human and nature aspect.

The purpose of this study is to integrate the transformative service research concept into a supply chain called a transformative supply chain concept to transform the key idea of supply chain management from profitability to sustainability and the well-being of an ecosystem. The literature related to the fundamental concept of supply chain and transformative service research are reviewed and integrated into the construction of a transformative supply chain for proposing and explaining the conceptual model. Then, the case analysis of the Royal Project Foundation in Thailand was employed to demonstrate and validate the concept. Moreover, the empirical study of customer perception of product value based on the different environmental labels is employed to identify the importance of knowledge, information, and social value to the customer perception in a transformative environment.

The major research question is “How to develop a supply chain that concerns the well-being of human and nature?”

Subsidiary research questions are

1. What are the important components in the supply chain that influence on the well-being and sustainability of TSC?
2. How can a conventional supply chain transform into the supply chain that mainly concerns on well-being?
3. What are the keys considerations of the TSC development?

1.3 Structure of the Study

This research can be divided into three main stages to propose and validate the TSC concept as demonstrated in Fig. 1.1. In order to construct a new concept on SCM, the conventional SCM concept needed to be reviewed. The first stage aims to review study of SCM and TSR concepts. Then, the review of influential factors of supply chain performance (SCP) is mandatory. The components of SCM including influence factor, supply chain development, and supply chain activities are studied to explore the possibility and a gap for constructing a supply chain concept with TSR contents. The identify the critical factors that contribute to each phase of supply chain partnership development by a substantial literature review of supply chain terminologies in SCM research area. Then framework for constructing an effective supply chain network is purposed to support the development of TSC concept. After that TSR concept are reviewed to develop a transformative supply chain (TSC) concept. The influence concept of TSR including S-D logic, value co-creation, and service concept studies and integrated to create TSC. In the third stage, the TSC concept is validated by three sub-studies based on the case analysis and the empirical study of customer perception. (1) The Doi Tung Development Project under Mae Fah Luang Foundation is employed to demonstrate the supply chain activities, developing processes, and critical factors respect to a TSC concept to construct a supply chain with the transformative concept. (2) The study of empirical survey based on customer perception is conducted to vilify the relationship and effect among firm, environment, society, and customers. (3) This sub-study focuses on the effect of the institution on the supply chain. Therefore, the effect of AEC in Thailand is studied to classify the influence of AEC on the supply chain in Thailand.

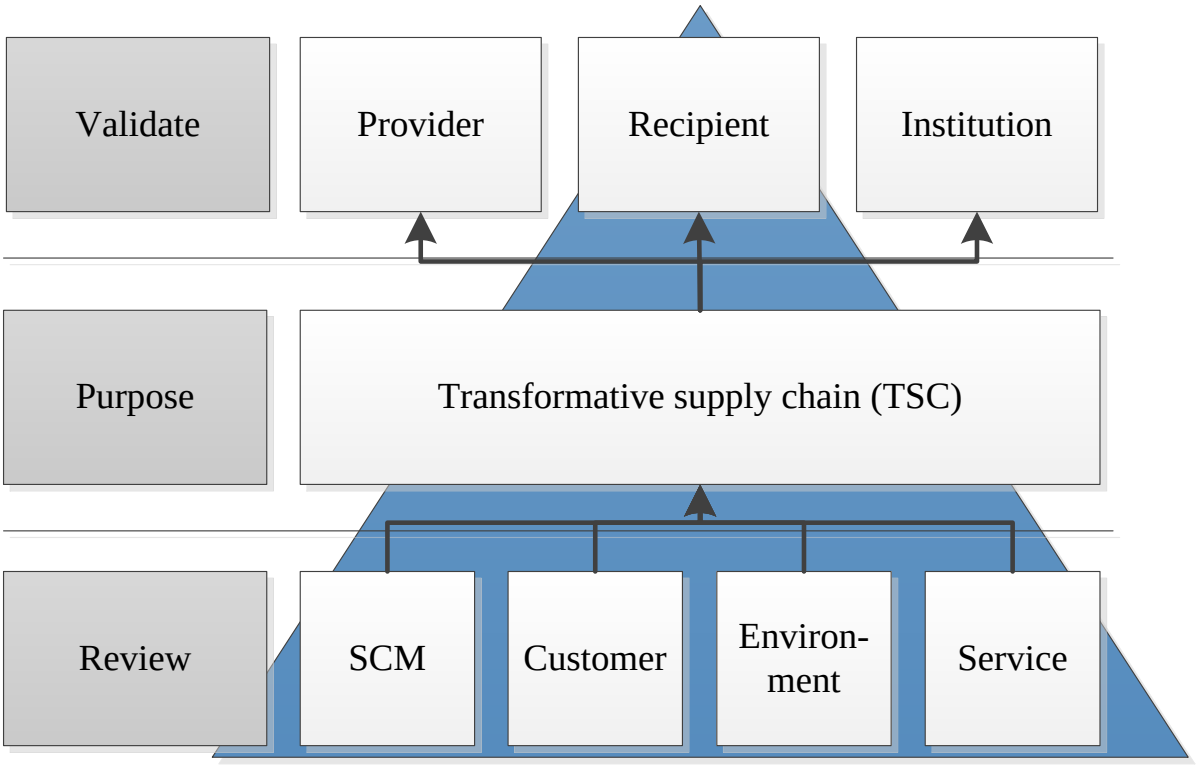

Figure 1.1 Research structure

1.4 Structure of dissertation

This dissertation structured in six chapters including introduction, literature reviews, foundation of TSC, concept of TSC, validation of TSC concept, and conclusion. The detail information of each chapter is demonstrated in Figure 1.2.

Chapter 2 Literature review – This part consists of three main topics for constructing TSC concept. The first topic is supply chain management, this topic covers all related factor for constructing a supply chain including partnership, members, influence factors, performance, and sustainable supply chain development. The key purpose of this part is to understand the approach to develop and establish an effective supply chain. Next topic is customer perception. In the service concept, the customer became a part of value co-creation process. Therefore, the influence factors on customer perception need to be reviewed for constructing a new supply chain concept. Then, the important concept of well-being, value-creation, and S-D logic are reviewed and presented in the TSR as the third part of the literature review.

Chapter 3 Foundation of TSC – This chapter mainly based on the results of a systematic literature review in supply chain research. The aim of this chapter is to explore the significant factors that influence TSC development in supply chain aspect. The influential factors that contribute to supply chain performance and sustainable are descript and classify into three development phases as a framework for establishing a TSC.

Chapter 4 Concept of TSC – The main purpose of this chapter is to purpose a TSC concept. The overview of TSC is discussed based on the literature review of SCM, TSR, S-D logic, value co-creation, and resource integration. After that, the TSC concept including components, relationship, and development processes are proposed as a guideline for transforming the focus of SCM from profit to well-being of the ecosystem.

Chapter 5 Validation of a TSC concept – In order to validate the TSC concept, three sub-studies is employed to explain the existing relationship and impact of each entity on a supply chain based on the real situation. The perception of providers, recipients, and system are analyzed to validate the TSC concept. The validation techniques including case analysis, in-depth interview, and empirical study are discussed in this chapter.

Chapter 6 Conclusion – In this chapter, the results of each chapter are integrated as an approach to constructing a TSC. The critical factors and premise of TSC are concluded and presented in this chapter. Limitation and further studies are presented to fulfill the gap of this research and leave the questions for effectively constructing a future research under TSR and SCM concepts.

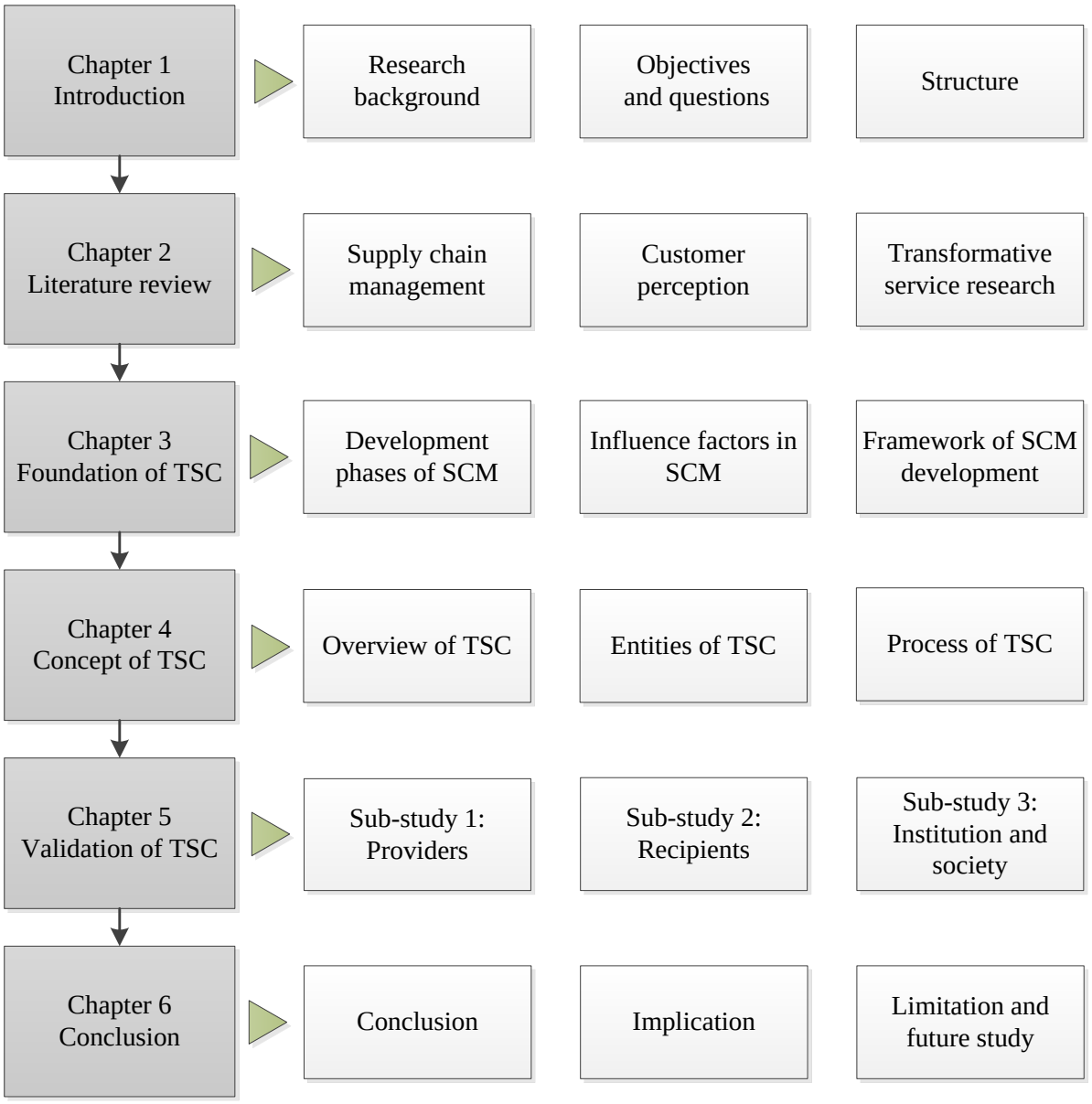

Figure 1.2 Structure of dissertation

Chapter 2
Literature reviews

In order to develop an SCM that concern on the well-being of individual, society, and environment, the primary concepts of supply chain, customer, environment, and service concepts are reviewed and integrated to make a logical and reasonable framework of TSC. Therefore, the literature reviews of both primary and intersection concepts as shown in Figure 2.1 needed to be reviewed.

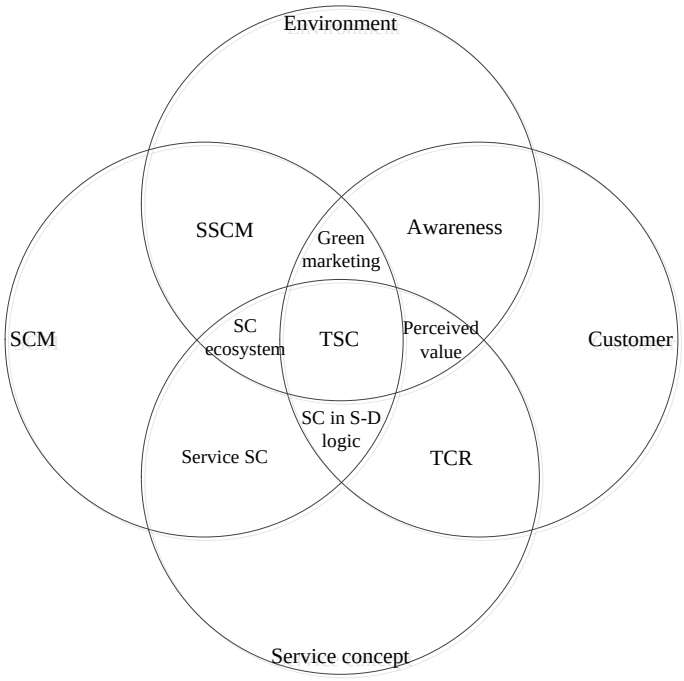

Figure 2.1 Components of TSC concept

2.1 Supply chain management

Due to global economic development and globalization, supply chain management (SCM) has been increasingly focused on by business entities (Craighead et al., 2009). In 1980s, supply chain concept was developed by consultants (Lambert and Cooper, 2000) with the main goal of seamless operation within a supply chain network (Zailani and Rajagopal, 2005) to create quality and reduce costs in all the processes embedded within SCM, including both provider, customers, and third-party activities (Dawson, 2002, Prasetyanti and Simatupang, 2015). In the traditional aspect, productivity and profitability are key focuses of SCM (Beamon, 1999, Gunasekaran et al., 2004a). It mostly prioritizes the performance of an entire business network rather than an isolated organization (Zailani and Rajagopal, 2005, Hamed et al., 2017b). Therefore, the supply chain is a network of actors who interact, integrate, create, and deliver value through the chain. It consists of activities and processes to satisfy demand (Prasetyanti and Simatupang, 2015). The supply chain is influenced by many criteria and a changeable environment (Xu et al., 2009).

2.1.1 Conventional supply chain

The SCM is considered to be systems of three or more entities that pass materials, products, services, finances, and information upstream and downstream among the members, and deliver to their end customers (Naslund and Williamson, 2010). It is complex systems within dynamic environments (Defee et al., 2010). In order to create an effective partnership among supply chain members, the review of influential factors of Supply Chain Performance (SCP) is mandatory. However, SCP is influenced by many factors and considered by different research areas.

In the conventional supply chain, SCP is considered as a critical issue that contributes competitive advantages of an organization; it involves many actors in a supply chain, including suppliers, manufacturers, and related retailers (Cai et al., 2009, Craighead et al., 2009). SCP is cost-containment and performance reliability. Cost-containment refers to cost related activities, such as holding, transporting, and operating costs (Ibrahim and Hamid, 2014). Reliability is related to satisfaction and serviceability, including order fulfillment rate, inventory turns, and product warranties .These measurements have been recognized as the direct and observable factors of SCM. In order to enhance the performance and competitive

advantages of a supply chain, the supply chain activities and techniques such as inventory reduction, just-in-time delivering system, safety stock, and improving flexibility are promoted and applied among members (Vijayasarathy, 2010).

SCP allows an organization to measure the source of problems in different procedures and create a better understanding of a supply chain as a whole .Therefore, many industries, including the automotive industry(Thoméa et al., 2014, Azevedo et al., 2011, Olugu et al., 2011, Brandenburg, 2013, Woolliscroft et al., 2013, Hasan et al., 2014), manufacturer (Handfield and Bechtel, 2002, Hwang et al., 2008, Zhu et al., 2008, Xu et al., 2009, Lin et al., 2010, He and Lai, 2012), construction industry (Dadhich et al., 2015, Wibowo and Sholeh, 2015), and foods industry (Beske et al., 2014, Bourlakis et al., 2014a, Grimm et al., 2014, Afonso and Cabrita, 2015), are interested in SCP measurement. In order to measure an SCP, researchers employ different measuring tools, for instance, the Supply Chain Operations Reference model (Hwang et al., 2008, Lambert and Cooper, 2000, Gunasekaran et al., 2004b, Clivillé and Berrah, 2006, Ducq and Berrah, 2009, Trkman et al., 2010, Ganga and Carpinetti, 2011, Alomar and Pasek, 2014, Ntabe et al., 2015, Okongwu et al., 2016), Balanced Scorecard (Afonso and Cabrita, 2015, Lohman et al., 2004, Hon, 2005, Bhagwat and Sharma, 2007, Ukko et al., 2007, Zin et al., 2013, Shafiee et al., 2014, Marimin et al., 2017), Structural Equation Modeling (Lin et al., 2010, Trkman et al., 2010, Kim, 2009, Green et al., 2012, Avelar-Sosa et al., 2014, Hussain et al., 2015), and Analytic Hierarchy Process (Ganga and Carpinetti, 2011, Alomar and Pasek, 2014, Adel El-Baz, 2011, Badea et al., 2014).

A number of studies propose a framework to describe the relationship and evaluate the SCP, for example: relationships of supply chain linkages (Zelbst et al., 2009), supply chain strategy, and flexibility on supply chain performance (Yusoff et al., 2016, Awais et al., 2014); supply chain leadership and followership on supply chain efficiency and effectiveness (Defee et al., 2010); relationships between resources, outputs, and flexibility (Beamon, 1999); relationships between supply chain linkages and supply chain performance (Lee et al., 2007); the role of partnerships in supply chain performance (Ryu et al., 2009); relationships between Supply Chain Integration (SCI) and performance (Huang et al., 2014a); and supply chain collaboration enhancing efficiency, effectiveness, and marketing position (Min et al., 2005). Thus, an effective supply chain network requires flexibility, responsiveness, reliability, and integration among supply chain partners.

Supply chain management has many similarities in many terms because a supply chain is a process of exchange and create the value as a “value-creating networks” (Braziotis et al., 2013). The study of Mentzer et al. (2001) proposed three levels of supply chains. The first level, supply chain, focuses on the core business and direct suppliers (tier 1 supplier) who directly interact with the organization (horizontal relationship) called “direct supply chain” (dyadic relationship). The second level, extended supply chain, includes suppliers of suppliers (tier 2 and 3 suppliers) and indirect customers. This level also concerns the relationships of the actors in different levels (vertical relationship). The third level is the ultimate supply chain or supply chain network (Braziotis et al., 2013). It consists of supporting sectors and actors that contribute to the supply chain system, including financial providers, logistics providers, and information providers. The study of Letaifa (2014) defined the value-creation network as a network of individuals, customers, partners, competitors, and suppliers collaborate with co-creation among multiple actors to transforming value chains into open knowledge- or competency-based networks.

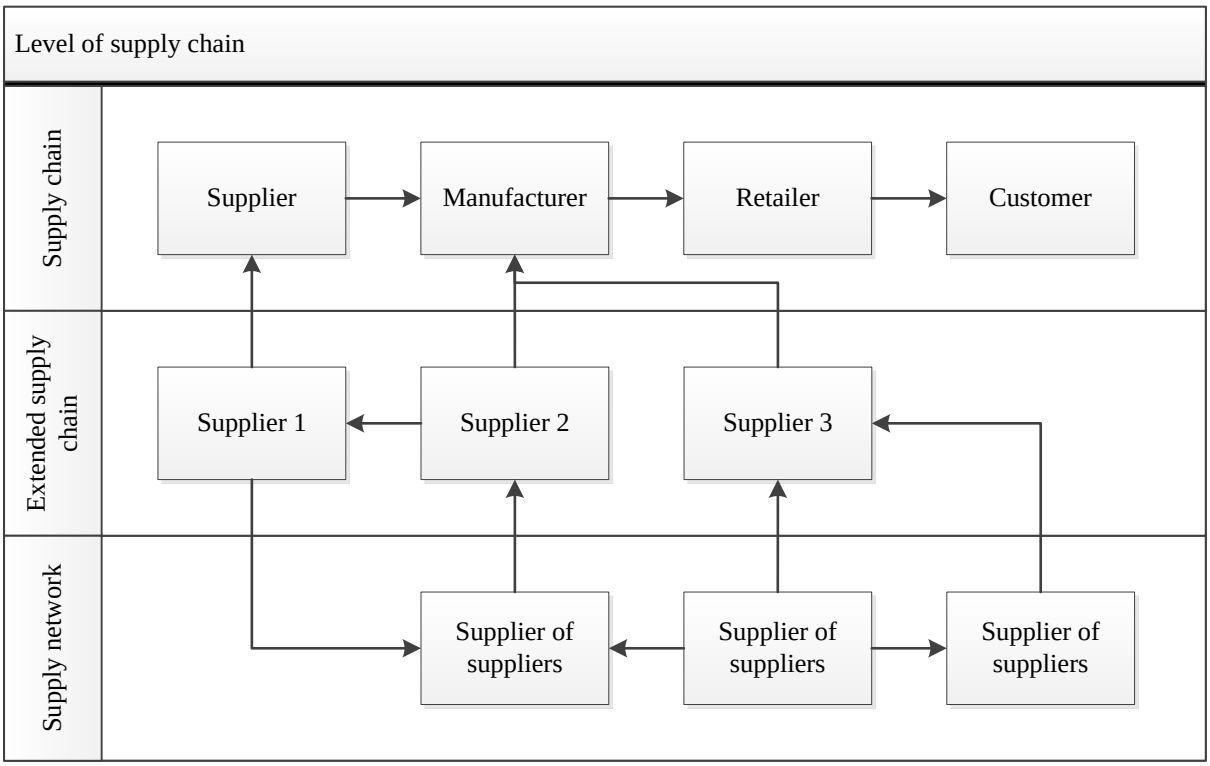

Figure 2.2 Level of supply chain

Table 2.1 The definition of each type of supply chain

Type of supply chain	Definition
Supply chain	A direct supply chain is a system that flows of products, services, finances, and information occur among a company, a supplier, and a customer in both upstream and downstream directions (Mentzer et al., 2001). According to Braziotis et al. (2013p.648), supply chain is "a set of primarily collaborative activities and relationships that link companies in the value-creation process, in order to provide the final customer with the appropriate value mix of products and/or services".
Extended supply chain	An extended supply chain is a direct supply chain with immediate of supplier and customers aspect. The flows of products, services, finances, and information occur in upstream and/or downstream of both vertical and horizontal direction in a supply chain system (Mentzer et al., 2001).
Supply network	A supply chain network includes every actor that interacts in flows of products, services, finances, and information in both upstream and downstream directions (Mentzer et al., 2001). In this network, members of a supply chain contribute to each other to achieve the goal (Braziotis et al., 2013)

Source: Mentzer et al. (2001)

Since the supply chain requires nodes with complex relationships (Cai et al., 2009, Carter et al., 2015), it consists of many actors participating in a system, not only the suppliers, manufacturers, distributors, and retailers, but also all the actors that integrate resources (knowledge and skills) into the flow of products, services, finances, and information in both upstream and downstream directions (Mentzer et al., 2001). All members of a supply chain have direct and indirect interaction with the other actors via non-linear and complex relationships. For example, a manufacturer has direct communication with a distributor that buys the finished goods and has an indirect relationship with the distributor who order and resale the products (Braziotis et al., 2013).

According to SCM development, a supply chain is now focused on the relationships, interactions, and value creation among partners, and value constellation rather than the movement of tangible materials along the processes. Therefore, the S-D logic concept possibly provides the benefits in SCM because it relates to the processes of sharing and exchanging information between actors within the supply chain (Prasetyanti and Simatupang,

2015). Therefore, supply chains can be considered value co-creation networks (Maas et al., 2014). According to Braziotis et al. (2013), a supply chain is a set of practices for exchanging and creating of value as value-creating networks. The study of Letaifa (2014) defined the value-creation network as a network of individuals actor including customers, suppliers, recipients, competitors, and providers that interact with each other to develop a network in term of knowledge and competency in the value chain (Letaifa, 2014).

According to the literature, each study differently summarizes the influence factors based on the industry and research methodology. However, the time period of supply chain development is disappeared. In order to develop a framework for supply chain development, the study of factors influencing SCP in each phase of supply chain development is inevitable.

2.1.2 Environmental supply chain

The increasing of environmental concern leads to the environmental or green supply chain management (GSCM) development. Green processes result in a low level of environmental destruction or minimize the effect of supply chain activities on the environment, including low energy consumption, waste reduction, and low CO_2 emissions during the entire supply chain process (Kumar and Rahman, 2016). Both academic and business fields have been increasingly interested in the concept of GSCM since the 1990s (Nadine, 2013). According to Ntabe et al. (2015), environmental practices lead to a competitive advantages in a supply chain. GSCM has integrated environmental issues into every process of supply chain since acquiring raw materials to distributing the products or services to end-consumers (Zhu et al., 2016, Uygun and Dede, 2016, Chin et al., 2015). It aims at minimizing the overall environmental effects and CO_2 emissions from supply chain activities since product design process until the elimination of the product (Walker et al., 2008, Chen et al., 2012, Uygun and Dede, 2016).

The environmental aspect is reflected as an essential indicator in a global supply chain development (Zhu et al., 2016, Uygun and Dede, 2016). Organizations need to adapt themselves and manage the effect from the dynamic environment to maintain the competitive advantages among businesses that incorporate GSCM practices, thereby improving innovative development and improvement (Kumar et al., 2015). GSCM is viewed as a part of the sustainable supply chain (Chin et al., 2015, Formentini and Taticchi, 2016) because of the

concerns about the chain's impact on societies, the economy, and the natural environment (Kumar and Rahman, 2016, Formentini and Taticchi, 2016). Significant challenges remain to minimize the environmental impacts of food production through SCP and food security contexts (Tzilivakis et al., 2012). The increasing consideration of GSCM significantly influences the improvement in sustainable supply chain development (Chin et al., 2015). If companies set up green initiatives to obtain green products, customers will perceive a company as having a good environmental responsibility when communication with the customer is well organized through product labels (Biesemans, 2012). Apart from the marketing and social responsibility, GSCM is implemented because of government pressure and competitive pressure (Saini, 2013, Zhu and Sarkis, 2016). Therefore, environmental preservation became a consideration point in the supply chain, government, and customer aspects.

2.1.3 Sustainable supply chain

In the past decade, environmental impact has become a global issue. Sustainable supply chain management (SSCM) was developed for managing the impacts of three main dimensions—namely society, the economy, and nature into SCM (Kumar and Rahman, 2016, Formentini and Taticchi, 2016). Since sustainable development is a result of environmental and social consideration on supply chain operations, a green supply chain can be considered part of SSCM (Formentini and Taticchi, 2016). Besides considering environmental impact, concern about sustainability is an influence on many parts of the supply chain, including risk, product development, knowledge, organizational culture, materials, information, and capital (Grimm et al., 2014, Formentini and Taticchi, 2016). In short, SSCM affects the overall supply chain from initial products design to decompose (Uygun and Dede, 2016, Kumar and Rahman, 2016).

The study by Giannakis and Papadopoulos (2016) concludes that SSCM leads to cost reduction and increases the profitability of an organization in the long run. However, sustainable development in a supply chain generally creates a trade-off between finance and environmental degradation in terms of products and processes developed for supporting sustainable development in the short run (Uygun and Dede, 2016). This statement leads to the consideration of a truly sustainable supply chain development, one that is profitable without being harmful to the environment or society (Pagell and Shevchenko, 2014). However, most

of the sustainable supply chain focuses on organization profitability and supply chain performance rather than on well-being and environmental sustainability (Gopalakrishnan et al., 2012, Bourlakis et al., 2014b, Beske et al., 2014, Giannakis and Papadopoulos, 2016, Mariadoss et al., 2016).

Communication and cooperation among a supply chain's members are important. A strong buyer-supplier relationship has a major effect on supply chain sustainability (Kumar and Rahman, 2016), with the key goal being to improve the competitiveness of an organization and the well-being of an ecosystem (Formentini and Taticchi, 2016). However, while SSCM is limited to an organizational perspective, a TSC requires resource integration and value co-creation among entities of an ecosystem and aims to create well-being of an ecosystem.

2.2 Customer perception

Over the past decade, environmental conservation has become a global issue and a concern among many organizations. Because maintaining an environmentally friendly image affects customer perception and indirectly influences organization profitability (Chaudary et al., 2016), many organizations have been using green marketing concepts as a part of their major business strategies (Gessa-Perera et al., 2016, Punitha et al., 2016).

2.2.1 Marketing approach for value creation

Green marketing is the promoting of environmental conservation concepts in supply chain process or promoting products and services as environmentally friendly (Cherian and Jacob, 2012, Saini, 2013), it is an important tool for communicating between companies and consumers (Sachdev, 2011). It is also considered as environmental marketing or sustainable marketing (Punitha et al., 2016, Zhu and Sarkis, 2016). Moreover, it helps promote companies' environmental conservation activities (Cherian and Jacob, 2012) through CSR (Karaosmanoglu et al., 2016), green products (Fatima, 2015, Chaudary et al., 2016), and green processes or green supply chain management (GSCM) (Cherian and Jacob, 2012, Khattab et al., 2015, Kozlenkova et al., 2015).

The goal of marketing is to present the benefits of the product to the customers. In the food industry, companies use food labels as a channel for all necessary information about products to communicate with customers (Roe et al., 2001, Kumar and Kapoor, 2017). Labeling is an appropriate tool for introducing moral products at the customer point of sale (Carrero and Valor, 2012). According to the study of Tzilivakis et al. (2012), the real potential for environmental labeling occurs within a supply chain because the relationships between food products and environment conservation are not outstanding in customers perception. In accordance with those reasons, products that are imprinted with information intended to assist with the customer's purchase decision. Thus, a detailed and well-informed label becomes an important part of customers' consumption and influences customer perception (Hyman and Shingler, 1999, Minton and Cornwell, 2016, Kumar and Kapoor, 2017). In the food market, customers consider the quality of food, price, packaging, and labeling before making a purchase (Kumar and Kapoor, 2017).

According to the study of Hundal (2015), the characteristics of green products are organically sourced, recyclable, reusable, biodegradable, non-toxic, not harmful to the environment or animals, and have eco-friendly packaging. The main goals are to support the conservation of the natural environment (Biswas and Roy, 2015) and to prevent harm to the environment, whether in use or disposal (Vinod, 2016). In short, green products do not cause environmental problems; they serve towards conserving the environment (Elliott, 2013). However, no completely green products exist due to the fact that all supply chain activities require energy and resources to create products or services and during the production process. Thus, green products describe the products that create less impact on the environment compared with their alternatives (Durif et al., 2010).

Besides the environmental value added as green products and green processes, corporate social responsibility (CSR) is a strategy that employed by a business or social entities to alter customer purchase decision making (López-Fernández and Mansilla, 2015). CSR practices through the communication channel of companies rather than the report have gained much attention from customers (Chaudary et al., 2016). However, the communication of CSR activities through company's report cannot influence on customer decision effectively (López-Fernández and Mansilla, 2015). Product label has become a tool for CSR communication. Many food companies utilize CSR activities to improve the brand image (Minton and Cornwell, 2016). Because an environmentally friendly image affects customer

perception and indirectly affects organization profitability (Chaudary et al., 2016), organizations conduct activities to improve social conditions and public quality, resulting in enhanced brand value and differentiation from competitors' products (Rim et al., 2016). According to Fatma and Rahman (2016), performing ethically, pursuing environmental preservation, and engaging in the fairness of employees treatment fall under the banner of CSR. In the external stakeholder's views, CSR is nonprofit activities that cannot general profit for the organization (Karaosmanoglu et al., 2016).

The idea behind CSR is that all business activities should prevent negative impact on the environment, should be pro-social, and should respect human rights (Wirth et al., 2016). Many companies believe that implementation of CSR could support the organization performance (Carrero and Valor, 2012, Mohr and Webb, 2005). Hence, CSR is not only beneficial in an environmental perspective but also influences customer attitudes and behavioral intentions (Guchait et al., 2010, Karaosmanoglu et al., 2016). According to Demagistris et al. (2015), if CSR policy is sufficiently known by customers, it may lead to higher sales. Therefore, many studies have been focusing on the effect of CSR on customer perception, (Chaudary et al., 2016, Guchait et al., 2010, Beckmann, 2006) as well as on the relationship between CSR and purchasing decisions (Mohr et al., 2001, Shnayder et al., 2016).

2.2.2 Customer knowledge as value co-creation

In a competitive environment, environmental knowledge is an important asset for individuals and is defined as the degree of awareness and concern for environmental issues (Gatt, 2015, Martínez-Martínez et al., 2015, Massoud et al., 2016, Gusmerotti et al., 2016). Environmental knowledge is related to "a general knowledge of facts, concept, and relationships concerning the natural environment and ecosystems" (Fryxell and Lo, 2003, p.45). This involves the environmental understanding of people in terms of climate change (Lu et al., 2015), global warming, carbon dioxide (CO_2) emissions (Frick et al., 2004), the impact of greenhouse gas, waste, and hazardous waste management, and recycling (Suki, 2013). Many studies consider the relationships of environmental knowledge and customer behavior (Frick et al., 2004, Duerden and Witt, 2010, Vicente-Molina et al., 2013, Zsóka et al., 2013, Zareie and Navimipour, 2016, Poudyal et al., 2015), including vehicle use (Flamm, 2009) and pro-environmental behavior in saving energy (Pothitou et al., 2016).

In terms of products, environmental consciousness and knowledge influence the willingness to pay (WTP) for green products (Suki, 2016). Knowledge, product attributes, and differentiation have an impact on customer behavior towards buying green products (Biswas and Roy, 2015). Moreover, many studies emphasise that the knowledge in term of environmental has a significant influence on customer behavior (Pothitou et al., 2016). A significant relationship exists between environmental knowledge and customer preferences for green products (Suki, 2013). The study of Biswas and Roy (2015) states that a lack of information about green products often leads to a missing link between customers' environmental concern and their buying behavior. According to the study of Frick et al. (2004) and Osman et al. (2016), the customers' knowledge and understanding of environmental issues are major contributions towards consideration and perception of green products and customer behaviors, especially for food products (Ala-Harja and Helo, 2015).

2.2.3 Perceived value

Perceived value is a value that is defined by customer perception of product or service quality with respect to the outer dimension of products or services (Saleem et al., 2015). According to Razak et al. (2016), perceived quality measure by the overall quality of product or service that perceived by the customer. Customers consider the product quality, price, and styles before purchasing the product. If the product possesses a high perceived quality, the purchase intention of the customer is also high (Saleem et al., 2015). Thus, perceived quality directly influences the purchase intention. There are many studies that observed on the influence of advertising on product quality (Chenavaz and Jasimuddin, 2017). Information of products or services through advertising, features, price, and brand name of the products are employed by the customer to justify product quality (Chenavaz and Jasimuddin, 2017). Therefore, the identification of value co-creation between different product labels and customer perceptions is important to identify the message on the label. According to Aytekin and Büyükahraz (2006), the green concepts provide a positive contribution to the perceived quality of the product. Therefore, a higher perceived quality of the product, the diffusion of that product will increase. This will benefit both companies and customers.

2.3 Transformative service concept

In the past decade, sustainability and well-being are increasingly considered in business and service research (Tang et al., 2016, Rosenbaum et al., 2011). This is the fact that living creatures are surviving by consuming environmental resources (Shirahada and Fisk, 2014, Markman and Krause, 2016) and human activities such as a supply chain encroach on the environmental resource (Pagell and Shevchenko, 2014, Anderson et al., 2013, Gupta and Palsule-desai, 2011). Transformative service concept aims to support human well-being and truly sustainable development (Anderson et al., 2013).

"Well-being" is a word that represents the good status of humans and system such as human well-being (Panagopoulos et al., 2016, Sarkki, 2017), workers' well-being (Edgar et al., 2017), consumers' well-being (Mende and Doorn, 2014, Tang et al., 2016), financial well-being (Brüggen et al., 2017), economic well-being (Lu and Horlu, 2017), and social well-being (Pilkauskaite-Valickienea and Gabrialaviciute, 2015). However, according to Cosimato and Troisi (2015), supply chain management (SCM) causes a negative impact on the well-being of the natural environment. SSCM was conducted for the purpose of performance and brand value creation (Suki, 2016, Aibek and Ariffin, 2015, Huang et al., 2014b) rather than environmental preservation (Pagell and Shevchenko, 2014). Therefore, natural resources were consumed daily as part of the supply chains to create profits for organizations.

2.3.1 Transformative service research (TSR)

Since the increase of sustainable and environmental concerns, supply chain considered as human activities that harmful to the environment (Markman and Krause, 2016). Therefore, SSCM is developed to support the environmental and social well-being by a supply chain aspect (Bendul et al., 2017, Markman and Krause, 2016). However, SSCM becomes a marketing promoting to create profits for the individual company (Suki, 2016). Recently, the concept of TSR is introduced to improve individual and collective well-being and ecosystems (Kuppelwieser and Finsterwalder, 2016). Therefore, the integration of TSR in supply chain research can overcome the unachieved goal of SSCM to uplifting the quality of life for a human. TSR is a new area of research that focuses This research topic encourages researchers to explore and expand a concept of business practices in terms of the economy, society, and

the environment (Ostrom et al., 2010). However, TSR is limited to a few research areas, including finances, healthcare, and social services (Kuppelwieser and Finsterwalder, 2016).

Implementation of the TSR concept in SCM requires an integration of customer and service research with the aim of improving the well-being of customer entities: individuals, communities, and ecosystems (Anderson et al., 2013, Rosenbaum, 2015, Kuppelwieser and Finsterwalder, 2016). TSR is inspired by transformative customer research with the purpose of solving customer problems by applying marketing tools and techniques (Mick, 2006). Well-being is a key consideration of TSR in both individual and collective aspects (Anderson et al., 2013). Beside well-being and sustainable development, TSR also concerns customer aspects including satisfaction, loyalty, repurchase intentions, and word of mouth (Rosenbaum, 2015). Since S-D logic provides a similar concept for improving well-being, it is considered a key contributor to TSR development (Anderson et al., 2013, Kuppelwieser and Finsterwalder, 2016).

From a TSR perspective, the supply chain system needs to be refocused from the tangible to the intangible and from operand resources to operant resources (Lusch et al., 2006, Lusch et al., 2007) and service is considered to be the fundamental basis of exchange (Vargo and Lusch, 2004). In a TSR lens, human activities are the exchange of service, so they are both service providers and service beneficiaries (Lusch et al., 2016). Service is defined as the processes or application of competences for creating benefits among the actors (Vargo and Lusch, 2004, Lusch et al., 2006). Thus, a supply chain is considered a value co-creation network (Maas et al., 2014) that takes knowledge creation among the members of the network into account (Tokman and Beitelspacher, 2011). The members, or actors, who influence the supply chain system have been viewed as an individual entity whose purpose is to move materials from upstream to downstream to create revenue (Maas et al., 2014). In a TSR based organization, the importance of the tangible cost of a product is reduced and brand value becomes important (Lusch et al., 2006). As far as the similarity of supply chains and TSR, both concept also considers on interactions and relationships in value creation within a system (Akaka and L. Vargo, 2015), and goods play a role in service-delivery in a subset of economic exchange (Vargo and Lusch, 2008a). Moreover, knowledge, integration, customer engagement, relationships, and innovation can be considered part of the framework of supply chain elements (Randall et al., 2014).

2.3.2 Supply chain and service-dominant logic

The S-D logic concept has been implemented for well-being and sustainability in a global economy (Lusch et al., 2006). This is known as an important component for developing TSR (Anderson et al., 2013, Blocker and Barrios, 2015). S-D logic was purposed by Vargo and Lusch (2004) as a new marketing concept. The primary focus of this concept is resources, operant resources or dynamic resources, that can act on other resources to create value rather than operand resources (tangible) that require action from actors to create value (Lusch et al., 2006, Vargo, 2007). It was implemented economically and competitively by viewing the service as a process, or the use of the resources for creating benefits for other entities (Randall et al., 2014).

In order to shift the core consideration of SCM from G-D logic to S-D logic, the premise of S-D logic needs to be considered. The latest update of premises was purposed by (Vargo and Lusch, 2015) in 2015 as shown in table 2.2.

Table 2.2 Premise of S-D logic

Foundational Premise	Definition
FP1	Service is the fundamental basis of exchange
FP2	Indirect exchange masks the fundamental basis of exchange.
FP3	Goods are distribution mechanisms for service provision.
FP4	Operant resources are the fundamental source of strategic benefit.
FP5	All economies are service economies.
FP6	Value is co-created by multiple actors, always including the beneficiary.
FP7	Actors cannot deliver value but can participate in the creation and offering of value propositions.
FP8	A service-centered view is inherently beneficiary oriented and relational.
FP9	All social and economic actors are resource integrators.
FP10	Value is always uniquely and phenomenologically determined by the beneficiary.
FP11	Value co-creation is coordinated through actor-generated institutions and institutional arrangements.

Source: Vargo and Lusch (2015)

In the conventional goods-centric approach or G-D logic perspective, in SCM, the focus is strongly on tangible products and operand resources to deliver value to customers. The members of the supply chain act as a co-production (Vargo and Lusch, 2008b). From an S-D logic perspective, the value is created from the interactions between service providers and beneficiaries and is determined by the users (Maas et al., 2014). Value creation is often identified by the exchange value or the prices of products or services that customers have a willingness to pay (Letaifa, 2014). It can be argued that the development from G-D logic to S-D logic has provided a new way of doing business, and the main consideration moves from things (nouns) to actions and processes (verbs) (Lusch, 2011). In order to shift to an S-D logic perspective, an organization needs to focus on the core consideration of the S-D logic concept, as shown in Table 2.3.

Table 2.3 Supply chain management in G-D logic and S-D logic

G-D logic perspective	S-D logic perspective
Goods	Services
Tangible	Intangible
Operand resources	Operant resources
Value-added	Value proposition
Value in exchange	Value-in-use
Co-production	Co-creation

Source: Lusch et al. (2006)

In traditional G-D logic perspective, see goods as a core value but in S-D logic is a process that directly provides the value through the services and provides indirect value in form of goods. S-D logic implies that knowledge is an intangible resource that sustainable and lead to the competitive advantage (Lusch et al., 2006). The term operand and operant resources were applied to classify the resource in the business system into two main types. Operand resources are mostly goods and tangible for manufacturing or value adding in term of production. However, the core competency of the organization and source of competitive advantage are directly related with operant resources (Lusch et al., 2006) which are consist of knowledge and skills (Vargo, 2010) that employed to act on operand resources and integrated with other operant recourses (Vargo and Lusch, 2004). All participants in the value-creation process are viewed as dynamic operant resources (Lusch et al., 2006) and resource integrators (Maas et al., 2014). Thus, in S-D logic perspective, the supply chain is a network of resource

integrators who provide the value to customers. Beside the suppliers in a supply chain, all the actor's participant in the supply chain can be considered as resource integrators including environment, government, competitors, and etc. Therefore, resource integration or value propositions always occur in a supply (Kowalkowski, 2010).

"The value is always determined by the customer as value-in-use whether in direct interaction with the supplier or in indirect interaction through goods in use" (Kowalkowski, 2010 p.231). Value capture is measured by the firm's revenues resulting from the value that it created and the price accepted by customers (Letaifa, 2014). Value-in-use is the priceless experience perceived by the customer (Lusch et al., 2006). Thus, the products become a thing that embedded with service for delivering to the customer (Bjurklo et al., 2009). Price is value in exchange (Lusch et al., 2006). S-D logic argues value-in-use is a source of value-in-exchange, without value-in-use, value-in-exchange could not exist. Therefore, value-in-use could occur without value-in-exchange but value-in-exchange could not (Prasetyanti and Simatupang, 2015).

2.3.3 Supply chain as an ecosystem

The supply chain also considers on activities and relationships among the network, the related activities and influence on the organizations including manufacturing, logistics, materials, distribution, and transportation (Ibrahim and Hamid, 2014). The relationship and interaction of internal processes, suppliers, and customers in the supply chains are leading to the performance improvement of the system (Zailani and Rajagopal, 2005). The key element of supply chain collaborative includes sharing information (Defee et al., 2010), knowledge (Naslund and Williamson, 2010), risk and reward among the partners in order to achieve the mutual goal (Min et al., 2005). Supply chain management is not focused only on supply chains, but also the overall networks of the system (Schaltegger and Burritt, 2014). Thus, the actors within the supply ecosystem consist of suppliers, lead producers, competitors, and other stakeholders including institutions (value proposing social, economic actors, and technology) (Lusch, 2011). The term ecosystem is appropriated for implementing in a supply chain system because it includes the flows of both human, nature, and energy among each actor (Vargo and Lusch, 2015). A set of active and inactive members within a supply chains are all related and could be contributing to a system at anytime (Schaltegger and Burritt, 2014).

The term “ecosystem” is used to identify the supply chain because it represents a system consisting of humans and other non-human actors such as the environment (Vargo and Lusch, 2015, Lusch et al., 2016). Thus, the integration of both human and non-human interaction in the supply chain is significant in terms of supply chain development. Each actor in the supply chain has direct and indirect relationships that influence the performance of the other actors in the supply chain system (Mentzer et al., 2001). Both active and inactive members of the supply chain contribute in SCM (Schaltegger and Burritt, 2014). According to Lusch et al. (2016), the network of organizations with resource integration and service exchanges among actors influenced by shared institutional arrangements can be viewed as ecosystems. In supply chain research, they consider the geographical markets, including domestic and international cultures and laws as a part of service ecosystems studies (Lusch et al., 2016). A service ecosystem is a large system with loose relationships among the actors and institutions for co-creating and offering value. Therefore, a supply chain is a part of the service ecosystem (Lusch, 2011).

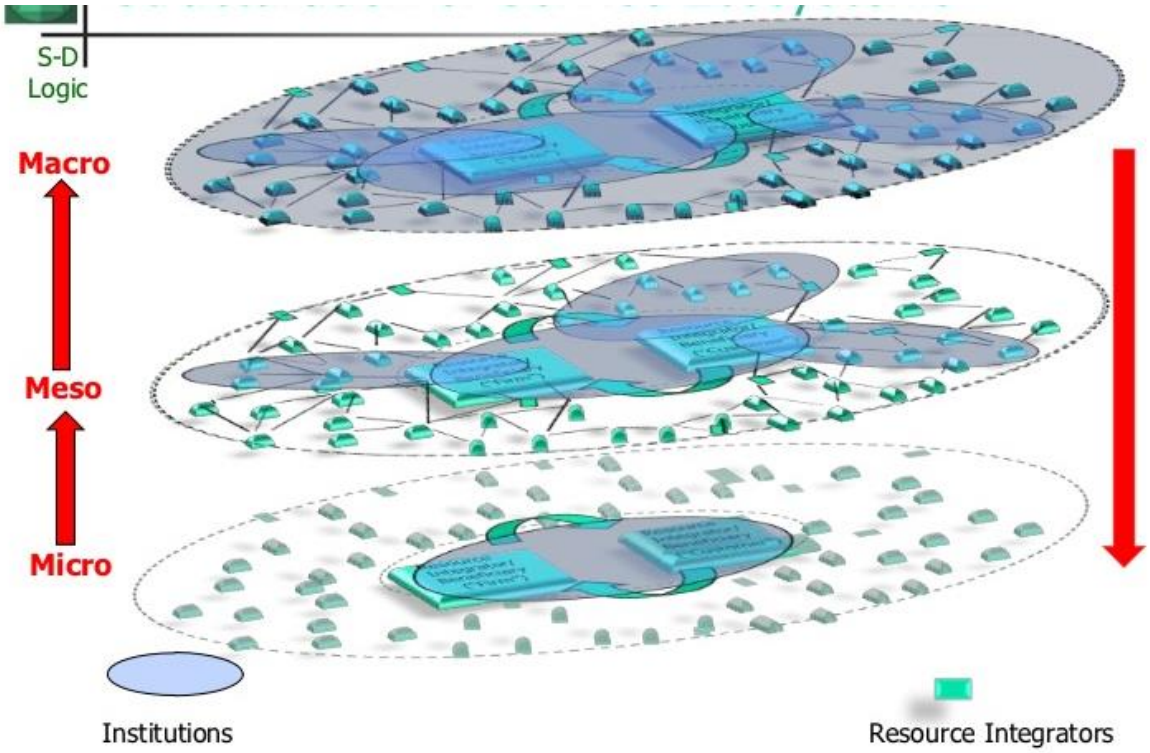

Figure 2.3 service ecosystem

Source: Lusch and Vargo (2014)

Table 2.4 Level of a supply chain in the service aspect

Level	Description	Supply chain aspect
Micro-level	The micro-level or the individual level is an isolated entity in an ecosystem.	Individual entity
Meso-level	The meso-level is collective, intersection, or relationship of an individual entity	Supply chain
Macro-level	The macro-level is the environment level that consisted of meso-level and the micro-level.	Supply ecosystem

Source: Meynhardt et al. (2016)

The study of Meynhardt et al. (2016) classified the level of the ecosystem into three level (Table 2.4) that cannot be separate. Therefore, macro-level (ecosystem) embedded with subsystems of meso-levels and micro-levels. In supply chain aspect, micro-level is an individual firm, meso-level can be considered as a supply chain which is a system of the individual firms who working together (Zailani and Rajagopal, 2005, Hamed et al., 2017b), and macro-level is a supply chain ecosystem that includes institution, environment, and society that direct and indirect influence on a supply chain.

A service ecosystem is "a relatively self-contained, self-adjusting system of resource-integrating actors connected by shared institutional arrangements and mutual value creation through service exchange" (Vargo and Lusch, 2015 p.6). Service exchanges, service experiences, value co-creation, and resource integration are the primary concepts of a service ecosystem (Akaka and L. Vargo, 2015, Lusch et al., 2016). From an S-D logic perspective, the supplier has the role of the resource integrator (Kowalkowski, 2010, Maas et al., 2014) in a network of actors with both direct and indirect interactions in value co-creation called an ecosystem, where all actors are a part of a value network (Flint et al., 2014, Akaka and L. Vargo, 2015). Therefore, the value cannot be separated from an individual or collective level (Meynhardt et al., 2016). Lu et al. (2014) suggested the concept of a business ecosystem to focus more on cross-industry collaborations rather than direct links between partners like in traditional supply chain management. Due to the study of Letaifa (2014), ecosystem value is the value that occurs from the interaction of individuals, firms, customers, and others in multiple dimensions (society, culture, and economy) within the entire ecosystem.

Based on the definition of ecosystem, a supply chain network can be considered an ecosystem because it consists of multiple actors (Mentzer et al., 2001) with dynamic environments (Defee et al., 2010). The supply chain also includes activities and relationships within the network—related activities including manufacturing, logistics, materials, distribution, and transportation functions are an influence on the organizations (Ibrahim and Hamid, 2014). Thus, the actors within the supply ecosystem consist of both humans and nature, including suppliers, producers, competitors, other indirect stakeholders, and institutions (environment, value-proposing society, economic actors, and technology) (Lusch, 2011).

Chapter 3
Foundation of TSC

3.1 Development phases of SCM

In order to construct a TSC, either SCM or TSR are needed to be considered. In SCM aspect, a supply chain needs to achieve both efficiency and effectiveness (Ibrahim and Hamid, 2014, Borgström, 2005, Defee et al., 2010, Huang et al., 2014a) to satisfy the customer in term of quality and cost (Zelbst et al., 2009). Beside the SCM development, the environmental aspect also embedded in a supply chain as an ecosystem. Environmental aspect is integrated as a success element of a business and supply chain (Ntabe et al., 2015). Environment, society, and institution are significantly influence in TSC development. Therefore, an effective supply chain consists of both economic and environmental aspects and a supply chain is considered as an ecosystem (Vargo and Lusch, 2015, Lusch et al., 2016). The relationship of human-to-human and human-to-nature are significantly influence on an effectiveness of a supply chain. Then, the development of an effective supply chain is considered as a foundation of TSC development.

Since TSC required a higher level of understanding and integration among the members, the development of an effective supply chain partnership becomes a key concern for supply chain development (Hea et al., 2013). In order to construct an effective supply chain partnership,

the influential factors are required to be identified. Moreover, the development phases of supply chain partnership are influenced by different factors in supply chain management (SCM). In the current business situation, the successful supply chain seems to be those that have a tight bond among internal processes, suppliers, and customers in supply chains (Zailani and Rajagopal, 2005). Thus, the study of supply chain development and partnership has become increasingly important in academic and business research for constructing an effective supply chain network. However, supply chain terminologies mentioned in supply chain research are overlapped due to different purposes and areas of study .This leads to unclear definitions and overlapped meanings in supply chain research. This study aims to identify the critical factors that contribute to each phase of supply chain partnership development by a substantial literature review of supply chain terminologies in SCM. Then framework for constructing an effective supply chain network is purposed to support the development and maintain the partnership.

The purpose of this chapter is to (i) categorize and simplify the important concepts within the field of SCM and classify into critical categories of supply chain development, (ii) establish a framework for constructing supply chain partnership as critical phases, to identify concrete foundation to establish TSC.

Since a supply chain is a network that delivers materials, products, services, finances, and information upstream and downstream among the members of a supply chain, with delivery to the end customer (Mentzer et al., 2001), the partnership among supply chain members is considered as the essence of SCM (Hea et al., 2013, Gallear et al., 2012). Before the establishment of a supply chain partnership, each firm is individually operated, and suppliers act as providers. The critical phases of supply chain partnership can be divided into three main phases.

3.1.1 Pre-partnership

In the initial phase, a firm mainly focuses on internal operation; suppliers are seen as raw material sellers. The relationship of supply chain members in this phase is shown in Figure 3.1. They are aiming at the individual profit rather than sharing higher profits. In the literature, the internal operational processes are always defined as a part of supply chain performance. Internal integration, collaboration, communication, information sharing, and

flexibility are mentioned as the influential factors in SCM (Chang et al., 2007, Huo, 2012, Beheshti et al., 2014). Therefore, the individual operation of a firm in the supply chain is imperative to create a competitive advantage and is referred to as antecedent factors of SCP. When the firm achieves higher business performance, it is likely to concern more on buyer-customer relationships to create better responsiveness within supply chain members (Handfield and Bechtel, 2002).

Figure 3.1 Relationship of pre-partnership phase

3.1.2 Partnership

The partnership is a stage that members of the supply chain are working together to achieve higher responsiveness and customer satisfaction (Zailani and Rajagopal, 2005, Gallear et al., 2012) (Figure 3.2). The members are working together, sharing information, risk, and strategies. A closer relationship with supply chain members is essential for creating higher SCP (Panayides and Venus Lun, 2009). Thus, the critical factors for creating performance are dramatically different from the pre-partnership phase. According to Ryu et al. (2009), Abdullah and Musa (2014), components of the partnership are a commitment, trust, and collaboration among supply chain members. The firm is mostly concerned more about suppliers to achieve higher SCP. However, the firm with a higher level of internal integration likely to employ integrative methods to handle relationships with other supply chain members (Willis et al., 2016).

Figure 3.2 Relationship of partnership phase

3.1.3 Post-partnership (Fully integrated)

In this phase, buyer-supplier relationships are shifting from transaction-oriented to relationship oriented (Ku et al., 2016). The customers become an important part of SCM. They are co-create value by providing information about the requirements, operations, and environmental contexts to the firms (Zhang et al., 2016) as shown in Figure 3.3. When firms become a partnership, they need to maintain and create long-term benefits for the suppliers (Ku et al., 2016). According to Ramanathan and Gunasekaran (2014), the success of collaboration among partners influences on future collaboration and long-term partnership. In this phase, trust and commitment are create through the engagement in strategic alliances (Ryu et al., 2009). Moreover, knowledge and integration among suppliers, firm, and customer are needed for constructing supply chain flexibility (Ku et al., 2016, Zhang et al., 2016) and SCP.

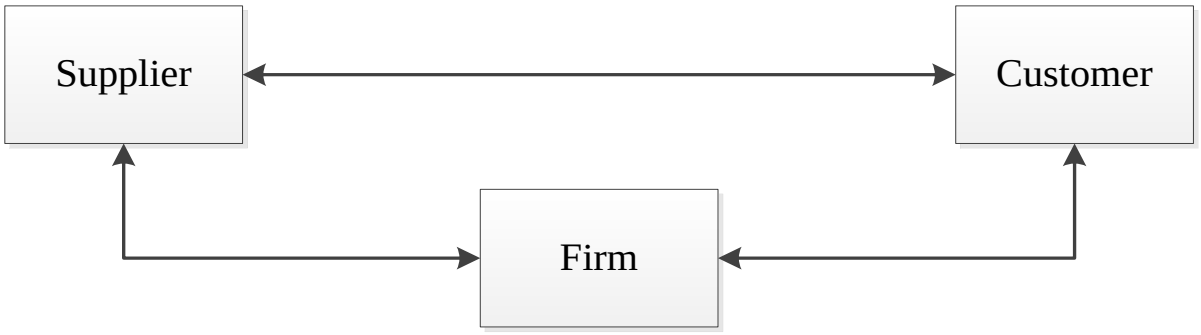

Figure 3.3 Relationship of post-partnership phase

3.2 Influence factors on supply chain management

A supply chain is a large system that is influenced by many factors. Thus, its performance is driven by various factors .In the past decade, the most frequently mentioned factors are summarized in Table 3.1.

According to the definition provided by the previous research in Table 3.1, there are some factors that are closely related to each other; for instance, collaboration and coordination, and responsiveness and reliability. Since coordination is frequently mentioned in terms of collaboration (Costantino et al., 2014) and integration (Ibrahim and Hamid, 2014, Aryee et

al., 2008, Lotfi et al., 2013) coordination is concerned as a sub-topic under collaboration and integration. Responsiveness and reliability are related to the capability of the firm to deliver the product with speed and accuracy (Bourlakis et al., 2014a, Ganga and Carpinetti, 2011). Thus, this can be considered as a part of supply chain flexibility.

The first is a pre-partnership phase; in which a critical factor is created by a willingness of the firm to create a higher performance to serve the customer and assist in business management without any contribution from inter-organization. The critical factors in this phase are internal integration and flexibility with supporting factors of technology and innovation.

The second phase occurs when the firm interacts with inter-organization and creates a buyer-customer relationship to achieve higher performance through the supply chain. This phase called partnership phase; it is a beginning phase of the partnership. The firms start working together to achieve a higher profitability. However, the focus of the firm in this phase is a benefit for itself.

The third phase is a post-partnership phase, in which a group of firms is working together for a period of time for sharing the profit and risk together. The firms are most likely sharing the same objectives and helping each other to achieve the same goal. The knowledge and information freely flow among the partnership and strategies are developed together. The keys factors in this phase are trust and integration among the partnership to create supply chain flexibility. Trust occurs only when supply chain members are confident and willing to share the information among each other (Panayides and Venus Lun, 2009, Yeung et al., 2009). Technology is concerned with an infrastructure to support the overall supply chain processes. In this phase, the firms maintain and tighten a good relationship among partners in order to achieve flexibility, responsiveness, and reliability of a supply chain.

Table 3.1 Summarize of critical factors in supply chain management

Factors	Definitions and their relationships	References
Collaboration	Collaboration is defined as sharing and exchanging information and planning among two or more independent companies .Its key elements include sharing information (Defee et al., 2010), knowledge (Naslund and Williamson, 2010), risk, and reward among partners in order to achieve mutual goals (Min et al., 2005).	(Beske et al., 2014), (Lohman et al., 2004), (Badea et al., 2014), (Panayides and Venus Lun, 2009), (Costantino et al., 2014), (Min and Zhou, 2002), (Meixell and Gargeya, 2005), (Chen et al., 2007), (Lee et al., 2011), (Naciri et al., 2011), (Fawcett et al., 2012), (Wu et al., 2014)
Coordination	Coordination is frequently mentioned in terms of collaboration (Costantino et al., 2014) and integration (Ibrahim and Hamid, 2014, Aryee et al., 2008, Lotfi et al., 2013) of supply chain systems . Coordination among supply chain members reduces various inefficiencies including the bullwhip effect and inventory issues (Costantino et al., 2014). Hence, coordination leads to better SCP in terms of benefits and profit (Lotfi et al., 2013).	(Costantino et al., 2014), (Lotfi et al., 2013), (Lee et al., 2011), (Zhang and Chen, 2013)

Flexibility	Supply chain flexibility is the ability to be flexible in terms of operation and manufacturing (Duclos et al., 2003), including the ability to respond to the environmental changes (Huang et al., 2014a) to customize the product based on customer requirements .It is generally related to the ability to react to uncertain situations in both internal and external organization (Thoméa et al., 2014).	(Cai et al., 2009), (Sukati et al., 2012), (Thoméa et al., 2014) ,(Hwang et al., 2008), (Xu et al., 2009), (Wibowo and Sholeh, 2015), (Bourlakis et al., 2014a), (Afonso and Cabrita, 2015), (Gunasekaran et al., 2004b), (Ganga and Carpinetti, 2011), (Lohman et al., 2004), (Hon, 2005), (Bhagwat and Sharma, 2007), (Kim, 2009), (Avelar-Sosa et al., 2014), (Adel El-Baz, 2011), (Yu et al., 2010), (Cho et al., 2012), (Fan et al., 2013), (Acar and Uzunlar, 2014), (Bourlakis et al., 2014b), (Qrunfleh and Tarafdar, 2014), (Arnold et al., 2015)
Green (Environment)	Green supply chain is focused on integrating environmental issues into a supply chain (Zhu et al., 2016, Uygun and Dede, 2016) with the main purpose to minimize the overall effects from supply chain systems including product design, material sourcing, manufacturing processes, delivering, and disposing of the products on the environment (Uygun and Dede, 2016) (Kumar and Rahman, 2016).	(Zhu et al., 2008), (Azevedo et al., 2011), (Diabat and Govindan, 2011), (Olugu et al., 2011), (Azfar et al., 2014)

Information sharing	Information sharing, an important part of IT systems, is the availability of information and knowledge sharing among partners within a network .It is considered as an important supply chain tool for a successful SCI, and coordination (Ibrahim and Hamid, 2014), and for improving firm performance (Sukati et al., 2012).	(Cai et al., 2009), (Lambert and Cooper, 2000), (Gunasekaran et al., 2004b), (Trkman et al., 2010), (Badea et al., 2014), (Abdullah and Musa, 2014), (Costantino et al., 2014), (Lotfi et al., 2013), (Yeung et al., 2009), (Min and Zhou, 2002), (Chen et al., 2007), (Naciri et al., 2011), (Wu et al., 2014), (Zhang and Chen, 2013), (Yu et al., 2010), (Fan et al., 2013), (Acar and Uzunlar, 2014), (Qrunfleh and Tarafdar, 2014), (Prajogo and Olhager, 2012), (Chen et al., 2013), (Luo et al., 2013), (Costantino et al., 2015), (Li and Zhang, 2015), (Marinagi et al., 2015), (Wong et al., 2015)
Innovation	In SCM, innovation is strongly related to new products or services development that offers greater customer satisfaction. Innovation has been considered as a result of new knowledge and discovery (Craighead et al., 2009). Innovation is a new approach to improve operational efficiency and enhance service effectiveness (Bello et al., 2004) .	(Cai et al., 2009), (Craighead et al., 2009), (Woolliscroft et al., 2013), (Lin et al., 2010), (Beske et al., 2014), (Afonso and Cabrita, 2015), (Bhagwat and Sharma, 2007), (Adel El-Baz, 2011), (Panayides and Venus Lun, 2009), (Min and Zhou, 2002), (Fawcett et al., 2012), (Cho et al., 2012), (Fan et al., 2013), (Bello et al., 2004), (Chan et al., 2014)

Integration	Integration is resulting in the increase of supply chain capability and the ability to shorten the response time with high quality and reasonable cost (Naslund and Williamson, 2010) .It leads to better coordination of business processes across the members of a chain (Aryee et al., 2008).	(Vijayasarathy, 2010), (Sukati et al., 2012), (Hasan et al., 2014), (Lin et al., 2010), (He and Lai, 2012), (Beske et al., 2014), (Okongwu et al., 2016), (Kim, 2009), (Green et al., 2012), (Lotfi et al., 2013), (Min and Zhou, 2002), (Chen et al., 2007), (Yu et al., 2010), (Acar and Uzunlar, 2014), (Prajogo and Olhager, 2012), (Wong et al., 2015), (Koçoğlu et al., 2011), (Ryoo and Kim, 2015)
Knowledge	Knowledge management (KM) is important in organizations and supply chain development. It is the process of collection, distribution, and implementation of knowledge resources (Woolliscroft et al., 2013). KM in a supply chain is reflected by the learning progression, use of knowledge, and knowledge collection (Craighead et al., 2009). Knowledge is a component shared by a supply chain.	(Craighead et al., 2009), (Woolliscroft et al., 2013), (Hasan et al., 2014), (Beske et al., 2014), (Adel El-Baz, 2011), (Min and Zhou, 2002), (Chen et al., 2013), (Luo et al., 2013), (Ryoo and Kim, 2015), (Borjeson et al., 2015)

Reliability	Reliability in SCM is mainly related to the capability to respond to customers. Ganga and Carpinetti (2011) mentioned that it is the ability to deliver to the right place, in the right quantity, at the right time, with the correct documentation, to the customers .It is measured as the percentage of correct orders delivered (Hwang et al., 2008).	(Hwang et al., 2008), (Wibowo and Sholeh, 2015), (Ganga and Carpinetti, 2011)
Responsiveness	Supply chain responsiveness is considered as a primary source of performance (Handfield and Bechtel, 2002). It is the speed of a supply chain systems to respond to customer demand (Ganga and Carpinetti, 2011). Responsiveness is also related to the accuracy and ability to provide the right products in the right place, at the right time (Bourlakis et al., 2014a). Thus, responsiveness within a chain is an element of supply chain flexibility.	(Craighead et al., 2009), (Sukati et al., 2012), (Handfield and Bechtel, 2002), (Hwang et al., 2008), (Wibowo and Sholeh, 2015), (Bourlakis et al., 2014a), (Ganga and Carpinetti, 2011), (Hon, 2005), (Avelar-Sosa et al., 2014), (Fan et al., 2013), (Bourlakis et al., 2014b), (Azfar et al., 2014)
Risk	The risk is investigated in many research fields including supply chain management .In a supply chain, the risk is related to unreliable and uncertain processes in both supply and demand sides (Avelar-Sosa et al., 2014). Greater risk in a supply chain results in poorer inventory management, lead-time, flexibility, and responsiveness (Avelar-Sosa et al., 2014).	(Beske et al., 2014), (Avelar-Sosa et al., 2014), (Badea et al., 2014), (Hussain et al., 2015), (Min and Zhou, 2002), (Giannakis and Papadopoulos, 2016)

Technology	Technologies related and adopted in supply chains vary: for instance, Electronic Data Interchange and point of sale systems, information processing capability, information sharing (Vijayasarathy, 2010), Enterprise Resource Planning (Gunasekaran et al., 2004b), e-procurement and e-commerce, internet and extranets (Marinagi et al., 2014, Karakudilar and Sezen, 2012), and Radio Frequency Identification (Lee et al., 2011).	(Vijayasarathy, 2010), (Woolliscroft et al., 2013), (Gunasekaran et al., 2004b), (Ducq and Berrah, 2009), (Lohman et al., 2004), (Zin et al., 2013), (Badea et al., 2014), (Min and Zhou, 2002), (Chen et al., 2007), (Lee et al., 2011), (Naciri et al., 2011), (Yu et al., 2010), (Cho et al., 2012), (Acar and Uzunlar, 2014), (Qrunfleh and Tarafdar, 2014), (Prajogo and Olhager, 2012), (Bello et al., 2004)
Trust	Trust is defined as confidence and willingness among members in exchanging information with each other (Panayides and Venus Lun, 2009, Yeung et al., 2009). This results in an improvement of responsiveness (Handfield and Bechtel, 2002). Trust is an essential element for sustainable development and collaboration of partners (Fawcett et al., 2012).	(Handfield and Bechtel, 2002), (Panayides and Venus Lun, 2009), (Abdullah and Musa, 2014), (Yeung et al., 2009), (Chen et al., 2007), (Fawcett et al., 2012), (Chen et al., 2013), (Ryoo and Kim, 2015), (Capaldo and Giannoccaro, 2015)

Strategies	Strategies are often considered as the primary method for operating and managing an organization. Supply chain strategies focus on two important aspects which are lean/efficient and agile/responsive (Zhou et al., 2014). The organizational performance is influenced by the relative strategy and developed elements to encourage the strategy (Defee et al., 2010).	(Craighead et al., 2009), (Sukati et al., 2012), (Lin et al., 2010), (Gunasekaran et al., 2004b), (Alomar and Pasek, 2014), (Lohman et al., 2004), (Adel El-Baz, 2011), (Green et al., 2012), (Qrunfleh and Tarafdar, 2014), (Kang et al., 2012)
Sustainable	Sustainable development is the development without compromising the ability of future generations (Gopalakrishnan et al., 2012). Sustainability in a supply chain is related to awareness towards environmental. It is often described as an integration of three dimensions namely economic, social, and environmental dimensions for sustainable development (Kumar and Rahman, 2016, Formentini and Taticchi, 2016).	(Lohman et al., 2004), (Hon, 2005), (Azfar et al., 2014), (Beske et al., 2014), (Bourlakis et al., 2014a), (Bourlakis et al., 2014b), (Grimm et al., 2014), (Pedro José Martínez-Jurado and Moyano-Fuentes, 2014), (Dadhich et al., 2015), (Hussain et al., 2015), (Giannakis and Papadopoulos, 2016)

Since supply chain development has a time frame and each factor influences in each phase of the supply chain with an unequal weight, it is significant to identify the factors influencing a supply chain network in each phase. This research synthesizes and organizes those complex relationships into antecedent and descendent of a supply chain network to develop a framework for supply chain development.

3.3 Framework of SCM development

According to the research findings, SCP is influenced by many factors in supply chain systems .The factors influencing SCP are divided into three different time frames namely pre-partnership (antecedent factors), partnership, and post-partnership (descendent factors) as shown in three critical phases in Figure 3.4. This proposed framework is classified into four aspects; supporting factors, resources, interaction, and capability of SCM. Supporting factors is an infrastructure of the supply chain while information and knowledge are referred to as the resource of the supply chain for interacting and integrating among members. Interaction plays an important role in the resource integration process and leads to the higher supply chain capability which is considered as the ability of the firm and supply chain to respond to the demand and the environmental changes.

In the pre-partnership phase, each member of the supply chain focuses on the individual business process to respond to customer demand. The suppliers or customers are components of higher achievement at the firm level. However, when the individual firm perceives the value of partnership collaboration among members, they aim at a higher level of responsiveness, thus, creating a partnership. A partnership is a key concern for improving SCP. After members become partners, members will work together to achieve the goals of the supply chain. Then, they have the ability to create a flexible supply chain to respond to uncertain demand.

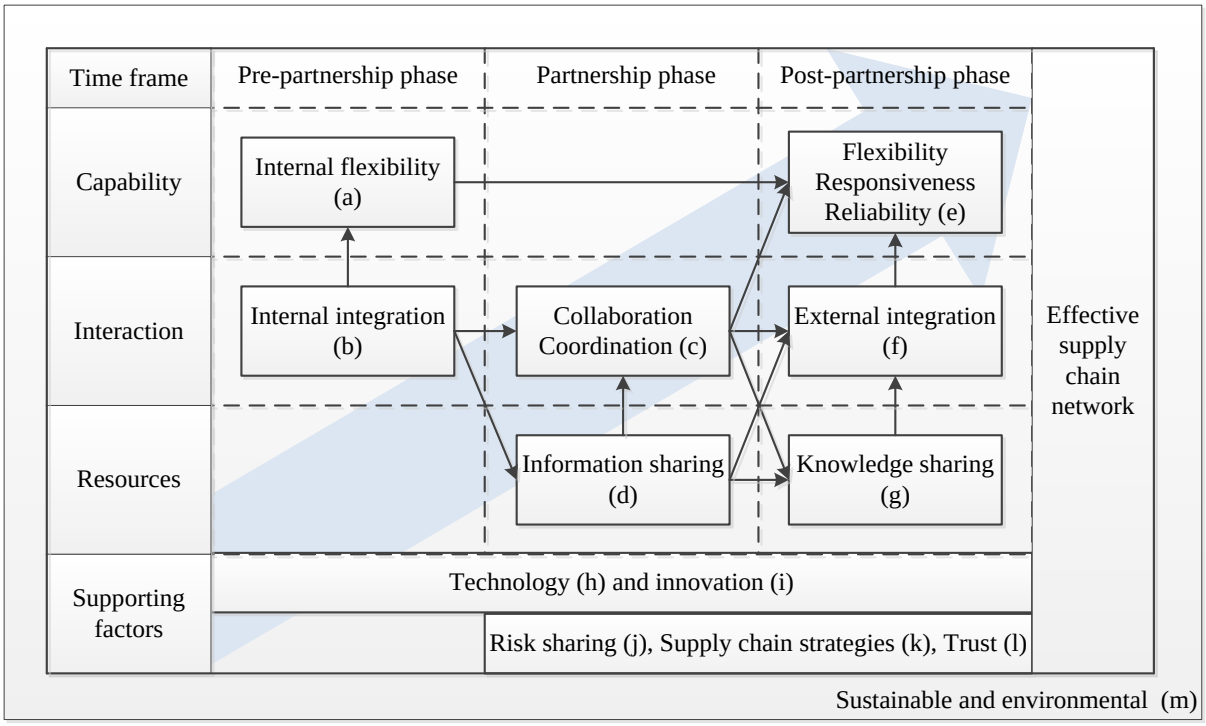

Figure 3.4 Framework of effective supply chain network

3.3.1 Pre-partnership phase (Antecedent factors)

In the pre-partnership phase, antecedent factors are considered as sources of supply chain partnership or primary factors in SCM .The purpose of antecedent factors is to maximize organization profit with less support by inter-organization. The key factors in this phase consist of internally business approach including flexibility and integration within the organization. The main purpose of this phase is to generate profit for the organization.

(a) Internal flexibility

Internal flexibility or agility of the firm is considered as a key factor in performance improvement, resulting in competitive advantage (Awais et al., 2014, Ganga and Carpinetti, 2011, Azfar et al., 2014). It is the ability of supply chains to adjust sourcing and production planning for optimizing operations (Chandak et al., 2014). The need for flexibility initiates from customers since they require variety, specific quality, competitive prices, and faster delivery (Sukati et al., 2012). The performance of a supplier also influences on internal flexibility (Ndubisi et al., 2005). Thus, the firm should consider the supplier selection process since the pre-partnership phase.

Increasing the flexibility provides a better ability to respond to unpredictable events, including a variation of demand, poor manufacturing, late delivery, and supplier performance. Flexibility leads to a reduction in back orders, lost sales, and late orders (Beamon, 1999). Internal flexibility is all internal operations that support external flexibility (Thoméa et al., 2014). Therefore, flexibility and performance of a supply chain have a positive relationship with each other because they allow firms to better respond to customer demand with less cost and time. However, flexibility requires many supporting factors such as information sharing and integration within the organization.

(b) Internal integration

Integration supports participating firms to better identify problems and reduce the complexity of projects (Naslund and Williamson, 2010). Internal integration is a dimension of SCI (Lee et al., 2007, Huo, 2012, Beheshti et al., 2014, Zhang et al., 2016, Boon-itt and Paul, 2006, Huo et al., 2016, Lii and Kuo, 2016). In this phase, the firm needs to focus on the internal integration. It is the degree of collaborative work among the business functions in a firm. It also includes linkages and relationships within a single organization. At the operational level, a goal of the collaborative work is to create better management for operating and controlling inventory (Min et al., 2005), such as minimizing safety stock requirements and increasing information availability (Defee et al., 2010). Internal integration supports product design, procurement, production, marketing, and distribution, in order to meet customer requirements with cost minimization and the effectiveness of the value chain (Kim et al., 2008).

3.3.2 Partnership phase

The core competency of a supply chain relies on the flow of goods, services, information, and finances among members .Thus, the essence of supply chain systems is the relationships, interaction, and cooperation among members to achieve a mutual goal .Relationships between the members or inter-relationships have become a core consideration by many organizations that aim to create a higher responsive level in systems. A supply chain partnership allows each entity to focus on core competencies and outsource noncore activities to other entities in the supply chain (Handfield and Bechtel, 2002). Communication and interactions between members are primary activities in every supply chain system, but collaboration, integration, risk and award sharing, and trust among the members are not generally found in every supply chain system .Therefore, a closer relationship among

members is a core consideration, in order to achieve higher performance (Panayides and Venus Lun, 2009), and faster responses for customers (Handfield and Bechtel, 2002). A close supply chain partnership results in goal sharing among firms and seamless activities. Consequently, it helps unite cooperation in supply chain systems and, hence, it increases flexibility in the management system (Wiengarten et al., 2016).

(c) Collaboration and coordination

Collaboration is defined as sharing information and planning among two or more independent companies (Singh and Power, 2009). It is an expectation of a supply chain leader and followers (Defee et al., 2010). It directly influences the formation of a supply chain partnership (Lotfi et al., 2013). The key purpose of supply chain collaboration is to create competitive advantage and improve performance (Naslund and Williamson, 2010, Chen et al., 2007, Simatupang and Sridharan, 2002, Kohli and Jensen, 2010). Collaboration among supply chain members allows firms to deal with uncertain demand and requirements from customers (Defee et al., 2010). Hence, collaboration plays an important role in the success of SCM (Min et al., 2005).

External collaboration is the relationship between suppliers and customers that generate a positive impact on process and product innovation (Ibrahim and Hamid, 2014). Collaboration is achieved if the firms are able to develop themselves in terms of standard business operation and information sharing .Effective information sharing improves decision-making and supply chain efficiency (Min et al., 2005). IT influences successful collaboration among organizations (Naslund and Williamson, 2010). However, the collaboration factor cannot solely improve SCP (Kohli and Jensen, 2010, Kache and Seuring, 2014).

(d) Information sharing

Information sharing is concerned as a part of inter-organization collaboration and coordination (Wu et al., 2014). Real-time information sharing among upstream and downstream in a supply chain leads to an optimization operation of the supply chain including minimizing lead time and bullwhip effect (Lee et al., 2007). Generally, information sharing is frequently mentioned in inter-organization approach and considered as an issue in SCM. This is related to trust and integration among partners (Ibrahim and Hamid, 2014, Wu et al., 2014). However, when firms are willing to share information, they require an

appropriate technological support for transmitting the information among partners (Li and Zhang, 2015)

3.3.3 Descendent factors

When antecedent factors are implemented among partners and a partnership was created, partners possess the ability to respond to unpredictable situations. The related factors (descendent factors) consist of flexibility and integration along with a supply chain. Descendent factors help members of a supply chain to maintain good relationships with each other. A better relationship with supply chain members means members integrate together in supply chain processes and support each other to achieve the same goals. Thus, risk sharing, supply chain strategies, and trust among members are needed to maintain and extend from partnership phase. A better relationship with supply chain partners creates more flexibility in any aspect of the supply chain and leads to SCP.

(e) Supply chain flexibility

The definition of supply chain flexibility is "the ability of supply chain partners to restructure their operations, align their strategies, and share the responsibility, to respond rapidly to customers' demand at each link of the chain, to produce a variety of products in the quantities, costs, and qualities that customers expect, while still maintaining high performance" (Kumar et al., 2006 p.305). Another definition of flexibility is responsiveness (Ibrahim and Hamid, 2014), which is defined as the availability of responsive and flexible partners in both upstream and downstream supply chains. In order to create supply chain flexibility, effective partnership and collaboration are required in both upstream and downstream supply chains (Thoméa et al., 2014, Awais et al., 2014).

Flexibility results in an improvement of service performance for unpredictable customer requirements, better demand planning, inventory visibility (Awais et al., 2014), increasing customer satisfaction (Beamon, 1999), shorter cycle time, and lower overall levels of inventory (Leavy, 2006), eliminating bottlenecks, and creating a higher level of performance (Thoméa et al., 2014). Flexibility includes the management of supply chain members, and the coordination of resources, information, and technology (Mentzer et al., 2001, Awais et al., 2014). Due to an uncertain environment with unpredictable changes, an organization with the ability to respond and adapt itself tends to be a successful organization (Kumar et al., 2006).

More flexibility and responsive systems allow an organization has the advantages in a competitive environment. However, it is a fact that cost, uncertainty, and controllability are the trade-off for creating SCF (Tiwari et al., 2015). Therefore, supply chain needs to balance the flexibility among supply chain partner to create a sustainable partnership.

(f) External integration

In supply chain studies, integration is considered as an important factor for surviving in the current economy and improving the competitiveness of supply chains (Kim, 2009, Lotfi et al., 2013). Supply Chain Integration (SCI) is the ability of the supply chain members to better prepare for environmental uncertainties, improve responsiveness, and create more flexibility (Wonga and Boon-itt, 2008). External integration is classified into customer and supplier integrations (Lee et al., 2007, Huo, 2012, Beheshti et al., 2014, Zhang et al., 2016, Boon-itt and Paul, 2006, Huo et al., 2016, Lii and Kuo, 2016). Customer integration is the ability of a firm to collaborate with its key customers in terms of demand and customer requirements. The main idea of customer integration is a close customer relationship that enables firms to respond faster to customers (Sukati et al., 2012). This leads to improved customer service, lower costs, and higher profits by closely integrating internal functions and external functions from other members (Kim, 2009). Supplier integration is the ability of a firm to collaborate with the suppliers in a supply chain. Integration of a supply chain occurs when two or more independent supply chain members work together for planning and executing production (Simatupang and Sridharan, 2002). SCI is a seamless operation among members within a supply chain. Integration among companies within supply chains usually leads to the highest levels of performance improvement (Zailani and Rajagopal, 2005, Naslund and Williamson, 2010). Some literature distinguishes the integration into (1) physical flows among suppliers, manufacturers, and customers, and (2) information flows within a supply chain (Zailani and Rajagopal, 2005, Naslund and Williamson, 2010). Thus, information sharing is considered as components of SCI.

Integration is also a source of partnership that is needed for companies to gain a competitive advantage (Lotfi et al., 2013). This results in overall cost reduction, better quality, and dependability (Gunasekaran et al., 2004b, Kohli and Jensen, 2010). A high degree of integration with suppliers and customers through a supply chain contributes measurable benefits for an organization’s performance and the overall chain (Zailani and Rajagopal, 2005,

Kache and Seuring, 2014). The goal of SCI is to integrate all supply chain partners into a single network to share common goals in developing a supply chain network. Thus, a supply chain partnership directly participates in SCI (Zhang et al., 2016). SCI is also related to the efficiency and effectiveness of IT including diffusion and adaptation of IT support and information sharing, interdependence, and the relationship among members of a supply chain (Huang et al., 2014a, Woolliscroft et al., 2013).

(g) Knowledge exchange

Knowledge is one of key contribution of SCP (Craighead et al., 2009, Lee et al., 2016). It is considered as the critical resource of a firm (Ryoo and Kim, 2015). Sharing knowledge with other members in the supply chain requires communication, information sharing, supply chain strategies, and trust among the partner (Craighead et al., 2009, Beske et al., 2014, Luo et al., 2013, Ryoo and Kim, 2015). In order to build and maintain a relationship with partners, members required not only information sharing but knowledge transferring (Borjeson et al., 2015). On the other hand, knowledge transfer among organization and supply chain is required trust and a strong relationship with each other (Ensign et al., 2014). Explicit and tacit knowledge often lead to value creation and competitive advantage (Handfield et al., 2015). According to Borjeson et al. (2015), the effects of both intra-organization and inter-organization depend on knowledge sharing to achieve higher SCP. Moreover, knowledge sharing often leads to better production in a supply chain (Craighead et al., 2009, Beske et al., 2014) and supports the construction of buyer-customer relationship and results in SCP improvement (Luo et al., 2013).

3.3.4 Supporting factors

Other than influential factors in three phases of supply chain development, there are other supporting factors that contribute to the success of each phase. Technology, trust, risk sharing, supply chain strategies, and innovation are critical factors for supporting the supply chain development.

(h) Information Technology (IT)

Due to the globalization era, IT has become increasingly important (Naslund and Williamson, 2010) in all phases of supply chain development. The seamless flow of information among

members results in an improvement of information visibility, communication, commitments, and cooperation. IT is related to many parts of SCM, including information/knowledge sharing, systems integration, and communication among upstream and downstream suppliers (Kim et al., 2008). Implementation of IT creates capabilities to achieve better management in supply chain systems, creates new business model (Muegge and Mezen, 2017), supporting SCI and enabling the integration of both internal and external business functions (Vijayasarathy, 2010, Marinagi et al., 2014, Karakudilar and Sezen, 2012, Kim et al., 2008, Hamed et al., 2017a).

IT is a tool to create real-time information networks among organizations and their partners to create supply chain visibility and improve productivity and customer satisfaction (Dawson, 2002). Moreover, IT helps suppliers and buyers to better respond to customer demand (Marinagi et al., 2014). This leads to lead-time reduction and overall performance improvement with costs and inventory reductions (Zailani and Rajagopal, 2005, Lee et al., 2007). In addition, IT in a supply chain assists in transferring product ideas, product support, training aids, and technical knowledge (Zailani and Rajagopal, 2005). IT plays an important role in KM as a tool for collecting, distributing and transferring knowledge. IT supports all business activities in supply chain systems in terms of speed and agility, improvement of decision-making, responsiveness, and productivity (Marinagi et al., 2014, Kohli and Jensen, 2010). Significantly, IT allows a supply chain to improve overall performance, increase responsiveness, and reduce uncertainties among members within a supply chain (Kache and Seuring, 2014).

(i) Innovation

Due to the improvement of the competitiveness of global supply chains, the differentiation of products, services, and/or processes in SCM is increasingly important. Innovation is the improvement or fundamental development of products, services, and processes, including a change in value activities of the organization (Panayides and Venus Lun, 2009). Innovation supports an increasing of organizational competitive advantage (Craighead et al., 2009). It is defined as the development and adaptation of a new idea or behavior. Supply chain innovation covers many aspects, such as novel products, services, processes, policies, and programs implemented in a supply chain system (Panayides and Venus Lun, 2009). The essence of innovation is strongly influenced by the knowledge which supports the

development of information and technology (Craighead et al., 2009, Bello et al., 2004). Coordination and collaboration among members of a supply chain are also necessary for developing innovative supply chain processes (Hwang et al., 2008). Since new processes in supply chain systems are considered as innovations that lead to an increase in mutual profits and decrease of cost (Bello et al., 2004), they are critical influential factors of SCP (Lin et al., 2010). Companies place much attention on innovativeness since it is considered as an important linkage to organization performance improvement and sustainable development (Panayides and Venus Lun, 2009, Shrivastava et al., 2016).

(j) Risk sharing

The study of Giannakis and Papadopoulos (2016) classified risks in a supply chain into two main categories: risks that are caused by the organizations among a supply chain, and risks that are caused by the surrounding environment .Uncertainty is defined as a risk among members in supply chain processes (Avelar-Sosa et al., 2014). The uncertainty influences global supply chains in managing the risk that affects SCP (Meixell and Gargeya, 2005). A goal of SCM is to manage uncertainty within a system. Hence, risk management is a major part of SCM (Giannakis and Papadopoulos, 2016). The risk is generally interpreted as unreliability and uncertainty of a supply chain process, including the instability of the business environment. Moreover, risk causes a negative impact on inventory, lead-time, flexibility, and responsiveness (Avelar-Sosa et al., 2014). Risks are also considered as a cause of supply chain disruption .Therefore, sharing risk along a supply chain significantly influences long-term commitment and supply chain partnership (Lambert and Cooper, 2000).

(k) Supply chain strategies

The strategy is a primary concept in an organization and SCM. The study of Lin et al. (2010) defined supply chain strategy as market and resource orientations .Market orientation is related to an organization's culture, including coordination and information sharing, systematic information collection among customers and competitors, and responsiveness to market change and competitor action .Resource orientation strategy is mainly related to the resources in supply chain systems including knowledge, organization, and physical resources. Due to the changing business environment, the strategy needs to be developed and adjusted regularly in order to maintain competitiveness and achieve a high level of customer requirements (Awais et al., 2014). On the other hand, strategy plays an important role in a

business management. Supply chain strategy is an important source of a successful alliance (Awais et al., 2014). Strategy orientations and innovations influence the enhancement of SCP (Yusoff et al., 2016). By this reason, companies should focus on the relationships among members to create better processes, coordination systems, and strategic partners (Lin et al., 2010). Hence, the collaboration, information sharing, and integration of strategies among the members are key influences for establishing value in a supply chain partnership (Awais et al., 2014).

(l) Trust

Trust is an essential element to establish and support a partnership in SCM (Ryu et al., 2009). It is defined as the confidence of other members for collaborating and achieving a specific purpose .Trust plays an important role in collaboration, innovation capability, strategic development among partners (Yeung et al., 2009, Fawcett et al., 2012), and sustainability and innovation development (Rohrbeck et al., 2013). When trust is created among members, firms are willing to exchange information and collaborate among themselves .

In order to create a high level of trust in an alliance, companies need to "do as they promise" (Fawcett et al., 2012). In addition, collaboration and innovation generate a positive effect on trust in a supply chain network, which results in performance improvement in a supply chain (Panayides and Venus Lun, 2009). According to Panayides and Venus Lun (2009), trust among organizations can be accomplished by the willingness to achieve the requirements of a relationship to increase mutual benefits. Moreover, an improvement in responsiveness critically affects the trust in an alliance (Handfield and Bechtel, 2002) and is considered as a critical part of sustainability and collaborative partnership (Fawcett et al., 2012).

(m) Sustainable and environmental aspects

Since SCP require sustainable supply chain development (Uysal, 2012), sustainable and environmental aspects are key factors in a supply chain. Sustainability is the degree of the organization that concern on the impact of three main dimensions namely society, economy, and natural environment (Kumar and Rahman, 2016, Formentini and Taticchi, 2016). The study on Giannakis and Papadopoulos (2016) concludes that the sustainability in supply chain leads to cost reduction and an increase of organization long-term profitability. However, sustainable development generally creates a trade-off between costs and environmental

degradation in short-run for supporting the sustainable development (Uygun and Dede, 2016). Since sustainable development is a result of environmental and social consideration in supply chain operation, green supply chain is considered as a part of the development of supply chain sustainability (Formentini and Taticchi, 2016). It motivates technological innovation to improve the environmental impacts of products and operation processes (Uygun and Dede, 2016).

Apart from the consideration of environmental impact, sustainability influences on many parts of a supply chain including risks, products development, knowledge, and organizational culture, materials, information, and capital (Grimm et al., 2014, Formentini and Taticchi, 2016). The communication and cooperation among supply chain members are important to supply chain systems. Hence, strong buyer-supplier relationship significantly influences on supply chain sustainability (Kumar and Rahman, 2016) with the key goal of improving the competitiveness of the organization (Formentini and Taticchi, 2016). After the partnership is created, the alliance got the benefits of flexibility, integration, and sustainability of the entire system. Sustainability is the final result from flexibility and integration of a supply chain system.

3.4 Foundation of TSC development in SCM aspect

Since TSC constructed from an effective supply chain that helping each other to achieve the same goal, the strong development of supply chain system and partnership considered as a primary function for establishing a TSC. This chapter describes the supply chain terminologies for constructing a framework for developing supply chain network as three critical phases before TSC development including pre-partnership (antecedent factors), partnership, and post-partnership (descendent factors). We presented a systematic collection of key influential factors based on the knowledge accumulated during 20 years on supply chain management studies.

The result shows that a supply chain consists of many factors and interactions in both human-to-human and human-to-nature (Shirahada and Fisk, 2014). Although the core function of SCM is to response uncertain demand by managing and communicating among partnership

(Mentzer et al., 2001, Awais et al., 2014, Gunasekaran et al., 2004b, Duclos et al., 2003, Boon-itt and Paul, 2006, Huo et al., 2016, Lii and Kuo, 2016), a supply chain operates under the ecosystem. Hence, any changes in a part of a supply chain change influence on supply chain system.

Each development phase requires different focus to support a supply chain development. Supporting factors act as an important function to support core function in SCM. Those influential factors are considered as infrastructure in supply chain development. These influential factors support the development of other factors in the critical phases as shown in Figure 3.4. For example, technology strongly supports information sharing and communication among members in the partnership phase. Moreover, technology also supports knowledge sharing among partners (Marinagi et al., 2014, Karakudilar and Sezen, 2012). In order to construct an effective supply chain, supporting factors should be considered as an important infrastructure besides the core function of SCM.

Chapter 4
Concept of TSC

4.1 Overview of TSC

The development of a TSC requires aspects of both TSR and SCM. Supply chains with a TRS concept consist of the relationships between partnerships, customers, society, and environmental entities. The primary concepts of TSR, including value co-creation and service-dominant logic (S-D logic), are reviewed and embedded into the TSC concept. The implementation of S-D logic concept on SCM has created a different perspective of supply chain management. In traditional perspective, supply chain management considers only on the dyadic relationship between buyer and seller but supply ecosystem is considered on the entire network with both direct and indirect relationship between actors. It explains the entire system of the supply chain network and it covers the effects of any institutions that influence the supply chain network.

A supply chain with a TSR concept should focus on well-being and sustainability rather than profits, market shares, or individual consumer satisfaction (Anderson et al., 2013, Rosenbaum, 2015). The interaction and resource integration among supply chains and other entities are key contributors to the TSC concept. Therefore, The key considerations of TSC

are individual, collective, and ecosystem well-being and sustainable development (Anderson et al., 2013, Kuppelwieser and Finsterwalder, 2016).

The well-being of employees and customers along with the financial and environmental sustainability are the main concerns of a TSC. In order to create well-being and sustainability in an ecosystem, human-to-human and human-to-nature activities have to be integrated (Shirahada and Fisk, 2014). Hence, a TSC is defined as a group of actors that focus on well-being and the sustainable development of supply chain ecosystems through value co-creation among suppliers, customers, society, and the environment. The S-D logic concept was implemented as a baseline for TSC development.

TSC shifted the core concentrations from the traditional supply chain in many dimensions. In order to shift to a TSC perspective, an organization needs to focus on the core consideration of the S-D logic concept, as shown in Table 4.1. SSCM perspective focuses on tangible products and operand resources to deliver value to customers. The members of the supply chain act as a co-production (Vargo and Lusch, 2008b). From a TSC perspective, the value is created from the interactions between service providers and beneficiaries and is determined by the users (Maas et al., 2014). Value creation is often identified by the exchange value or the prices of products or services that customers have a willingness to pay (Letaifa, 2014). It can be argued that the development from SSCM to TSC has provided a new way of doing business, and the main consideration moves from things (nouns) to actions and processes (verbs) (Lusch, 2011).

The interaction among entities of a TSC is a concern as a value co-creation process with the aim of ecosystem well-being rather than the profitability of the individuals. A TSC does not rely on the supply chain aspect; the customers, society, and the environment are critical resource integrators through an operant resource rather than a tangible operand resource.

Table 4.1 Core concentrations of traditional and transformative supply chains

Dimensions	Sustainable Supply Chain	Transformative Supply Chain
Main goal	Profit	Well-being
Core focus	Environment	Knowledge
Core value	Product	Process
Core actors	Manufacturer	Environment
Core resource	Operand	Operant
Participants	Supply chain member	Resource integrator
Core output	Goods/tangible	Services/intangible
Benefit for	Individuals	Collective and ecosystem
Role of suppliers	Value-added	Value proposition
Role of customers	Value recipient	Value co-creator
Value perception	Value in exchange	Value-in-use
Supply chain activity	Co-production	Co-creation
Relationship	Network	Ecosystem

4.2 Entities of TSC

The first part is to review the supply chain and TSR concept to create a conceptual framework for TSC development. Then the second part is a case analysis, this method is employed to validate and explain the relationship of resource integrators in the real supply chain ecosystem.

The framework of a TSC aims to explore the relationships of a supply chain, customers, and environmental entities. The framework of a TSC provides descriptions and interactions of supply chain entities, customer entities, social entities, and environmental entities based on tripartite value co-creation (Shirahada and Fisk, 2014). According to Mariadoss et al. (2016), suppliers, the environment, and social practices significantly influence the sustainability of a supply chain. The conceptual framework is shown in Figure 4.1, in which three entities interact and integrate with the service concept under the same ecosystem.

In a conventional supply chain, environmental resources are consumed to create individual benefits for a company and customers. In a TSC, environmental entities are concerned with customers, society, and supply chain entities as a source of resource integration in terms of knowledge, perception, and experience. The interactions and intersecting institutions are ongoing influence value creation process value (Akaka and L. Vargo, 2015). Social entities act as motivators of discourse about social value with the supply chain entities. In order to create value among the entities, both providers and recipients should share mutual understanding (Prasetyanti and Simatupang, 2015). When focused on well-being and sustainability, the supplier understands how to embed environmental value for the customer and the customer understands the value that the supply chain is trying to provide. At this point, the transformative value is created among three entities. The transformative value is a value that every entity in the ecosystem perceived. It occurs when every entity has a mutual understanding to create sustainability and well-being in an ecosystem rather than the dyadic relationship between suppliers and customers and individual profits.

The broadest level is the ecosystem; it consists of humans and nature that other entities may positively or negatively affect. However, interactions between consumers and supply chain entities have sometimes forced providers to focus on the well-being of one customer rather than another (Letaifa, 2014). Thus, to contribute to well-being as a whole, the context of nature becomes significant.

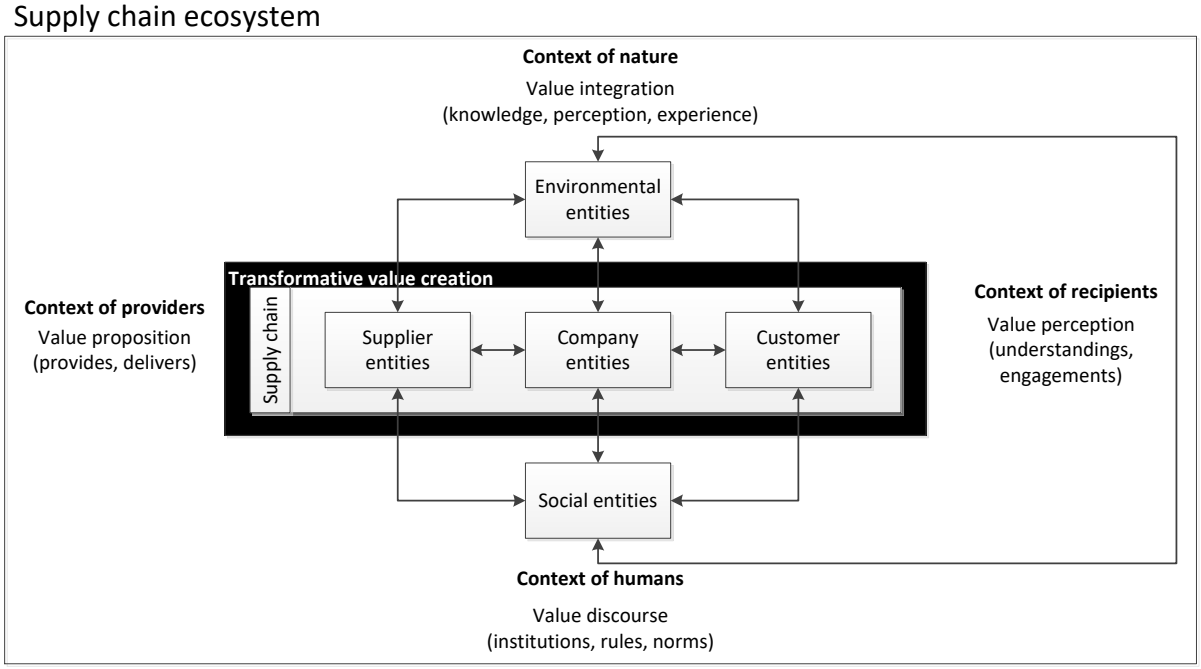

Figure 4.1 Theoretical model of a TSC

4.2.1 Environmental entities

The core consideration of a TSC is the interaction between a supply chain, customers, society, and the environment. The environment is a source of value integration among ecosystems because humans' well-being depends on the condition of the environment (Markman and Krause, 2016). Hence, the relationship between the economy and the environment is a key contribution to sustainability and well-being in an ecosystem (Shirahada and Fisk, 2014). In the study of Anderson et al. (2013), the environment was mentioned as a part of the ecosystem that is a system of humans and nature. Therefore, human activities are impossible to achieve without the influence of the earth's ecosphere resources (Anderson et al., 2013).

Environmental entities are an important actor in value integration in terms of operant resources (knowledge, perception, and experience). However, the environment is a passive entity; it requires attention and awareness from the supply chain, customers, and society to interact and co-create well-being in the ecosystem.

4.2.2 Supply chain entities

The supply chain is a set of collaborative actors with a relationship that links all the members together for creating and providing value to the customer (Lusch, 2011, Schaltegger and Burritt, 2014). It is defined as a complex system with dynamic environments (Defee et al., 2010). In the past, the supply chain mostly focused on profit rather than well-being. Environmental preservation strategies were implemented due to government and competitive pressures (Saini, 2013, Zhu and Sarkis, 2016). Therefore, supply chain entities are increasingly concerned about having green supply chains or sustainable supply chains (Zhu et al., 2016, Uygun and Dede, 2016).

In a TSC, well-being and sustainability with respect to environmental preservation are the main focuses of supply chain development. According to Anderson et al. (2013 p.1205), "service entities are aspects of services that consumer entities interact with that positively or negatively affect their well-being." Supply chain entities in this framework are service providers that include manufacturers, organizations, and any business entities that interact with a customer to create well-being for an ecosystem. The role of the supply chain is value proposition (Kowalkowski, 2010). "Value propositions draw upon operand (e.g., physical)

and operant (e.g., knowledge) resources that are mobilized through organizational capabilities and reflect the value that providers intend to offer" (Blocker and Barrios, 2015 p.267).

4.2.2.1 Supplier entities

Supplier entities are a part of supply chain entities and mainly act as providers who provide value propositions to company entities and an ecosystem (Lusch, 2011). In a TSC, suppliers have integrated resources with the environment and society for delivering value to the downstream suppliers. Therefore, the suppliers are supposed to care about the environmental and social entities. For example, in agricultural products, environmental entities such as water, soil, and air quality directly affect their quality and quantity. Social entities such as social trends, laws, and regulations shape the ways of farming.

Since suppliers provide input to a company, suppliers act as resource integrators for the company. Suppliers directly influence cost reduction and delivery, which create customer value (Tokman and Beitelspacher, 2011, Randall et al., 2014). Thus, suppliers are important for value creation and resource integration of the supply chain.

4.2.2.2 Company entities

Organizations within supply chains are the actors that manage the flow of materials and information from suppliers to customers to generate revenue. Therefore, all the actors in a supply chain integrate resources in terms of the operand and operant resources (Maas et al., 2014). The company entities are the center of value co-creation in the ecosystem. The company entities interact with the environment with respect to the motivation of social entities to translate into value creation beyond what an organization offers (Blocker and Barrios, 2015) through green and sustainable concepts.

The firms have to integrate environmental preservation into the supply chain process since it produces raw material until the products decompose. In this instance, organizations with environmental concerns provide an environmentally friendly product that is produced with minimal waste and energy consumption in every process along the supply chain. Besides, suppliers to the organizations, supporting technology, and other elements utilize environmental preservation strategies in the supply chain to provide value constellation, and

customer entities are recipients of resource integration. If the customer cannot perceive any value from the products, the transformative processes might not be achieved.

4.2.2.3 Customer entities

Since the reputation of service-centric paradigm, Supply chain research adopt a service concept as a new concept to promote and gain more customer value (Lusch, 2011). Then a customer is considered as a co-creator of a supply chain (Grace and Lo Iacono, 2015). A high level of customer participation is essential in a transformative service (Mende and Doorn, 2014) because customers always measure value as value-in-use through direct interaction with a supplier or indirect interaction with a product or service (Kowalkowski, 2010). Value-in-use is a priceless experience for customers (Lusch et al., 2006). Thus, the products become embedded with services for delivery to the customer (Bjurklo et al., 2009). S-D logic argues that value-in-use is a key consideration of products and services rather than value-in-exchange or the price (Lusch et al., 2006). According to Prasetyanti and Simatupang (2015), it is possible for things to have value-in-use but not value-in-exchange.

In the value co-creation process, a mutual understanding between providers and recipients is important. For example, the provider should understand the core values of the product or service that customers want in order to offer the right value to the right customer. On the other hand, the customer also needs to understand the value the provider wants to offer. However, there should be a mutual understanding simply because customers do not even know exactly what they want (Prasetyanti and Simatupang, 2015). Moreover, the customers evaluate and perceive value from supplier or product based on individual perceptions (knowledge and background) and social aspects (Hyman and Shingler, 1999, Mohr et al., 2001). The study of Letaifa (2014) mentioned that the profitability of a business is the result of the company's value creation and the value perceived by customers in terms of price.

4.2.3 Social entities

Due to the evolution of S-D logic, institutions are one of the most important entities in the eleven foundational premises of S-D logic defined by (Vargo and Lusch, 2015). Institutions play a central role in value co-creation and service exchanges that refer to the human-devised rules, norms, and meanings that enable and constrain action and make society predictable and meaningful (Maas et al., 2014, Vargo and Lusch, 2015). It leads to the consideration of

instruments and institutions as an important part of the mechanism of the free market (Băileșteanua and Laura Lungu, 2014). Non-profit organizations (NPO), non-governmental organizations (NGO), and the sections of the government that conduct laws and regulations to preserve the environment are included in social entities.

In the economic and business fields, the term “invisible hand” is used to explain the market situation of a rational agent and their drive to associated equilibrium states (Galam, 2016). According to Lusch et al. (2016), the invisible hand explains emerging institutions and institutional arrangements in the context of economics, organization science, sociology, and political science. It leads to the consideration of instruments and institutions as an important part of the mechanism of the free market (Băileșteanua and Laura Lungu, 2014). The maintenance and change of institutions are considered driving forces for value co-creation, innovation, and market formation (Akaka and L. Vargo, 2015).

In this framework, society is a value co-creator with different actors in the ecosystem (Letaifa et al., 2016). Social entities refer to the context in which humans contribute to the ecosystem as social values. Social value is the values that the majority of people in a society accept (Yoo et al., 2014, Türkkahramana, 2014), including community values, shared values, and social decisions that closely relate to environmental resource issues (Hansjürgens et al., 2017). Social values clearly influence customer behavior (Hyman and Shingler, 1999) and the economy (Kim and Lee, 2015). This research considers social values to be a shared value of the community. The study of Anderson et al. (2013) presented the collective as families, communities, and other groups that related to and influenced customers. Hence, social entities play an important role in motivating both customers and producers. Social value is a key to transforming social entrepreneur activities (Velvin et al., 2016)

4.3 Process of a TSC

In SCM, value creation occurs along supply chain processes. However, most value creation is not transformative value (Blocker and Barrios, 2015). The concept of transformative value was defined by Blocker and Barrios (2015) as a social dimension of value creation that generates greater individual and collective well-being. The well-being of all entities in an

ecosystem is a key result of interactions between a supply chain and customers. The transformative value in SCM is an environmental consideration of both the supply chain and customers with the aim to create well-being within an ecosystem. This is a joint value co-created by supply chain, customer, society, and environmental entities based on the same social structure to create well-being among individuals, the collective, and an ecosystem. The environment is social dimensions in which supply chains and customer entities are integral to achieving well-being.

When both supply chain and customer entities share common knowledge to preserve the environment, value co-creation occurs through interactions related to buying and selling goods and services with the purpose of preserving the environment. For example, if a supply chain is strongly concerned with the environment and produces a premium product in a green manner, customers with environmental knowledge and awareness are more willing to pay extra for the efforts towards environmental preservation. In such a case, transformative value occurs when the supply chain and the customers can perceive the environmental value.

As the framework illustrates, a TSC consists of three main entities operating and interacting with the same ecosystem shown in Figure 4.2. In a traditional supply chain stage, it performs as a loop start with natural resources consumed by the company to provide a product to the customer. The social dimension influences the customer in their decision to buy (Hyman and Shingler, 1999), then the customer gains value from products and the company gains benefits. However, this network leads to natural destruction.

In order to shift into the initial stage of a TSC, environmental concerns and social awareness are key resource integration among every entity in the ecosystem. The initial stage of a TSC is driven by any entity—the customers who are concerned with the environment, the supply chain that integrates the environmental aspect throughout the process, or the social entities such as NPOs, NGOs, and sections of the government that promote the benefits of environmental preservation and sustainability for society and an ecosystem. In this case, the company is a key actor for creating a change in the system. In order to create sustainable development and well-being, supply chain and customer entities are important for developing a TSC. When both supply chain and customer entities share common knowledge to preserve the environment, value co-creation occurs through interactions related to buying and selling goods and services with the purpose of preserving the environment. Both supply chain and

customer entities are concerned with creating sustainability and well-being, the supply chain will employ green strategies in response to customer demand. The customers know how to preserve the environment and clearly perceive value from the environment. The operant resources of supply chains and customers are integrated with an environmental and social aspect. For example, if a supply chain is strongly concerned with the environment and produces a premium product in a green manner, customers with environmental knowledge and awareness are more willing to pay extra for the efforts towards environmental preservation. In such a case, transformative value occurs when the supply chain and the customers can perceive the environmental value which leads to the beginning of the transformative stage.

In the transformative stage, when the social value is changed to ecosystem well-being, it is an influence on the perception of supply chains and customers. Consequently, a supply chain starts to provide environmentally friendly products to customers. The customers are willing to pay for environmental preservation product/service due to social motivations and environmental awareness. When supply chains respond to social change, customers will assign a higher value to a product because the social value is embedded in the product or service. When this happens, providers and recipients start to change the perceived value from individual benefits to the well-being of an ecosystem, and then it creates a better environment considered a preserved environment, which contribute to supply chain customers serving as resource integrators. The transformative supply chain will gain benefits in terms of environmental resources as resources for producing products and value from society (e.g. brand value) which lead to a value constellation for recipients.

The final stage is a perpetual stage. In this stage, the actors in an ecosystem permanently change their behavior in response to the transformative value. A supply chain is strongly focused on environmental preservation and the profits from supply chain operations are invested for the future sustainability of society and the environment. The customers become part of sustainable development and well-being. Due to the customers' concerns about the environment and society, they are willing to pay for environmentally friendly products and services. If the supply chain and the customers shifted their focus from individual profit to well-being, this could lead to habitual value creation. "Habitual value reflects the everyday value that organizations offer to satisfy situational and domain-specific needs in a market

space" (Blocker and Barrios, 2015 p.268). Habitual value occurs when the perceived value has permanently shifted from the individual aspect to the ecosystem aspect of achieving sustainable development and well-being. In a TSC, the habitual value occurs when supply chains and customers change their behavior to achieve sustainability and individual, collective, and ecosystem well-being. Therefore, sustainability and well-being of an ecosystem can be achieved due to the interactions and preservation efforts of supply chains, customers, and society.

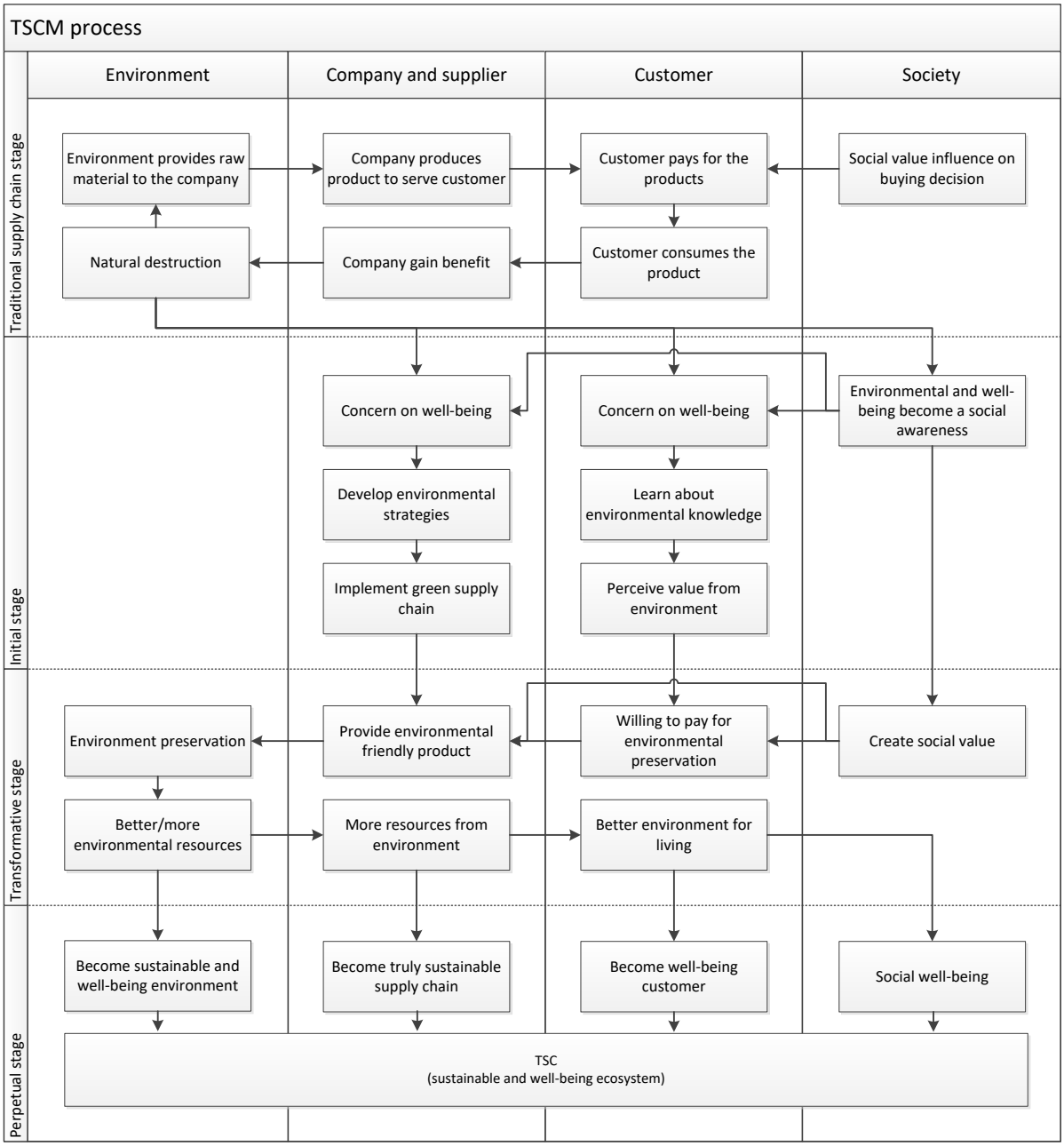

Figure 4.2 Action flow of a TSC process

Chapter 5
Validation of TSC

In order to validate the new concept of TSC, we employ three studies in different industry, and methodology as shown in Table 5.1. The objective of three sub-studies is to validate the concept of TSC based on the different aspect of three entities. Sub-study 1 focuses on the provider aspect, the case analysis of the Doi Tung project is employed to identify the approach to introduce TSC concept in the real world situation. The sub-study 2 focuses on the recipient aspect with the purpose to explore the perceived value of the customer. The empirical study of 618 Japanese people is conducted to explore the effect of knowledge, information, and characteristics of the customer on the social and provide value through the environmentally friendly product. Then in the sub-study 3, TSC concept is validated by the institutional aspect. The AEC2015 is mentioned as an institution that influences the development of business and industry in ASEAN region. Therefore, in-depth interview with the experts in AEC development in Thailand is conducted to explore the impact of the change in an institution on the strong existing supply chain network of the industry in Thailand.

Table 5.1 Validation methods

Validation part	Industry	Area	Aspect	Methodology
Sub-study 1	Product/service industry	Thailand	Provider	Case analysis and In-depth interview
Sub-study 2	Food industry	Japan	Recipient	Empirical study
Sub-study 3	Manufacturer industry	ASEAN regional	Institution	In-depth interview

5.1 Sub-study 1: Provider aspect

5.1.1 Introduction

In order to measure the relationship among entities of TSC, the case analysis is a good method to explore and validate the TSC concept based on the real business situation. The criteria for selecting the case analysis are (1) based on the real business situation (2) aim at sustainable and well-being development (3) contribute in both human and nature aspects (4) influence the whole supply chain (5) self-sustainable. According to these criteria, the Doi Tung Development Project was employed as a case analysis to explore TSC in provider aspect.

Since the purpose of TSR is to solve real problems (Rosenbaum et al., 2011), we analyzed a real royal project developing in Thailand. In the 1980s, the hill-tribe villages in Thailand were living in poverty due to slash-and-burn farming to produce opium poppies, which are a source of heroin. This farming caused natural destruction and affected social well-being because the villages were addicted to the opium. The poverty forced villagers to disturb the environment and perform illegal activities to survive.

The Doi Tung Development Project was established with the objective of creating well-being in hill-tribe villagers and creating a sustainable environment. The company is a part of the Mae Fah Luang Foundation, created under the patronage of the late princess mother, Princess Srinagarindra, and it covers food, horticulture, tourism, and handicrafts. A supply chain of the Doi Tung Company was established for supporting the project's objectives. Similar to any

business and supply chain development, the Doi Tung project also requires an initial investment. However, this project is now self-sustainable in term of both financial and environmental. The projects transform unsustainable supply chains that create losses of environmental, economic, and social well-being into transformative supply chains with a strong focus on the well-being of an ecosystem.

5.1.2 Methodology

In order to validate and explain the framework of TSC, the case analysis is employed as a measurement tool in research methodology. The case of a supply chain with a purpose to create well-being by transformed the supply chain ecosystem is employed to validate the TSC concept. The case should be able to expend all the activity and relationship of each entity in a supply chain based on the service concepts.

The case of Doi Tung Development Project under the Mae Fah Luang Foundation is selected to explore the TSC concept since the company constructs a supply chain to solve the problems. This project began in the 1980s; the hill-tribe villages in Thailand were living in poverty due to slash-and-burn farming to produce opium poppies, which are a source of heroin. This problem creates a vicious circle that effect to environment, social, and institution. This farming caused natural destruction and affected social well-being because the villages were addicted to the opium. Then, it causes a poverty problem so the villagers have to encroach the forest area to slash-and-burn farming to produce opium poppies and gain some money for surviving. Therefore, the Doi Tung Development Project is developed to solve the real problem which is considered as the purpose of TSR (Rosenbaum et al., 2011).

In order to extract the TSC concept from the case analysis, the in-depth interview with a top manager in Mae Fah Luang Foundation is the appropriate technique for gathering detail information and tacit knowledge (Boyce and Associate, 2006). The interview of a key manager in the Mae Fah Luang Foundation can explore the reason behind the development of the Doi Tung Development Project. The purpose of this interview is to understand the real situation, relationship, and approach to transform unsustainable supply chain into a TSC. The company activities, strategies, and mindset are considered as interview topics. This interview is conducted via an online communication channel and the duration of the interview is one

hour. The interview guideline topic and purpose of discussion are set up to navigate the interview process.

Table 5.2 Interview topics and purposes of discussion

Interview topic	Purpose
1. The important components of the company to operate a supply chain with main concern for the well-being and sustainability of the environment rather than profit.	To gather the idea and confirm the statement that "the company operates a supply chain with main concern for the well-being and sustainability of the environment rather than profit"
2. The critical success factors for developing a supply chain with a focus on well-being (Social collaboration, customer collaboration, knowledge, etc.).	To identify the company mindset and critical success factors for developing a supply chain with a focus on well-being
3. The consideration of sustainable and well-being of the environment and society.	To identify the supply chain activities that concern on well-being (company activities)
4. Effect of sustainable environment on supply chain process, products, and customer.	To identify the effect of a sustainable environment to supply chain and customer
5. Effect of social well-being on supply chain process, products, and customer.	To identify the effect of social well-being to supply chain and customer
6. The transformative value of the Doi Tung Development.	To explore the transformative value in the supply chain

5.1.3 Results

5.1.3.1 Supply chain of Thai Royal Project

The framework of the supply chain ecosystem of the Doi Tung Development Project is shown in Figure 5.1. Supply chain entities are a supply chain of the company. Suppliers are farmer and local people who provide raw material to the company. Social entities are people in the society; in this case, social entities cover social awareness, local people, and communities. Environmental entities cover all natural resource.

- In the upstream of the supply chain, the economic crops were promoted to replace opium and poppy cultivation. With farming knowledge, slash-and-burn farming was completely replaced by a new farming method that creates higher profit with no pollution. The self-reliance and self-support of the villagers led to the better development in the environmental and economic ecosystem. This project also contributed new knowledge for the farmers in hill-tribe villages to increase productivity and improve their well-being. A better environment leads to higher quality and quantity of raw materials for producing products.

- Midstream, the agriculture products were transformed to create more value. The Doi Kham Company acts as resource integrator of the farmers. The agriculture products are transformed with the knowledge and technology of the company to deliver value to the customers. The company is a knowledge contributor to the upstream and society to create environmental concern and well-being within the ecosystem.

- Downstream, the products were sold directly to customers without price inflation by a middleman. Therefore, the products could be sold at a reasonable price. Then, the hill-tribe villages got an appropriate profit for sustainable living; the customer got a high-quality, reasonably priced product good for their health. Customer entities are influenced by environmental situations and social values. Customer awareness is influenced by global trends (social value) and the destruction of the environment. The awareness and knowledge from customers lead to societal and environmental well-being. In customer aspect, this project has been well-known for the famous royal project that can create

sustainable and well-being in the northern part of Thailand. Moreover, the products of the company also known as a high quality and authentic products.

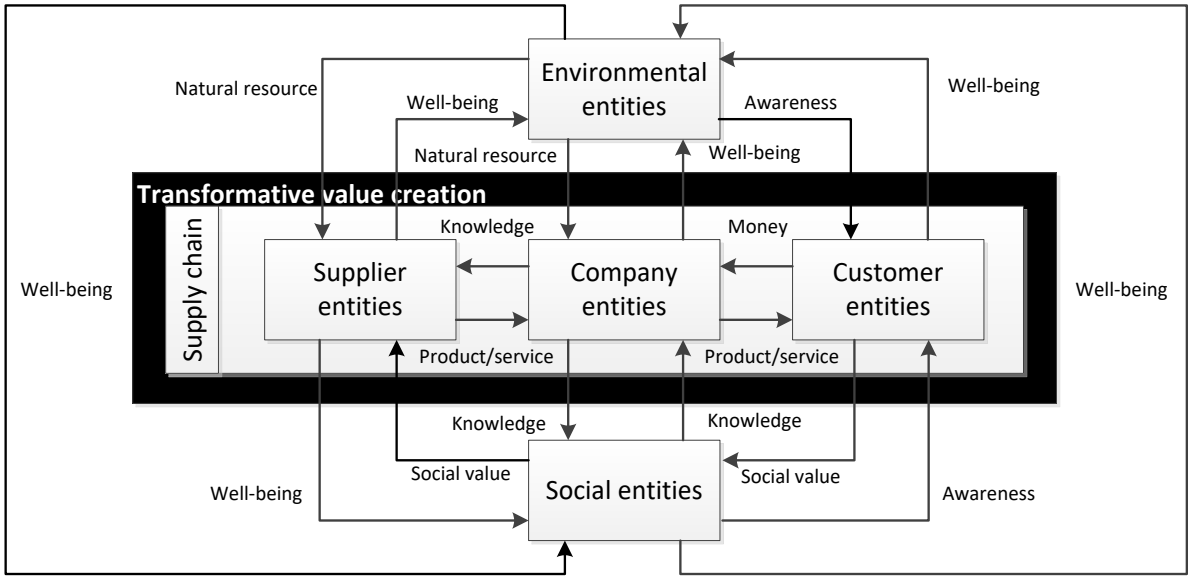

Figure 5.1 Supply chain ecosystem of Doi Tung Development Project

According to case studies, the company did not focus on profitability but human and environmental development. The TSR concept was implemented in every process of supply chain development in this case as shown in Figure 5.1. The mindset of societal and environmental well-being was set in the initial phase of the project. Consequently, the environment and society are sustainable due to the elimination of slash-and-burn farming (to grow opium poppies) by the development of supply chain processes for the economic forest. The new knowledge for agricultural and stewardship of the forests was a sustainable contribution to the villagers for well-being and sustainable development in terms of humanity, the economy, and nature. Since knowledge is a key resource of co-creation. Knowledge creation and contribution are resulting in the higher level of understanding for creating transformative value among people. In order to validate the result of knowledge contribution, the company trains the villagers to teach other people and achieve the same level of understand.

In summary, knowledge is a key contributor in a TSC. However, a lack of interaction with any entities in a TSC leads to the destruction of a system. For instance, the royal project contributes knowledge to the farmers but if there is a lack of a midstream for transforming

agriculture products and delivering them to the market, the farmers themselves might unable to sell the products and end up going back to opium poppy farming. Therefore, a TSC requires interaction and resource integration from every entity.

5.1.3.2 Transformative value in the royal project

The transformative value of this project is a social norm about the environmental preservation in supply chain and customer entities. This project transformed people's lives from consuming natural resources for survival to a fully economical and sustainable environment. The main idea is to understand the root of the problems. In this case, the villagers consumed the environment simply for survival. Therefore, the company provided a new method for surviving without environmental destruction. In the initial phase, the company paid villagers to change their behavior and sustain resources by contributing knowledge. Then, the social values changed to new equilibrium points that create well-being within a supply chain ecosystem. Hence, knowledge and understanding in each entity is the essence of creating transformative value.

Farming knowledge is important for suppliers to produce raw materials while preserving the environment. Social entities with awareness about global issues (e.g., global warming, greenhouse gases, and CO_2 emissions) motivate and contribute to customer decision making and supply chain activities. In the supply chain aspect, supply chains employ environmental awareness in every process of SCM from product development to decomposition. The customers who are concerned about the environment and understand the value of the supply chain are willing to support a company that shows environmental awareness. All resources are integrated among the actors of an ecosystem to create transformative value.

5.1.4 Summary

The purpose of this study is to validate the TSC model by adopting the existed supply chain network of Doi Tung Development Project in Thailand. This case represents the TSC concept in provider aspect of TSC development. In the context of providers, the company is considered as a key resource integrator. They integrate many aspects of knowledge including farming, agriculture, climate, production, manufacturing, and marketing within this created supply chain. Therefore, it can be concluded that knowledge creation, integration, and contribution are one of a key consideration of TSC development.

This case also highlights the initial process stage of TSC. To transform the supply chain system, the beginning with the smallest but most important part of the supply chain system which is human. To change the farmer behavior, the company offers the same among of value to the farmers to change the original method for living to a new approach that creates well-being. Therefore, the basic concept of value offering and human behavior could be adopted as primary factors for creating TSC.

Knowledge and human behavior are critical factors in transformative and habitual value. The change of the supply chain system strongly required a change the individual level. Moreover, TSC requires the strong collaboration and understanding among provider, recipient, and institution.

5.2 Sub-study 2: Recipients aspect

5.2.1 Introduction

The customer is an important part of a supply chain to create a value. Therefore the understanding the customer perception is an essence of developing a TSC. This sub-study aims to validate the interactions and relationships of resource integration among environment, society, company, and customer based on the customer perception. The scenario analysis of customer buying decision of a product from green supply chain is employed to identify the effect of environmental information and knowledge flows among company, society, and customer. The research question is “Do environmental and social value influence customer perception on the products?”

In order to identify the customer perception, a “milk product” was chosen to represent the sort of products that consumers would consume in daily life. The decision making for buying a carton of milk is much easier when comparing with automobile, furniture, electronic products. Therefore, it is easier to capture the influence of environmental and product knowledge that on buying decision. Moreover, the production of food products to serve customers concerns a major source of greenhouse gas emissions, which harm the environment (Alfredsson, 2004, Röös and Tjärnemo, 2011, Gerosa and Skoet, 2013). It has

attained the popularity of purchasing for consumption by common consumers. According to those reasons, this study employed milk as a representative of daily products to measure the influence of customer knowledge and preference on customer perception. Hence, milk can be change to any daily products with low price sensitive and easy to substitute for example rice, drinking water, agriculture products, and fresh food.

Since value co-creation process requires an information flow to customers for increasing knowledge and awareness (Demagistris et al., 2015), the impact of the customer perception of product value needs to be explored for co-creating value between companies and customers. The objective of this study was to explore the different environmental labels on customer perception of product value. The method for delivering environmental information on the products to customers usually generates extra production cost. Environmental information on the products must be accessible, understandable, and perceivable at the point of purchase (Borin et al., 2011). Hence, product labeling has become an effective marketing channel to deliver a message to the consumers (Borin et al., 2011, B. Thorelli, 1970, Röös and Tjärnemo, 2011, Kumar and Kapoor, 2017). The product becomes the center of resource integration among company, customer, social and environment through the information that embedded on the label (Figure 5.2).

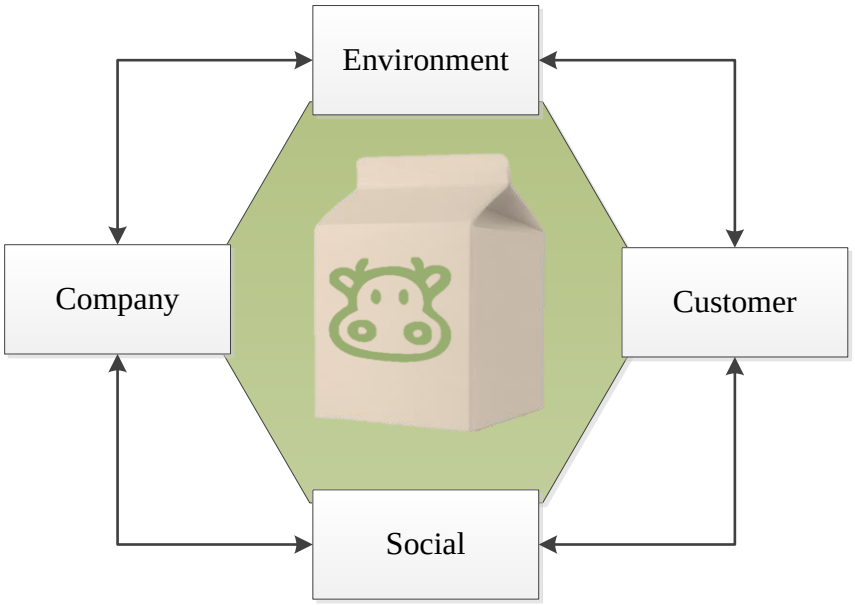

Figure 5.2 Resource integrator though product label

Our empirical study targeted the consumers who frequently purchase dairy products for household consumption in Japan. Three different types of green concept were printed on the milk carton, including green products, green processes, and our CSR policy. Then, multinomial logistics regression was utilized to measure the customer perception of information from three different products with respect to demographic data and environmental knowledge. This study used milk products as a case study because milk is consumed by the majority of people due to it containing dietary energy, protein, and fat that are important for the human diet (Wijesinha-Bettoni and Burlingame, 2013, Lu Hsu and Lin, 2006, Pereira, 2014). However, the production of milk products is considered as a source of GHG emissions, notably of methane (CH_4), nitrous oxide (N_2O), and carbon dioxide (CO_2) (Gerosa and Skoet, 2013). Hence, the packaging of milk is an important factor that influences consumers' perception of the products (Lu Hsu and Lin, 2006, Valajoozi and Zangi, 2016).

5.2.2 Methodology

5.2.2.1 Method of Approach

Two research methods are employed in this research. (1) The literature surveys of journals, articles, previous research works, case-studies related to customer perception, product labelling, and environmental knowledge are employed as documentary research. These data are collected from published data by the credible resource, for instance, data from Food and Agriculture Organization of The United Nations. In addition, journal databases such as ScienceDirect, Emerald, and SCOPUS are utilized to fulfill the research methodology. (2) Surveys are done by means of a questionnaire survey to consumers in Japan, who regularly purchase milk. Topics addressed in a set of the questionnaire are their environmental awareness and knowledge. Difference types of milk label are presented for a respondent to choose of which is suitable for an environmentally friendly product based on different scenarios. Surveys are then distributed to consumers nationwide.

The social value and product quality are two aspects that customer can perceive with respect from the labels. Product quality perception represents the customer perceived value in term of product quality. Since quality is a direct influence on customer perception, the term quality is a representative of customer perception in the individual level. Social value aspect represents the social influence on the customer perception. It represents the influence on collective and

society on the customer perception. Bearing this information in mind, the following hypotheses were created.

H_1: Knowledge influences customer perception

H_2: Product information influences customer perception

H_{2a}: Information on green products influences customer perception

H_{2b}: Information on green processes influences customer perception

H_{2c}: Information on CSR influences customer perception

H_{3a}: Information on green products positively influences perceived value in terms of product quality

H_{3b}: Information on green processes of the products positively influences perceived value in terms of product quality

H_{3c}: Information on CSR of the products positively influences perceived value in terms of product quality

H_{4a}: Information on green products positively influences perceived value in term of social value

H_{4b}: Information on the green processes of the products positively influences perceived value in terms of social value

H_{4c}: Information on CSR positively affects the product influence on perceived value in terms of social value

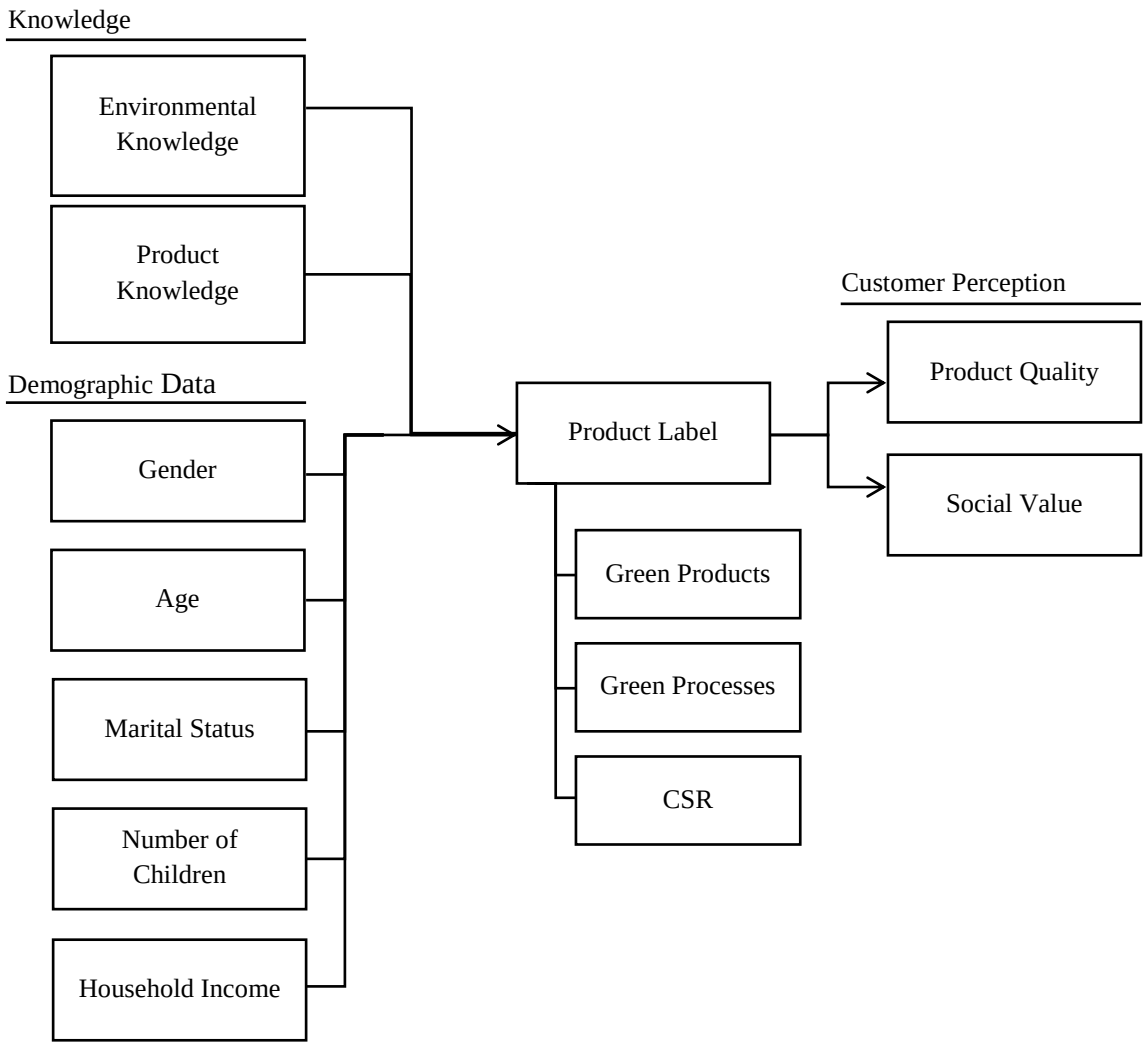

Figure 5.3 Proposed theoretical framework

5.2.2.2 Questionnaire development and data collection

The instrument used in this study is a self-administered questionnaire. The developed questionnaire is divided into three parts. The first part contains demographic questions, including age, gender, marital status, number of children, and household income. These five topics of demographic information are accounted for independent variables that influence customers' perception. Furthermore, the second part of the questionnaire seeks answers about a respondent's environmental awareness and knowledge, including questions on global warming, CO2 emissions, and environmental products. Five scenarios are presented in each environmental question, and a respondent chooses one scenario that best fit his or her perception toward the environment. Summary of indicated questions is shown in table 5.3. The last part of a questionnaire is based on the hypothetical situation. In order to highlight the

different effect of environmental information that influence on customer perception and imitate the buying decision, the consumers are asked to select one out of three provided labels. The three such labels are a label for green products, green processes, and CSR, respectively. The development of contents of the label in this study is created by multiple sources with respect to the definition of those three practices and the strategies and policies of the real business situation. Each respondent selects one of there in regards to his and her green preferences in product quality and social value. Figure 5.4 shows the information on green processes (left), green products (middle), and CSR (right) on a carton of milk, including a detail explanation of each label.

The population is referred to Japanese consumers, who earn their income and is capable of making a buying decision. They are consumers who regularly purchase their grocery, in particular, milk, at a convenience store or a supermarket. Their ages range from 18 years-old to 59 year-olds. The sampling technique used is simple random sampling. Only those who have directly involved in purchasing milk for their households are targeted. The questionnaires were randomly distributed to 618 respondents in Japan by an online survey method

Figure 5.4 Product labels for the survey

Table 5.3 Environmental questions and answers

No.	Questions	Choices				
		A	B	C	D	E
1	What are the main causes of global warming?	Polar sea ice melts	Climate change	Carbon dioxide (CO_2)*	All of the above	None of the above
2	Which of the following countries is currently consuming the most energy?	India	China	Russia	USA*	Mexico
3	What is the definition of green consumption?	Purchase recyclable products	Purchase product with lower energy consumption	use of products with lower environmental impacts	Use of easily decompose product	All of the above*
4	What is the definition of environmentally friendly products?	Cost reduction	Environmental conservation*	Quality	Recyclable	All of the above

*Correct answer

In order to confirm the consistency of questionnaire, confirmatory factor analysis (CFA) is applied to confirm items in each part of the questionnaire. The CFA was analyzed by SPSS program version 17. The items with factor loading less than 0.40 are eliminated (Velicer and Fava, 1998). Therefore, questions number three was eliminated due to the missing data from the respondent that lead to low factor loading. Table 5.4 shows the reliable of three questions with Cronbach's α of more than 0.60 (Gusmerotti et al., 2016).

Table 5.4 Questionnaire items for data analysis

Questions	Factor loading
What are the main causes of global warming?	0.892
Which of the following countries is currently consuming the most energy?	0.462
What is the definition of environmentally friendly products?	0.892
Cronbach’s alpha	0.780

5.2.2.3 Data analysis

The multinomial logistic regression (MLR) is employed to demonstrate the relationship and probability of three alternative choices with the independent outcome (Marc and Barbara, 2013). The primary concept of MLR is to measure the probability of the event (dependent variable) occurs by fitting data to a logistic curve (Decker and Menrad, 2015). This technique is considered as an extension of binomial logistic regression, in which a dependent variable can have only two possible categories (Bayaga, 2010). MLR also appropriate for dealing with dependent nominal-scaled variables and for identifying the most important influencing variables (Decker and Menrad, 2015). Therefore, MLR is mostly utilized for exploring the influence factors on the individual choices of products, for example, car purchasing decisions (Marc and Barbara, 2013), green energy (A. Hast et al., 2015), customer satisfaction (Depaire et al., 2012), and local food programs (Knight, 2013).

This research studies the influences of characteristics and environmental knowledge on customer perception through the three different choices of the product label. The questionnaire provides three individual choices of milk label for measuring the green preferences in term of product quality and social value. Therefore, MLR technique is employed to analyze and identify the differences among categorical variables for both dependent and independent variables (Marc and Barbara, 2013, Knight, 2013, Decker and Menrad, 2015).

To measure the relationship and influential level on the customer perception, the computer software STATA version 11 was used for the statistical analysis. The conceptual model is developed based on the literature reviews as shown in Figure 5.3. The independent variables are cover demographic information and customer knowledge. Demographic information is gender, age, marital status, number of children, and household income [GENDER, AGE, MARRIED, CHILD, and HINCOME]. The customer knowledge can be divided into environmental and product knowledge [ENVKNLG and PRDKNLG]. In this part, the respondents are asked to select the most appropriate answer from five choices. The correct and wrong answers in the knowledge categories are transformed into binary form (1 for correct and 0 for wrong answers). Then in the last part, four alternative choices of product label [green products, green processes, CSR, and impossible to choose] are available for the

respondents to select with respect to product quality and social value. These four intervals represent the dependent variables from data collection and data analysis.

To analyze the data with respect to two aspects, STATA program was run twice; one for product quality aspect, another one for social value aspect shown in table 5.6 as volume "Quality" and "Social value". Since MLR requires one alternative as a reference category for comparing with other categories, the last alternative (impossible to choose) is set as a reference category. The key indicators to determine the level of possibility and relationship of independents variable with dependent variable are p-value and coefficient value.

5.2.3 Results of customer perception

The main objective of this research was to explore the influence of knowledge on the perception of consumers. The results show that knowledge is an important factor that influences customer perception and co-creates value. Because knowledge is a primary factor that influences human behavior, higher environmental knowledge leads to a better understanding of the environmental situation and environmental conservation (Frick et al., 2004). Thus, knowledge influences the mindset of humans in many aspects, including behavior and buying decisions (Duerden and Witt, 2010, Suki, 2013). These findings are consistent with relevant studies of environmental knowledge (Martínez-Martínez et al., 2015, Lu et al., 2015, Suki, 2016, Pothitou et al., 2016). However, the results also show that product labels influence customer perceived value.

The statistical results showed a significant positive relationship at the 5% confidence level between environmental knowledge and preferences for green products in customer perception in terms of quality. In practice, the respondents tended to focus more on the green products rather than on the green processes and CSR information on a product label. A significant positive relationship at the 5% confidence level was found between product knowledge and preferences for green processes and products in customer perception in terms of quality and social value. Moreover, respondents showed a positive attitude towards environmental knowledge and product knowledge.

The most significant factor that influences customer perception towards green products is environmental product knowledge. Greater knowledge of environmental products leads to an

increased perception of the benefits of green products in terms of product quality, and it contributes to social value, while green processes benefit the two aspects discussed. The results show that people with environmental knowledge clearly perceive the value of products from the product label. In cases of consumers with less environmental knowledge, the product information provided plays an important role in promoting the product value perception. Therefore, companies should be concerned about the information that is presented on the product to maximize the perceived value from consumers.

5.2.3.1 Demographic Data

Descriptive analysis was conducted to summarize the demographic data of the respondents. Table 5.5 shows the demographic data from 618 respondents in Japan who frequently purchase groceries for household consumption, divided equally (50 percent) between males and females. The ages of the respondents varied from 20 to 59 years old. The majority of respondents were between 40 to 49 years old (30.4 percent). Nearly two-thirds of the respondents were married, and more than half had at least one child. The majority of household incomes ranged from 2 to 8 million yen per year. According to the demographic data collected, the majority of the respondents were able to make their own decisions without parental interference. Thus, these respondents conformed to this study concept due to their being involved with making the buying decision.

Table 5.5 Demographic categories of respondents

Topic	Description	Frequency	Percentage
Gender (GENDER)	Male	309	50
	Female	309	50
Age (AGE)	20–29	96	15.5
	30–39	171	27.7
	40–49	188	30.4
	50–59	163	26.4
Marital status	Single	233	37.7
(STATUS)	Married	385	62.3
Children (CHILD)	Yes	348	56.3
	No	270	43.7

Topic	Description	Frequency	Percentage
Household income per year (HINCOME) (Japanese Yen)	Below 2,000,000	43	7.0
	2,000,000 to 4,000,000	96	15.5
	4,000,000 to 6,000,000	120	19.4
	6,000,000 to 8,000,000	95	15.4
	8,000,000 to 10,000,000	65	10.5
	10,000,000 to 12,000,000	26	4.2
	12,000,000 to 15,000,000	12	1.9
	15,000,000 to 20,000,000	6	1.0
	More than 20,000,000	5	0.8
	Unknown	54	8.7

According to the demographic results, age is a factor that influences green preference through green product and CSR labels. The coefficients of age are negative; it means that younger people consider the benefits of green processes, green products, and CSR activities more than older people. A majority of the young customers can perceive the high product quality through green product label. In the CSR label, young customers can perceive very strong social value and also high in product quality. Based on the results, the product label is better at providing a value co-creation with the new generation.

5.2.3.2 Environmental Knowledge

Factor analysis was used to categorize environmental knowledge. It helped prevent multicollinearity problems. The environmental knowledge questions were divided into two main categories: environmental knowledge [ENVKNLG] and product knowledge [PRDKNLG]. Table 5.6 summarizes the customer knowledge of the respondents. The respondents were asked to select the most appropriate answer among the three statements. The first question was related to global warming. The question asked “What are the main causes of global warming?” the correct answer is carbon dioxide (CO_2). More than a half of the respondents answered correctly (59.7 percent). However, less than 25% knew that the USA currently consumes the most energy in the world. The last question was related to environmentally friendly products, with the results showing that nearly a third clearly

understand the definition of environmentally friendly products. These sample questions are employed as an independent variable for measuring the probability of the customers perceives a product value through three types of green label.

On the basis of the results, green product information leads to the highest perception in terms of product quality and social value for the customer. Green process information also creates a higher perception in all aspects. Therefore, the hypothesis 1 and 2 are supported. The result cannot support the hypothesis 2c that represent the relationship between customer knowledge and CSR label. CSR program leads to a higher brand image and supports the marketing (Minton and Cornwell, 2016) but it fails to create a higher perception of product quality and social value in this experiment. The customer with knowledge tends to perceive a value in term of quality and social more than the customer with less knowledge.

Table 5.6 Environmental related questions

Items	Questions	Correct answer	Percentage
ENVKNLG	What are the main causes of global warming?	369	59.7
	Which of the following countries is currently consuming the most energy?	137	22.2
PRDKNLG	What is the definition of environmentally friendly products?	200	32.4

5.2.3.3 Customer Perception on Product Labels

The MLR was used to identify the relationship between the independent variables including GENDER, AGE, MARRIED, CHILD, HINCOME, ENVKNLG, and PRDKNLG with green preference with respect to two aspects, namely quality and social value.

The perception of environmental friendly information on product labels is shown in Table 5.7. In the green processes, PRDKNLG has a p-value of less than 0.05 in all aspects. It means that a person who has knowledge of an environmentally friendly product sees that a green process can provide better product quality and social value. Moreover, PRDKNLG strongly influences people to see value in a green product that has quality and social value aspects, as

the obtained p-value of less than 0.01 indicates. ENVKNLG leads to the perception of a green product in terms of quality. Consumers also perceive that green products and green processes result in better product quality and create social value (H_{3a} H_{3b} H_{4a} and H_{4b} are supported). However, CSR activities do not influence the product quality and social value.

The key finding in this research shows the importance of the product label affecting customer perception. This research focused on understanding Japanese customer perceptions of product labels and on describing how the factors of quality and social value affect these perceptions. The study examined the effect of demographic attributes (GENDER, AGE, MARRIED, CHILD, HINCOME) and environmental knowledge (ENVKNLG, PRDKNLG) on the perception of green preferences. An empirical study was conducted in Japan with a sample size of 618 respondents. The data were analyzed using multinomial logistics regression with STATA Version 11 software. The findings of the study show that different product labels differently influence customer perception. They are consistent with the findings of Barber (2010) and Raziuddin et al. (2016): the information on products (product label) significantly affects the customer perception of the product.

The results clearly define that consumers are critically concerned with the product labels. Hence, the question is “what information should be printed on the labels?” The answer is “it depends on the target customer.” Consumers have a different perception depending on the information that is printed on the product but it mostly depended on customer knowledge rather than the demographic characteristics knowledge leads to a different value of customer perception.

Table 5.7 Summary of green preferences based on quality and social aspects

Preference	Independent variable	Quality		Social value	
		Coef.	P-value	Coef.	P-value
Green Process	GENDER	-0.183	0.487	0.261	0.282
	AGE	-0.005	0.682	-0.152	0.220
	MARRIED	0.120	0.736	0.224	0.481
	CHILD	0.229	0.516	-0.202	0.516
	HINCOME	-0.043	0.397	-0.061	0.182
	ENVKNLG	0.092	0.465	0.116	0.311
	PRDKNLG	1.103	*0.028	1.027	*0.019
Green Product	GENDER	-0.100	0.664	-0.248	0.351
	AGE	-0.026	*0.028	-0.014	0.292
	MARRIED	0.332	0.276	-0.287	0.422
	CHILD	-0.173	0.564	0.258	0.471
	HINCOME	-0.042	0.332	-0.048	0.329
	ENVKNLG	0.217	*0.046	0.149	0.237
	PRDKNLG	1.340	**0.004	1.697	**0.006
CSR	GENDER	0.046	0.889	-0.305	0.279
	AGE	-0.037	*0.030	-0.038	**0.009
	MARRIED	0.045	0.921	-0.075	0.848
	CHILD	0.455	0.324	0.631	0.111
	HINCOME	-0.019	0.760	-0.061	0.258
	ENVKNLG	-0.001	0.995	0.055	0.683
	PRDKNLG	0.176	0.716	0.753	0.112

Note: p-value ≤ 0.05*, 0.01**, 0.001***

On the basis of the results, green product information leads to the highest perception in terms of product quality and social value for the customer. However, green process information also creates a higher perception in all aspects. Since a factor that significantly influences customer perception is “knowledge”, the company needs to contribute the knowledge and make the customer understand and enable to perceived higher value from the products. The results also show that the higher environmental product knowledge PRDKNLG of the customer results in a higher value of customer perception. This means that customer perception of environmental products is influenced by the environmental knowledge of the consumers. Because of the different green preferences of consumers in two aspects were identified in the results, it leads to a critical conclusion that different product information influences customer perception differently. The results also support the finding from (Frick et al., 2004, Zsóka et al., 2013, Pothitou et al., 2016) that customer knowledge impacts the customer behavior and influences buying decisions. In summary, knowledge is an important source that influences environmentally friendly product consumption. Consumers tend to have a lower perception of the premium value from the environmental product with respect to their environmental knowledge.

5.2.4 Summary

A clarified product label can communicate with the right consumers and create a higher perceived value of products. In this case, if companies want to focus on product quality, the information on green products should be presented to consumers. Appropriate product information can be benefit companies by increasing product quality and by improving customer perception. However, almost all demographic characteristics do not cause a difference in customer perception in any dimension. This confirms that demographic characteristics do not influence environmental behavior (Chen and Chai, 2010). The only demographic characteristic that influences perception is age. It strongly impacts the perception of the social value of the CSR information on the product. Younger consumers strongly perceive the value from a product label because they tend to judge quality on the basis of a company’s efforts to market green products and to promote CSR activities.

The results also support the finding from (Frick et al., 2004, Zsóka et al., 2013, Pothitou et al., 2016) that customer knowledge impacts the customer behavior and influences buying decisions. This study contributes to previous studies by confirming that environmental

knowledge influences younger consumers more than older ones (Suki, 2013, Kwok et al., 2016, Gusmerotti et al., 2016). Remarkably, the results obviously show that the information on product labels and the way it is presented (product label) significantly affect customer perception of the product value (Barber, 2010, Raziuddin et al., 2016). Therefore, companies need to be concerned about the information that they present on products. The right information should be specifically available for the target consumers to increase perceived value. The contribution of environmental knowledge to the consumers can be considered as an alternative choice to create perceived value for environmentally friendly products. In summary, knowledge is an important source that influences environmentally friendly product consumption. Consumers tend to have a lower perception of the premium value from the environmental product with respect to their environmental knowledge. Furthermore, this study should be extended to measure how different types of knowledge affect customer perception.

This sub-study confirms the relationship among supply chain, environment, social, and customer through a tool called product label. The label embedded with the environmental awareness creates resource integration among entities. The result shows that the higher knowledge and awareness from customer leads to the higher perceived value. Moreover, social value also contributes to customer perception. Therefore, they can far beyond a dyadic relationship between provider and receipt. To create TSC, a supply chain is an ecosystem with both tight and loose among entities including institutions. The results fulfill the ultimate purpose of this study which is to explore the intangible relationships among each entity of TSC.

5.3 Sub-study 3: System aspect

5.3.1 Introduction

Sub-study 1 and 2 clearly explore the TSC in provider and recipients aspects. This study focuses on the influence of the intangible entities such as laws, regulation, rules, norm, and institution. In TSC concept called value discourse in a context of a human. The case of ASEAN Economic Community or AEC by 2015 or AEC2015 is studied to clarify the value

discourse on TSC development. The effects of AEC2015 on the manufacturers in Thailand are adopted to explain the relationship between institutions and supply chains.

The AEC2015 has a purpose to transform ASEAN into a single region with free movement of goods, services, investment, skilled labor, and freer flow of capital (ASEAN, 2008). This economic development has effects on the business and economic environment in many industries both within ASEAN countries and partners of ASEAN. This study conducted to identify the potentials of the effect of the institution (social and economic change) in the supply chains of Thailand's industry with respect to AEC development. To explore the relationships of AEC on Thai's industry through experts interview to clarify the situation in Thailand's industry. The result is expected to provide valuable information for suggesting strategies and policies support and maintain the competitive advantage for Thai's industry and validate the impact of institutional change on the supply chain network.

Since AEC is focusing on improvement of social factors by economic and political development, it is considered as a social innovation (Fujisawa et al., 2015). The industry in AEC development consists of three major components namely companies (provider), customers (recipient), and supporting sector (institution). Those three main systems are interacting with each other to create benefits and value co-creation based on the institution. The institution is laws and regulations that all actors within the system need to concern. For example, tax reduction provided to the fuel-efficient cars increase profits for the company, reduce costs that customer need to pay, and the government receives higher tax because of the increasing of purchasing.

5.3.2 Methodology

AEC is an influence on the business situation due to the trade facilitation and liberalization. Key players in this economic development are including government agency who directly related with the strategic plans development, a business organization who facing the revolution of the business environment, and educational sector who study and understand the overall system of business and economic revolution. Therefore, in-depth interviews with the government sector and private sector are necessary to measure the effect of AEC situation Thai's industry in terms of opportunities and challenges. An in-depth interview is known as an important qualitative technique to collect detailed information on a small number of

respondents (Boyce and Associate, 2006) to confirm and create an understanding of the economic and social situation (Meho, 2006). The purpose of the in-depth interview methods is to measure the unidentifiable business situation for the industry in Thailand due to the development of AEC. The questions for in-depth interviewing are developed for conducting the undefinable data from the experts who associated with the implementation of AEC2015. However, Thailand industry consists of many products and markets. In order to define the institutional effect on a supply chain of Thai industry, the automotive industry is frequently mentioned by the majority of the experts as an example to explain the effect of AEC on the industry situation in Thailand because automotive industry is the most important industry for Thai's economic.

Since this research has the limitation of cost of gathering data, a telephone interview was implemented for data collection in this research. Besides, the interviewees are key persons in an organization; the availability time and schedule are limited. The telephone interview is the best method to gather the data in this research with the major advantages of cost-effectiveness (Musselwhite et al., 2007) and quality of the data (Szolnoki and Hoffmann, 2013). A telephone interview reduce some form of bias (Musselwhite et al., 2007). The interviewees are seemed to have a higher level of willingness to discuss via telephone. Interviewees in telephone interview have a lower level of embarrassment when comparing to face-to-face interview (Wilson et al., 1998). The duration of an in-depth interview conducted in this research is up to one hour. The questions for interviewing are based on the information that unavailable in the literature by the main purpose of clarification the real situation occurs in AEC environment. Thus, several kinds of literature were conducted to define the significant question based on the effect of AEC on the industry and manufacturing situation in Thailand. Semi-structured interview question was implemented to discuss the situation that occurs in Thai's industry due to the development of AEC2015. The questions in Table 5.8 were developed based on the gaps that exist in literature reviews. The most important questions for AEC implementation are related to the effect of this trade integration in both positive and negative terms. Then, what should the firms and government prepare for the fluctuating of business and economic development? The questions are discussed base on three consideration factors namely industrial input, supply chain, and economic situation. The in-depth interview has the main purpose to gain undefinable information about the current situation among AEC development.

Table 5.8 In-depth interview questions

No.	Interview Question
1	What are the positive and negative effects of AEC on Thai's industry?
2	How should the government, firms, and related sector prepare for this change?
3	How can we support Thai's industry for facing the internal and external challenges?

In order to clarify the situation of the industry in Thailand due to the development of AEC in term of processes and key achievements that effect to the economic situation, the in-depth information from government, the private sector, and educational sector are important for measure the business and economic situation in Thai's auto industry. Thus, three experts in each field are interviewed to identify the current situation of the industry due to AEC development. In government perspective, Office of the National Economic and Social Development Board is one of the key actors for AEC development in Thailand. This agency has a role in developing development plans, a study on an important issue, trace and evaluation of the outcomes. This agency is an intermedia actor from AEC implementation plan in Thailand. Besides the government agency consideration, interview the representative of automobile maker is significant to conduct for receiving the real situation that the companies are facing. The educational sector also considered gaining more understanding. Logistics expert and lecturer at the university in Thailand is being an interviewee for contributing the knowledge in term of influence effect of AEC on the future situation and supply chain. In consequence, the information from interviewees can provide all perspectives of AEC development in Thailand.

The interviewee's section and affiliation are shown in table 5.9. Member check method was implemented to recheck the script from the interviewees. After the interview, the interviewer summarizes the information in each discussion and submitted to the interviewees to make a confirmation on their opinions.

Table 5.9 Description of interviewees

Section	Affiliation	Description
Government	Office of the National Economic and Social Development Board	Development plans for AEC implementation are conducted by the government. Office of the National Economic and Social Development Board act as an intermedia player for plan development.
Private firm	Manufacturing company in Thailand	In order to identify the real situation that the firms have to face, key persons of an automobile company and food manufacturing in Thailand needed to be an interview.
Academic	Logistics and supply chain experts	The big picture of supply chain system with the influence of AEC implementation. An interview with logistics experts can provide more understanding of supply chain development due to the implementation of AEC.

5.3.3 Results

5.3.3.1 Overview of AEC Effect on supply ecosystem

According to the results, the collaboration under the AEC agreement will lead to the reduction of trade and tariff barriers among ASEAN members. It is resulting in an increase of cumulative import and export value of the product in ASEAN. AEC is expected to enable the supply chain to reduce the complexity of transportation and logistics by the set up the same standard for transportation among ASEAN countries. Thus, it is resulting in cost and time reduction and increase capacity of the supply chain.

Based on the expert opinions, some may see that Thailand gain the competitive in the supply chain because Thailand has located in the center of ASEAN, but the true advantages are far beyond the location. The complete of supply chain network for supporting the automotive industry in Thailand is the major competitiveness. It may not difficult for the firms to build

up a new factory in other ASEAN countries, but the availability of suppliers is difficult to reestablish in other ASEAN countries. Therefore, the resource density of supply chain network in Thailand is the most competitive advantage for supply ecosystem of the automotive industry in Thailand. For this reason, Thailand has become an important hub for assembling the vehicle with fine quality and reasonable price. However, the effect of AEC as institutions of the automotive industry in Thailand can be considered in many aspects. The summaries of expert's opinion are in table 5.10.

Table 5.10 Summaries of expert's opinion

Sector of respondents	Summary opinion
Government	The development of AEC in Thailand possible to create beneficially to Thai's industry in term of investment and market growth. The related government agencies and private sectors are collaborating and prepared plans for bearing with the AEC situation. The most undeniable important factor is labor.
Private firm	The gathered of AEC can be the opportunities for Thai industry since the size of the market is expanded from one to ten countries. Therefore, the firms should prepare for facing with international and regional competitors. The firms need to develop their competitiveness by improving production capability. The firm should focus on the technological development due to the changing in market trend. However, the support from government and other related party are important to expanding the productivity and competitiveness of Thai; industry.
Academic	Based on the logistics and supply chain perspective, AEC is expected to enabling the supply chain to reduce the complexity of transportation and logistics among ASEAN. Thus, it is resulting in cost and time reduction and increase capacity of the supply chain. Thailand has competitiveness in term of supply chain network and labor skill. Thus, it is quite difficult for the firm to move out the production base from Thailand. However, Thailand should not leave room for competitor overcome.

This analysis shows that the expert's opinions support the factors that concerned by researchers in literature reviews by classifying into three major related factors that influence a supply chain due to the AEC development.

5.3.3.2 Effects of human and knowledge on a supply chain

Labor is one of the important supporting factors for the development of the automotive industry. Skilled labor can be a concern as an important competitive advantage of Thai industry. It is considered as a source of problems as well. Problems indicated by human factor can be classified into two main parts; first is labor force, it is considered as a primary input of the industry. Even Thailand has skill labor when comparing to neighbor countries but Thai workers lack the willingness to work hard, workers normally change a job frequently especially for the tough work. Social value in Thailand for students in vocational school is not quite positive. The vocational school in Thailand viewed as a school for the students who cannot apply for general education. In addition, it is not received an acceptable and supportive of the society. It is resulting in the lower number of skilled labor and the firm need to hire the labor from neighbor countries. As we know automotive industry is knowledge and innovation base industry.

The second part is advanced knowledge and skills worker can be discussed in term of the knowledge-intensive problem. However, research and development for automobile development are mostly no conduct in Thailand due to the limited resource of experts and also the limited research and development budget in both educational institute and government sector. However, advanced knowledge and skills worker may not recognize as a significant part that should be concerned because of the globalization of supply chain management. Research and development processes can be conducted at any place.

The human factor is seen as a primary or prerequisite factor that important for the development of AEC. Any investments are requiring labor for, the factory cannot run without labors, and technology cannot be well implemented due to the lack of knowledge from workers. In the automotive industry, skill and experience workers are very important, the automobile is required at least 20,000 parts for assembly. Hence, the expertise and quality of production processes are important in this industry. On the other hand, the vehicle is directly

related to the safety of customers. The minor error can be a source of a major problem for the organization. The rises of minimum wages have a minor effect on the automotive industry as long as Thai's worker has better assembly skill.

5.3.3.3 Effects of global trends

Thailand has been seen as a hub of ASEAN for assembling the vehicles due to the location of Thailand that located in the center of ASEAN, but the true advantages are far beyond the location. In order to gain the competitive advantage among ASEAN, value and market creation are more important. Thailand has seen as a hub for assembly the vehicles with fine quality and reasonable price among ASEAN. Even it is not difficult for the firm to move the factory to other ASEAN countries, but it is difficult to reestablish supply chain network as complete as in Thailand. Therefore, the most competitive advantage of Thai's automotive industry is the supply chain network that intensely allocated within Thailand.

In the automotive industry, the major competitors of Thai's automotive producers are Indonesia and Malaysia. Indonesia has a high rate of economic growth due to the government's policy that encourages the small car and fuel efficiency car (eco-car) to support the global automotive development. Besides, Malaysia also launched policies that support the production of the environmentally friendly vehicles such as hybrid and electric car. Due to the global automotive development, the changing of production and automobile technology significantly influences the development of this industry. Nowadays, the trend of the global automotive industry is shifting to better fuel efficiency and environmentally friendly vehicles. The electric engine has significantly influenced the trend of the vehicle instead of the internal combustion engine. Hybrid, plug-in hybrid, Extended-Range Electric Vehicles (E-REV), and Electric Vehicle (EV) are changing the automotive industry in term of production and design. However, Thailand does not play an important role in research and development for the automobile industry. This is the issue that the stakeholder of Thai's automotive industry should concern for the future development.

The gathering of AEC can drive automotive parts and producers in Thailand because it is required to develop the competitiveness by improving production capability. In particular, Thai automotive industry should look for a new production technology that clean and environmentally friendly as well as the use of renewable energy. The development of electric

vehicles and reduction of overall weight of vehicles and auto parts are also significant in the global automotive market.

5.3.3.4 Effects of government

In another hand, the government sector is playing an important role to support the auto parts producers in order to expand the market. For instance, Indonesia's government is supporting the automotive industry by encourages the small car and fuel efficiency car. Malaysia also launched policies that support the production of the environmentally friendly vehicles such as hybrid and electric car. In Thailand, the government entities are providing both routine and specific supports for automotive firms. One of stimulating marketing event of automotive firms in Thailand is TAPA or Thailand auto parts and accessories. This event held every two years with the purpose to promote the automotive suppliers and enlarge the market in Thailand and ASEAN. The government also provides supportive policies for encouraging the automotive development in Thailand including First-time Car Buyer Tax Rebate Program. Therefore, Thai's government should provide strong support in the critical issues of such borderless region agreement of AEC; it is the high potential that we would lose the competitiveness to neighbor countries.

In addition, the government sector is playing an important role to support the auto parts producers in order to expand the market. TAPA or Thailand auto parts and accessories is a market event held every two years. The main purpose is to promote the automotive companies and improve the market in Thailand and ASEAN. This event occurs with the collaboration between Department of International Trade Associations and many public and private agencies involved in Thai's automotive industry with the objectives to drive Thai's automotive industry towards the goal of 3 million cars producing and a global green automotive hub.

In service research aspect, institutions are one of the important parts of supply ecosystem as shown in the case study of AEC development of Thai automotive supply chain. The institutions are important in supply chain management because it influences a tradition process as shown in the effect of AEC on Thai automotive industry.

5.4 Summary

The key message of transformative is to change the conventional approach to a new approach that creates sustainable and well-being. A TSC is constructed based on the illustrious theories of transformative service research and supply chain management concepts, so this research mainly integrated existing theories and syntheses as a TSC concept. This chapter tries to validate the TSC concept by exploring the processes, relationships, interactions, and influential factors of the entities in TSC. Sub-study1 provides a good start to the transformative system by adopting the case of Doi Tung Development product. This study highlights the importance of the ignitor in TSC and explores the concept of resource integrators in TSC. The in-depth interview results provide the approach of TSC development in the provider aspect. Then, the sub-study 2 focuses on the recipient aspect. The empirical study identifies the impact and relationship of environment, knowledge, and social on the customer perception of the company products. In order to fulfill the TSC framework, the sub-study 3 is conducted to identify the effect of the institution on a supply chain. The results clearly support the idea of the effect of an institution on an SCM and highlight the effect of the institution in term of human and knowledge, external trends, and laws and regulations that influence on an SCM.

According to the results of three studies, knowledge is an essence of value co-creation among supply chain, customer, social, and environment. In order to develop TSC, knowledge management, sharing, and contribution are the focal point of TSC development. At the initial step, it is required an entity for igniting a transformative process. It can be the main company in a supply chain, a social awareness, a group of customers, or the emerging of environmental destruction. Knowledge plays an important role in value co-creation, resource integration, and influence in social value and awareness in both provider and recipient aspects. Therefore a lack of value co-creation and knowledge in any entities leads to the failure of TSC development.

Chapter 6
Conclusion and Discussion

6.1 Answer for research questions

6.1.1 RQ 1: What are the important components in supply chain that influence on the well-being and sustainability of TSC?

The supply chain is a system that consists of provider, recipient, and influenced by environmental and institution. Therefore, constructing a supply chain requires interaction among those entities. In the beginning phase of supply chain construction, it mainly focuses on the economic value of the key purpose of a supply chain is profit. However, the change in global and environment are an influence in the supply chain.

According to the result of chapter 3, the SCP indicators are newly classified into three for developing supply chain partnership; (1) pre-partnership phase, (2) partnership phase, and (3) post-partnership phase. Each phase has the different critical factors contributing to supply chain performance and partnership development. The benefit of these three classifications is to help firms, indicating the indicators that firms should individually focus on in order to create an effective partnership. The SCP indicators involved in the pre-partnership phase are “antecedent factors”, including internal flexibility, internal integration, risk management, and strategies. These indicators are considered as sources of supply chain partnership. Once a

partnership among firms is established, a tight relationship supports an improvement of the antecedent factors. In the partnership phase, the members in supply chain focus on collaboration, sharing of information, risk, and supply chain strategies. These factors should be implemented in each firm's practices to primarily prepare it for the establishment of a partnership. The post-partnership consists of flexibility, integration, and knowledge which are "descendent factors." In this phase, risk, reward, and information are shared among members of a supply chain to achieve the same goals, and they will have the ability to handle any uncertainty that eventually leads them to sustainable development among themselves. They need to maintain a long-term relationship with partners to retain the competitive advantage and the ability to adjust their supply chain processes in an uncertain environment.

In order to create an effective supply chain network with TSR concept, the firms need to have internal integration and flexibility to serve other members in a supply chain. Then, collaboration and information sharing among member occur in partnership phase with the sharing of risk, strategies, and trust among members. The last phase aims to maintain the partnership of the members, the integration in term of collaboration, coordination, and information sharing are raised to achieve a higher level of external integration and knowledge sharing for achieving supply chain flexibility. Technology and innovation are significant for supply chain development in every phase. Moreover, environmental aspect became a part of effective supply chain development for ecosystem well-being. The consideration of each factor in this three development of a supply chain employed as a foundation and important ingredients for TSC development.

6.1.2 RQ 2: How can a conventional supply chain transform to the supply chain that mainly concerns on well-being?

Based on the current business environment and the development of the S-D logic concept, exchange and value creation occur in a network rather than a dyadic relationship with the goal of being an ecosystem with sustainability and well-being (Vargo, 2007, Braziotis et al., 2013). Beyond the dyadic interaction between providers and recipients, the supply chain is a network of interactions to co-create the values in the ecosystem. In a TSC lens, the environmental entities are directly and indirectly influenced by actor interactions and resource integration. Therefore, all the relationships between the entities in the ecosystem are the important resource integrators (Maas et al., 2014).

A TSC can be considered an ecosystem that consists of three main entities in a supply chain ecosystem called the theoretical model of a TSC. This model is developed based on the "tripartite value co-creation concept" (Shirahada and Fisk, 2014) and "theoretical value configuration space" (Blocker and Barrios, 2015). The first entity is a supply chain including providers (suppliers and company) that act as the value provider in a system. The supply chain needs to understand the well-being of an ecosystem to deliver well-being to customers. Another part of supply chain entities is the recipients (customers or buyers), including customers of customers and/or the beneficiaries. According to Vargo (2009 p.377), "the customer is just another node in the larger ecosystem and the actor-to-actor transaction serves as a platform for further value creation in that larger context." Therefore, the customer is an important resource integrator for creating individual, collective, and ecosystem well-being. The second entity is social entities, considered a supporting element to other actors within an ecosystem. It plays a role as the value discourse through the social value (institution, rules, and norms). The third entity is environmental entities; the environment is a core resource integrator for constructing the well-being of an ecosystem since it is a source of value co-creation. Each entity of a TSC has a significant role in resource integration. In supply chain entities, a key role is the integration of environmental resources with the supply chain's process to offer an environmental product that creates a sense of well-being for customers who are concerned with environmental destruction and want to reduce the impact on the environment. Then, the customers can perceive the environmental value through the TSC. The social entities contribute to the awareness and value of the environment for both providers and recipients. The environmental entities have a key role as a resource integrator among all entities. The environment contributes to sustainable development and individual, collective, and ecosystem well-being.

In previous research, implementation of the environmental concept in SSCM could lead to a beneficial performance including brand value (Suki, 2016, Aibek and Ariffin, 2015, Huang et al., 2014b). However, it might occur only when customers can perceive environmental values provided by the supply chain (Liu et al., 2012). Therefore, the knowledge and perception of customers are important to create value in supply chain entities. Since knowledge is a key contribution to create transformative value, every type of knowledge that created and contributed among the entities of a supply chain influence on the TSC development. Sub-study 1 show the important of knowledge in provider side, the knowledge of local people is a key contribution in TSC development. The important of environmental knowledge and

product knowledge are confirmed by the sub-study 2. Therefore, knowledge is an important component to create transformative value in a supply chain ecosystem. A TSC clearly supports the sustainability and well-being of an ecosystem cannot be achieved without value co-creation and resource integration among a supply chain, customers, society, and environmental entities.

The results confirm the idea of Polonsky (2011), that the key to a transformative supply chain is to change the way of thinking. According to the case analysis of the Doi Tung Development Project, the company's goal is to create sustainability and the well-being of people in the Doi Tung area. The supply chain entities were created to support this goal. However, customer awareness of the environment is motivated by social values and environmental concerns rather than the company. Therefore, the company needs to respond to customer demand, and the additional value of the process behind products and services can be perceived by some customers. The framework of a TSC critically concentrates on the integration and resource integration among entities within an ecosystem. The operant resources are a key factor for resource integration. Supply chains use operant resources to produce an environmentally friendly product, and then customers need to have the knowledge to interact with and perceive value from the providers. The value is created from the operant resource interaction between supply chains and customers with respect to environmental preservation.

6.1.3 RQ 3: What are the key considerations of the TSC development?

TSC is different from the conventional supply chain in many aspects. The conventional supply chain development focuses on the performance of the operation processes in a supply chain as mentioned in RQ1. Then, it can be employed as the foundation before shifting to TSC. In order to shift to TSC, a supply chain should concern these key considerations of TSC. The following key considerations are extracted from the case studies of TSC.

Interaction: Exchange and value creation occur in a network rather than a dyadic relationship with the goal of being an ecosystem with sustainability and well-being (Vargo, 2007, Braziotis et al., 2013). Beyond the dyadic interaction between providers and recipients, the supply chain is a network of interactions to co-create the values in the ecosystem. In a TSC lens, the environmental entities are directly and indirectly influenced by actor

interactions and resource integration. Therefore, all the relationships between the entities in the ecosystem are the important resource integrators (Maas et al., 2014).

Human: According to the Mae Fah Luang Foundation case, they believe that humanity is a key resource of an ecosystem. Humans influence the economy, the environment, and society's well-being with their activities. Therefore, the project focuses on human development to create environmental and economic development. In AEC case also highlight the importance of a human. The human factor is seen as a primary or prerequisite factor that important for operating. The business cannot run without labors, and technology cannot be achieving the objective without knowledge from workers.

Mindset: Since human is a significant contribution in TSC, mindset of people in every entities of TSC contributed in the construction of TSC. The mindset represented in the organization as a philosophy. The philosophy of the Mae Fah Luang Foundation is "to help people help themselves by improving livelihoods." In order to achieve that philosophy, the Doi Tung Development Project contributes knowledge to the villagers in the form of vocational training, handicraft training, and farming to ensure that customers will not buy the products with pity sustainability in terms of society and the economy. This also appears as a source of customer perception. The mindset of the customer represented as environmental awareness and consideration for making a buying decision. Therefore, the mindset of both organization and individual influences on the TSC significantly influence the success of TSC development.

Economic: The Doi Tung Development Project realized that deforestation from slash-and-burn agriculture in the Doi Tung area lead to a vicious cycle. In the initial phase, the project paid at the same among of money to the villagers to reforest (economic forest) because of no one expect the lower value than the initial point for changing their behavior. Therefore, economic aspect contributes in the change of behavior of people in the entities and lead to the sustainability development. The forest creates income for the villagers for three to five years. The farming and economic knowledge the project contributed allowed the villagers to earn income without illegal activities and deforestation.

Beside the monetary aspect, the economic also covers nonmonetary value. The company also allocated land for subsistence forests and sustainable farming (short-term crops and fruit

trees, economic forests of coffee and macadamia nuts). Through the economic development and stewardship of the forests, opium growers were eliminated and the reforestation efforts increased. This increase in the economic forest area yielded more raw materials. Since 2002, the project has been financially self-sustainable. The Doi Tung Development Project also aims to transfer some business units to the local community to support social well-being.

Knowledge: In service concept, knowledge is considered as an essential of value co-creation (Vargo and Lusch, 2004). Knowledge also contributes to behaviour and awareness of the people (Zareie and Navimipour, 2016). The project also established a school to teach the villagers to recycle and treat wastewater to ensure the availability of a water supply for consumption and agriculture. The local community is well aware of their responsibility for the impact that was caused on the environment. Besides environmental development, economics is an important aspect of sustainable development. Deforestation occurred due to poor people without knowledge trying to do anything to survive. Thus, improvement of the economy and people's quality of life is essential to sustainable development. The Doi Tung Development Project believes that the "well-being of nature depends on human stability," so the company provides knowledge and training on every business process to local people to create financial sustainability. Furthermore, the customer's knowledge and understanding directly influence the customer perception in term of economic and value creation as shown in the sub-study 2. The customer with environmental and product knowledge tend to perceive higher value from products with environmental concerned.

Institution: Beside the consideration of business entities in a supply chain, the institution also influences on a supply chain system. Institution consists of both tangible and intangible entities including, government, NGO, NPO, social value, norm, and etc. All the sub-study mentioned about the effect of the institution on the different aspects. The sub-study 1 highlights the big picture of the institution in term of social and environment. The sub-study 2 focuses on the effect of social value in customer perception through the product. Then, the sub-study 3 emphasizes on the whole system of the supply chain that affected by the changing in the institution. Therefore, to create TSC, the institution became an important resource integrator that co-creates value among firms, customers, and environment.

6.2 Principles of TSC development

This research describes the integration of TSR with the SCM concept and proposes the framework of a TSC. The results serve as a guideline for future supply chain research that focuses on the sustainability and well-being of an ecosystem overall. A TSC highlights the roles and interactions of the three entities in a supply chain ecosystem (the supply chain, society, and the environment) that realize the well-being of an ecosystem with transformative value. In consequence, the processes and key consideration of TSC development based on the results of case analysis can be summaries as five principles for constructing TSC.

Principle 1 Mindset or the way of thinking of the provider

Transformation is a revolutionary process; the provider should have a strong intention to create well-being of an ecosystem rather than the individual profit. Moreover, this TSC mindset needed to be shared with the supply chain members. The case analysis also highlights the mindset of the organization to transform into the supply chain that contributes to ecosystem well-being rather than focuses on organization profit.

Principle 2 Provide at least the same benefits to the stakeholders

In the case analysis, both supplier and customer require at least the same among of benefits in term of economic to create a transformative and perpetual behavior. In the transformative stage, people never expect to gain less benefit than before. Therefore, a provider should provide at least the same benefit to satisfy stakeholder with a new approach. For the example of the case analysis, to change the behavior of villagers, the company hires the villagers with the same among of money to reforest rather than slash-and-burn farming.

Principle 3 Tacit knowledge sharing among the entities is a key contribution to resource integration

Knowledge strongly contributes to the people perception, without knowledge the recipients may not possible to perceive or understand the value offered by the provider. On the other hand, the recipients with knowledge can easily perceive and concern with the embedded value. Therefore, it is significant for creating TSC. Knowledge should be shared with the suppliers, customers, and society to achieve the goal of TSC.

Principle 4 Social movement fulfills the transformative value

Social value is a norm that people concern. Change in social value influences on transformative value and leads to the perpetual stage. Social value always influences the perception and behavior of an individual in the society. For example, if the people in society concern on the environment, any person with harmful activities will be forced by the social pressure as a part of society. Society can motivate a change in the ecosystem. In the business world, social movements motivate in an individual customer, firm, and institution. Hence, social agreement, awareness, and issue are an influence and significant on TSC development.

Principle 5 Value co-creation process is influenced by individual, collective, and ecosystem

Value co-creation required tacit and explicit knowledge from all actors. Therefore, the value the received by the recipients is influenced by many entities. Value co-creation process in TSC is a sensitive process that highly influenced by tacit and explicit knowledge. Background and characteristics of the individual, the influence of other people in the society, and the surrounding environment are co-creating with the customer to create a perceived value. Since knowledge is a key resource integrator in TSC, knowledge management became a critical activity in SCM. However, the knowledge management has to cover suppliers, company, customers, and society. Therefore, the supply chain should concern those aspects to create the right value to the right customer.

A TSC is constructed based on the illustrious theories of transformative and service concepts, so this paper mainly integrated existing theories of SSCM and TSR then syntheses as a TSC concept. The concept of S-D logic is an important guideline for implementing TSR in any research area. This research could employ an empirical study in the future to validate the conceptual framework of TSCs. Another important aspect is creating customer perceptions of products.

6.3 Contribution

This study conceptualizes supply chain management in the context of transformative service research improving the sustainability and well-being of suppliers, customers, society, and the environment. The key contribution of this research is to purpose the TSC concept and the implementation approach. The research also identifies the importance of the environment in customer perception and the value in term of individual and social aspect. Therefore, this concept aims to create a change in the ways of doing business and motivate the awareness of social and environment in supply chain aspect. The human well-being is depended on environmental well-being. Therefore, careless supply chain activities lead to the negative effect on the supply chain itself in term of both resource integration, social and customer value perception. On the other hand, the careful supply chain creates a change of human and social behaviors can construct a sustainable and well-being ecosystem for both human and nature. Research findings confirm that a partnership is a core consideration in order to achieve higher performance and competitive advantage. The results better provide the clear understanding of the influential factors and relationship for supporting strategic planning. Likewise, serving as a guideline to an individual firm to measure and manage the influential factors in supply chain network development. To create a partnership among members, every firm in the supply chain should have the same standard for managing the influential factors. Thus, the influence level of each factor and the relationship between the factors of SCP should be further identified. An empirical study on SCP shall be further conducted by applying certain measuring tools, for instance, Structural Equation Modeling and Analytic Hierarchy Process.

The findings confirm that supply chain development is affected by various factors. The co-creation among supply chain members via risk, reward, information, and knowledge sharing is important to create integration and flexibility which are the key performance of supply chain management. The environmental aspect is a resource integrator for supply chain management. CSR, green supply chain, and green products are the interaction platform of the supply chain with environmental entities to communicate to the customers. However, in the customer aspect, the perceived value is influenced by the customer (knowledge). Therefore, TSC concept requires an interaction among supply chain, customer, and environmental entities to create well-being and sustainability among the ecosystem.

Since Thailand is an industrialized country, supply chain management is a critical factor that contributes to the national economy. This research explores the influential factors on supply chain performance that can be employed for constructing an effective supply chain network in Thailand. Beside the clarification of critical factors in supply chain development, transformative supply chain research is a key contribution to Thai social and economy. Thailand is facing with corruption and environmental issues, the implementation of TSR concept in supply chain management lead to the increase of environmental and social awareness. TSC is a business operation concept with well-being and sustainability purposes.

Environmental issues are one of the important topics in global supply chain and it draws significant attention from all the actors in supply chain system including organization, government, and customer. In the past decade, sustainability and well-being are increasingly considered in business and service research. Then, TSR is developed to improve human well-being in both customer and societal welfare through a service concept. A concept of the supply chain would develop with a more comprehensive view of TSR to focuses on well-being and sustainable development rather than profit among supply chain process.

TSC concept is an innovative concept for creating sustainable and well-being among business, society, and environment through the service concept. TSR and S-D logic are employed in supply chain process to promote well-being rather than the financial profit of an individual. Supply chain activities directly impact on the environment, including energy consumption, waste, and CO_2 emissions. Sustainable supply chain focuses on the reduction of environmental impact in a supply chain process but the key aim is still a profit rather than the well-being and truly sustainable. This research contributes to the internal research in term of social awareness for well-being and sustainable development.

6.4 Limitation and future work

The purpose of this study is to develop a new supply chain concept that focuses on well-being rather than the profit. The review of SCM and TSR are integrated as a foundation for constructing and purposing a TSC concept. This research underlines the interaction of supply

chain, customer, society, and environment to create TSC concept. According to the chapter 3, supply chain partnership is significantly influenced by various factors and each phase of supply chain development is required different consideration from the stakeholders. However, the strong supply chain partnership and performance are not an essential for business development nowadays because of the dynamic environment, institution, and social change among the ecosystem. Therefore, it is imperative for SCM to develop a value co-creation process beyond the supply chain entities. As the chapter 4 mentioned, environment, society, and customers significantly influence on the transformation of SCM. Transformative in this case we focus on the transformation of SCM that change the focus from monetary benefit to the well-being of the ecosystem. This changing requires the resource integration and collaboration among the stakeholders of the ecosystem. Which means every small entity can influence and drive the TSC.

This research tries to cover as many aspects as possible including organizational aspect, customer aspects in both national and regional levels to create TSC. Therefore, three cases are employed to validate the TSC concept and explore the approach to implement TSC in the real situation. The case of a truly sustainable supply chain transformation is employed as a center case for establishing TSC. The case of daily product is conducted to explore the relationship of knowledge in customer perception to emphasize the important factors for transforming the supply chain concept. Then the final case study of AEC is conducted to validate the importance of intangible resource on supply chain management. The influence of AEC serves as a change in an institution and it highlights the dynamic butterfly effect of a single change that accounted as a part of TSC development. Therefore, to develop a TSC, there are more than the supply chain itself but the supply chain is an ecosystem that influences both direct and indirect relationships then explicit knowledge is a key resource in TSC.

According to the results, this research can be used as an initial guideline for developing a truly sustainable supply chain that focuses on the well-being of stakeholders in a supply chain system. According to the results, interaction, human, mindset, economic, knowledge, and institution significantly influence TSC development. Since TSC concept is a supply chain system that consists of many entities, aspects, and interaction levels, more case analysis should be employed to identify the problems and approach to establishing TSC in the different product and service. On the internet of thing (IoT) era, IoT provides a useful

platform for value co-creation, connection, and interaction among supply chain members. It definitely supports the supply chain operations and optimization in term of efficiency and effectiveness. However, in TSC development, the flow of information among supply chain, customer, environment, and society. It increases the visibility and traceability in supply chain operation and sustainability. Hence, the role of IoT in TSC development is an interesting research question for the future development of TSC concept.

Since the transformative value is not possible to be achieved without knowledge contribution among entities, knowledge is a key contribution to TSC development. Therefore, the future research should focus on the knowledge management in TSC. In the present, the knowledge management within the organization or supply chain is presented in many types of research. In the social entities, knowledge is considered as a factor that can uplift the well-being of individual and society. Knowledge also contributes to customer behavior as presented in this research. Hence, it is possible to create a knowledge platform for supporting the creation of TSC. The concept of knowledge creation, knowledge sharing, and resource integration within and among organization could be an influence on TSC development.

References

A. HAST, B. ALIMOHAMMADISAGVAND & S. SYRI 2015. Consumer attitudes towards renewable energy in China—The case of Shanghai. *Sustainable Cities and Society,* 17**,** 69–79.

ABDULLAH, Z. & MUSA, R. 2014. The Effect of Trust and Information Sharing on Relationship Commitment in Supply Chain Management. *Procedia - Social and Behavioral Sciences,* 130**,** 266-272.

ACAR, A. Z. & UZUNLAR, M. B. 2014. The Effects of Process Development and Information Technology on Time-based Supply Chain Performance. *Procedia - Social and Behavioral Sciences,* 150**,** 744-753.

ADEL EL-BAZ, M. 2011. Fuzzy performance measurement of a supply chain in manufacturing companies. *Expert Systems with Applications,* 38**,** 6681-6688.

AFONSO, H. & CABRITA, M. D. R. 2015. Developing a Lean Supply Chain Performance Framework in a SME: A Perspective Based on the Balanced Scorecard. *Procedia Engineering,* 131**,** 270-279.

AIBEK, D. & ARIFFIN, A. Z. 2015. Customers' Intention to Use Green Products: The Impact of Green Brand Dimensions and Green Perceived Value. *In SHS Web of Conferences,* 8**,** EDP Sciences.

AKAKA, M. A. & L. VARGO, S. 2015. Extending the context of service: from encounters to ecosystems. *Journal of Services Marketing,* 29**,** 453 - 462.

ALA-HARJA, H. & HELO, P. 2015. Reprint of "Green supply chain decisions - Case-based performance analysis from the food industry". *Transportation Research Part E: Logistics and Transportation Review,* 74**,** 11-21.

ALFREDSSON, E. C. 2004. "Green" consumption - no solution for climate change. *Energy,* 29**,** 513-524.

ALOMAR, M. & PASEK, Z. J. 2014. Linking supply chain strategy and processes to performance improvement. *Procedia CIRP,* 17**,** 628-634.

ANDERSON, L., OSTROM, A. L., CORUS, C., FISK, R. P., GALLAN, A. S., GIRALDO, M., MENDE, M., MULDER, M., RAYBURN, S. W., ROSENBAUM, M. S.,

SHIRAHADA, K. & WILLIAMS, J. D. 2013. Transformative service research: An agenda for the future. *Journal of Business Research,* 66**,** 1203–1210.

ARNOLD, V., BENFORD, T., CANADA, J. & SUTTON, S. G. 2015. Leveraging integrated information systems to enhance strategic flexibility and performance: The enabling role of enterprise risk management. *International Journal of Accounting Information Systems,* 19**,** 1-16.

ARYEE, G., NAIM, M. M. & LALWANI, C. 2008. Supply chain integration using a maturity scale. *Journal of Manufacturing Technology Management,* 19**,** 559 - 575.

ASCHEMANN-WITZEL, J. & ZIELKE, S. 2017. Can't Buy Me Green? A Review of Consumer Perceptions of and Behavior Toward the Price of Organic Food. *The Journal of Consumer Affairs,* 51**,** 211–251.

ASEAN 2008. Asean economic community blueprint. *The ASEAN Secretariat***,** 1-56.

AVELAR-SOSA, L., GARCíA-ALCARAZ, J. L. & CASTRELLóN-TORRES, J. P. 2014. The Effects of Some Risk Factors in the Supply Chains Performance: A Case of Study. *Journal of Applied Research and Technology,* 12**,** 958-968.

AWAIS, S., TIPU, A. & FANTAZY, K. A. 2014. Supply chain strategy, flexibility, and performance: A comparative study of SMEs in Pakistan and Canada. *The International Journal of Logistics Management,* 25**,** 399-416.

AYTEKIN, M. & BüYüKAHRAZ, G. 2006. Perceived quality of green reverse products and diffusion effect. *The Business and Management Review,,* 7**,** 285-294.

AZEVEDO, S. G., CARVALHO, H. & CRUZ MACHADO, V. 2011. The influence of green practices on supply chain performance: A case study approach. *Transportation Research Part E: Logistics and Transportation Review,* 47**,** 850-871.

AZFAR, K. R. W., KHAN, N. & GABRIEL, H. F. 2014. Performance Measurement: A Conceptual Framework for Supply Chain Practices. *Procedia - Social and Behavioral Sciences,* 150**,** 803 - 812.

B. THORELLI, H. 1970. Testing, labelling, certifying: a perspective on consumer information. *European Journal of Marketing,* 4**,** 126-132.

BADEA, A., PROSTEAN, G., GONCALVES, G. & ALLAOUI, H. 2014. Assessing Risk Factors in Collaborative Supply Chain with the Analytic Hierarchy Process (AHP). *Procedia - Social and Behavioral Sciences,* 124**,** 114-123.

BĂILEȘTEANUA, G. & LAURA LUNGU, A. 2014. The "invisible hand" and the "social visible hand" in the economic mechanism of the market. *Procedia - Social and Behavioral Sciences,* 124**,** 100 – 106.

BARBER, N. 2010. "Green" wine packaging : targeting environmental consumers. *International Journal of Wine Business Research,* 22**,** 423 - 444.

BAYAGA, A. 2010. Multinomial Logistic Regression: Usage And Application in Risk Analysis. *Journal of Applied Quantitative Methods,* 5**,** 288-297.

BEAMON, B. M. 1999. Measuring supply chain performance. *International Journal of Operations and Production Management,* 19**,** 275 - 292.

BECKMANN, S. 2006. Consumers' perceptions of and responses to CSR: So little is known so far. *Strategic CSR Communication***,** 163-183.

BEHESHTI, H. M., OGHAZI, P., MOSTAGHEL, R. & HULTMAN, M. 2014. Supply chain integration and firm performance: an empirical study of Swedish manufacturing firms. *Competitiveness Review,* 24**,** 20 - 31.

BELLO, D. C., LOHTIA, R. & SANGTANI, V. 2004. An institutional analysis of supply chain innovations in global marketing channels. *Industrial Marketing Management,* 33**,** 57-64.

BENDUL, J. C., ROSCA, E. & PIVOVAROVA, D. 2017. Sustainable supply chain models for base of the pyramid. *Journal of Cleaner Production,* 162**,** S107eS120.

BESKE, P., LAND, A. & SEURING, S. 2014. Sustainable supply chain management practices and dynamic capabilities in the food industry: A critical analysis of the literature. *International Journal of Production Economics,* 152**,** 131-143.

BHAGWAT, R. & SHARMA, M. K. 2007. Performance measurement of supply chain management: A balanced scorecard approach. *Computers and Industrial Engineering,* 53**,** 43-62.

BIESEMANS, G. 2012. *Improving Customer Behavioral Intentions by Closing the Loop.* Open Universiteit Nederland.

BISWAS, A. & ROY, M. 2015. Green products: An exploratory study on the consumer behaviour in emerging economies of the East. *Journal of Cleaner Production,* 87**,** 463-468.

BJURKLO, M., EDVARDSSON, B. & GEBAUER, H. 2009. The role of competence in initiating the transition from products to service. *Managing Service Quality,* 19**,** 493-510.

BLOCKER, C. P. & BARRIOS, A. S. 2015. The Transformative Value of a Service Experience. *Journal of Service Research,* 18**,** 265-283.

BOON-ITT, S. & PAUL, H. 2006. A study of supply chain integration in Thai automotive industry: a theoretical framework and measurement. *Management Research News,* 29**,** 194 - 205.

BORGSTRöM, B. 2005. Exploring efficiency and effectiveness in the supply chain A conceptual analysis. *Proceedings from the 21st IMP Conference.*

BORIN, N., CERF, D. C. & KRISHNAN, R. 2011. Consumer effects of environmental impact in product labeling. *Journal of Consumer Marketing,* 28**,** 76-86.

BORJESON, N., GILEK, M. & KARLSSON, M. 2015. Knowledge challenges for responsible supply chain management of chemicals in textiles - As experienced by procuring organisations. *Journal of Cleaner Production,* 107**,** 130-136.

BOURLAKIS, M., MAGLARAS, G., AKTAS, E., GALLEAR, D. & FOTOPOULOS, C. 2014a. Firm size and sustainable performance in food supply chains: Insights from Greek SMEs. *International Journal of Production Economics,* 152**,** 112-130.

BOURLAKIS, M., MAGLARAS, G., GALLEAR, D. & FOTOPOULOS, C. 2014b. Examining sustainability performance in the supply chain: The case of the Greek dairy sector. *Industrial Marketing Management,* 43**,** 56-66.

BOYCE, C. & ASSOCIATE, E. 2006. *Conducting in-depth interviews: A Guide for designing and conducting in-depth interviews*.

BRANDENBURG, M. 2013. Supply chain efficiency, value creation and the economic crisis - An empirical assessment of the European automotive industry 2002-2010. *International Journal of Production Economics,* 171**,** 321-335.

BRAZIOTIS, C., BOURLAKIS, M., ROGERS, H. & TANNOCK, J. 2013. Supply chains and supply networks: distinctions and overlaps. *Supply Chain Management: An International Journal,* 18**,** 644 - 652.

BRüGGEN, E. C., HOGREVE, J., HOLMLUND, M., KABADAYI, S. & LöFGREN, M. 2017. Financial well-being: A conceptualization and research agenda. *Journal of Business Research,* 79**,** 228–237.

CAI, J., LIU, X., XIAO, Z. & LIU, J. 2009. Improving supply chain performance management: A systematic approach to analyzing iterative KPI accomplishment. *Decision Support Systems,* 46**,** 512-521.

CAPALDO, A. & GIANNOCCARO, I. 2015. How does trust affect performance in the supply chain? the moderating role of interdependence. *International Journal of Production Economics,* 166**,** 36-49.

CARRERO, I. & VALOR, C. 2012. CSR-labelled products in retailers' assortment: A comparative study of British and Spanish retailers. *International Journal of Retail & Distribution Management,* 40**,** 629-652.

CARTER, C. R., ROGERS, D. S. & CHOI, T. Y. 2015. Toward The Theory of The Supply Chain. *Journal of Supply Chain Management,* 51.

CHAN, F. T. S., NAYAK, A., RAJ, R., CHONG, A. Y. L. & MANOJ, T. 2014. An innovative supply chain performance measurement system incorporating Research and Development (R&D) and marketing policy. *Computers and Industrial Engineering,* 69**,** 64-70.

CHANDAK, S., CHANDAK, A. & SHARMA, A. 2014. Globalisation of Supply Chain Management for an Automotive Industry-future Perspective. *International Review of Applied Engineering Research,* 4**,** 155 - 164.

CHANG, S.-C., LIN, R.-J., CHANG, F.-J. & CHEN, R.-H. 2007. Achieving manufacturing flexibility through entrepreneurial orientation. *Industrial Management & Data Systems,* 107**,** 997-1017.

CHAUDARY, S., ZAHID, Z., SHAHID, S., KHAN, S. N. & AZAR, S. 2016. Customer perception of CSR initiatives : its antecedents and consequences. *Social Responsibility Journal*.

CHEN, C.-C., SHIH, H.-S., SHYUR, H.-J. & WU, K.-S. 2012. A business strategy selection of green supply chain management via an analytic network process. *Computers and Mathematics with Applications,* 64**,** 2544-2557.

CHEN, D. Q., PRESTON, D. S. & XIA, W. 2013. Enhancing hospital supply chain performance: A relational view and empirical test. *Journal of Operations Management,* 31**,** 391-408.

CHEN, M. C., YANG, T. & LI, H. C. 2007. Evaluating the supply chain performance of IT-based inter-enterprise collaboration. *Information and Management,* 44**,** 524-534.

CHEN, T. B. & CHAI, L. T. 2010. Attitude towards the Environment and Green Products : Consumers ' Perspective. *Management Science and Engineering,* 4**,** 27-39.

CHENAVAZ, R. Y. & JASIMUDDIN, S. M. 2017. An analytical model of the relationship between product quality and advertising. *European Journal of Operational Research,* 263**,** 295-307.

CHERIAN, J. & JACOB, J. 2012. Green marketing: A study of consumers' attitude towards environment friendly products. *Asian Social Science,* 8**,** 117-126.

CHIN, T. A., TAT, H. H. & SULAIMAN, Z. 2015. Green supply chain management, environmental collaboration and sustainability performance. *Procedia CIRP,* 26**,** 695-699.

CHO, D. W., LEE, Y. H., AHN, S. H. & HWANG, M. K. 2012. A framework for measuring the performance of service supply chain management. *Computers & Industrial Engineering,* 62**,** 801-818.

CLIVILLé, V. & BERRAH, L. 2006. Overall Performance Measurement in a Supply Chain. *IFAC Proceedings Volumes,* 39**,** 577-582.

COSIMATO, S. & TROISI, O. 2015. Green supply chain management. *TQM Journal,* 27**,** 256-276.

COSTANTINO, F., DI GRAVIO, G., SHABAN, A. & TRONCI, M. 2014. The impact of information sharing and inventory control coordination on supply chain performances. *Computers & Industrial Engineering,* 76**,** 292-306.

COSTANTINO, F., DI GRAVIO, G., SHABAN, A. & TRONCI, M. 2015. The impact of information sharing on ordering policies to improve supply chain performances. *Computers and Industrial Engineering,* 82**,** 127-142.

CRAIGHEAD, C. W., HULT, G. T. M. & KETCHEN, D. J. 2009. The effects of innovation-cost strategy, knowledge, and action in the supply chain on firm performance. *Journal of Operations Management,* 27**,** 405-421.

DADHICH, P., GENOVESE, A., KUMAR, N. & ACQUAYE, A. 2015. Developing sustainable supply chains in the UK construction industry: A case study. *International Journal of Production Economics,* 164**,** 271-284.

DAWSON, A. 2002. Supply chain technology. *Work Study,* 51**,** 191 - 196.

DECKER, T. & MENRAD, K. 2015. House owners' perceptions and factors influencing their choice of specific heating systems in Germany. *Energy Policy,* 85**,** 150–161.

DEFEE, C. C., STANK, T. P. T. & ESPER, T. 2010. Performance implications of transformational supply chain leadership and followership. *International Journal of Physical Distribution and Logistics Management,* 40**,** 763 - 791.

DEMAGISTRIS, T., DEL GIUDICE, T. & VERNEAU, F. 2015. The Effect of Information onWillingness to Pay for Canned Tuna Fish with Different Corporate Social Responsibility (CSR) Certification: A Pilot Study. *The Journal of Consumer Affairs,* 4**,** 457–471.

DEPAIRE, B., VANHOOF, K. & WETS, G. 2012. A decision support tool for evaluating customer intentions. *Expert Systems with Applications,* 39**,** 6903–6910.

DIABAT, A. & GOVINDAN, K. 2011. An analysis of the drivers affecting the implementation of green supply chain management. *Resources, Conservation and Recycling,* 55**,** 659-667.

DUCLOS, L. K., VOKURKA, R. J. & LUMMUS, R. R. 2003. A conceptual model of supply chain flexibility. *Industrial Management & Data Systems,* 103**,** 446 - 456.

DUCQ, Y. & BERRAH, L. 2009. Supply chain performance measurement: Management models, performance indicators and interoperability. *IFAC Proceedings Volumes (IFAC-PapersOnline),* 13**,** 2053-2058.

DUERDEN, M. D. & WITT, P. A. 2010. The impact of direct and indirect experiences on the development of environmental knowledge , attitudes , and behavior. *Journal of Environmental Psychology,* 30**,** 379-392.

DURIF, F., BOIVIN, C. & JULIEN, C. 2010. In search of a green product definition. *Innovative Marketing,* 6**,** 25 - 33.

EDGAR, F., GEARE, A., SAUNDERS, D., BEACKER, M. & FAANUNU, I. 2017. A transformative service research agenda: a study of workers' well-being. *The Service Industries Journal,* 37**,** 84-104.

ELLIOTT, R. 2013. The taste for green: The possibilities and dynamics of status differentiation through "green" consumption. *Poetics,* 41**,** 294-322.

ENSIGN, P. C., LIN, C.-D., CHREIM, S. & PERSAUD, A. 2014. Proximity, knowledge transfer, and innovation in technology-based mergers and acquisitions. *International Journal of Technology Management,* 66.

FAN, X., ZHANG, S., WANG, L., YANG, Y. & HAPESHI, K. 2013. An evaluation model of supply Chain performances using 5DBSC and LMBP neural network algorithm. *Journal of Bionic Engineering,* 10**,** 383-395.

FATIMA, Z. 2015. Consumer Attitude and Perception towards Green Products. *The International Journal of Indian Psychology,* 2.

FATMA, M. & RAHMAN, Z. 2016. The CSR's influence on customer responses in Indian banking sector. *Journal of Retailing and Consumer Services,* 29**,** 49-57.

FAWCETT, S. E., JONES, S. L. & FAWCETT, A. M. 2012. Supply chain trust: The catalyst for collaborative innovation. *Business Horizons,* 55**,** 163-178.

FLAMM, B. 2009. The impacts of environmental knowledge and attitudes on vehicle ownership and use. *Transportation Research Part D,* 14**,** 272-279.

FLINT, D. J., LUSCH, R. F. & VARGO, S. L. 2014. The supply chain management of shopper marketing as viewed through a service ecosystem lens. *International Journal of Physical Distribution & Logistics Management,* 44**,** 23-38.

FORMENTINI, M. & TATICCHI, P. 2016. Corporate sustainability approaches and governance mechanisms in sustainable supply chain management. *Journal of Cleaner Production,* 112**,** 1920-1933.

FRICK, J., KAISER, F. G. & WILSON, M. 2004. Environmental knowledge and conservation behavior : exploring prevalence and structure in a representative sample. *Personality and Individual Difference,* 37**,** 1597-1613.

FRYXELL, G. E. & LO, C. W. H. 2003. The Influence of Environmental Knowledge and Values on Managerial Behaviours on Behalf of the Environment: An Empirical Examination of Managers in China. *Journal of Business Ethics,* 46**,** 45–69.

FUJISAWA, Y., ISHIDA YU , NAGATOMI SATOSHI & IWASAKI KUNIHIKO 2015. A Study of Social Innovation Concepts: A Japanese Perspective. *Japan Social Innovation Journal,* 5.

GALAM, S. 2016. The invisible hand and the rational agent are behind bubbles and crashes. *Chaos, Solitons and Fractals,* 88**,** 209–217.

GALLEAR, D., GHOBADIAN, A. & CHEN, W. 2012. Corporate responsibility, supply chain partnership and performance: An empirical examination. *International Journal of Production Economics,* 140**,** 83–91.

GANGA, G. M. D. & CARPINETTI, L. C. R. 2011. A fuzzy logic approach to supply chain performance management. *International Journal of Production Economics,* 134**,** 177-187.

GATT, K. 2015. Understanding population knowledge and attitudes of Maltese society for improved water governance. *International Journal of Sustainable Society,* 7**,** 370-391.

GEROSA, S. & SKOET, J. 2013. *Milk availability: Current production and demand and medium-term outlook,* Food and Agriculture Organization of The United Nations.

GESSA-PERERA, A., GARCíA-VIVAS, S. & GONZáLEZ-ZAMORA, M.-D.-M. 2016. Valuing environmental management practices through contingent valuation. A review of recent applications. *International Journal of Sustainable Society,* 8**,** 22-53.

GIANNAKIS, M. & PAPADOPOULOS, T. 2016. Supply chain sustainability : A risk management approach. *International Journal of Production Economics,* 171**,** 455-470.

GOPALAKRISHNAN, K., YUSUF, Y. Y., MUSA, A., ABUBAKAR, T. & AMBURSA, H. M. 2012. Sustainable supply chain management: A case study of British Aerospace (BAe) Systems. *International Journal of Production Economics,* 140**,** 193-203.

GRACE, D. & LO IACONO, J. 2015. Value creation: an internal customers' perspective. *Journal of Services Marketing,* 29**,** 560-570.

GREEN, K. W., WHITTEN, D. & INMAN, R. A. 2012. Aligning marketing strategies throughout the supply chain to enhance performance. *Industrial Marketing Management,* 41**,** 1008-1018.

GRIMM, J. H., HOFSTETTER, J. S. & SARKIS, J. 2014. Critical factors for sub-supplier management: A sustainable food supply chains perspective. *International Journal of Production Economics,* 152**,** 159-173.

GUCHAIT, P., ANNER, M. & WU, L. 2010. Customer perceptions of corporate social responsability of service firms: Impact on customer attitudes and behavioral intentions. *University of Park USA***,** 1-6.

GUNASEKARAN, A., PATEL, C. & MCGAUGHEY, R. E. 2004a. A framework for supply chain performance measurement. *Int. J. Production Economics,* 87**,** 333–347.

GUNASEKARAN, A., PATEL, C. & MCGAUGHEY, R. E. 2004b. A framework for supply chain performance measurement. *International Journal of Production Economics,* 87**,** 333-347.

GUPTA, S. & PALSULE-DESAI, O. D. 2011. Sustainable supply chain management : Review and research opportunities. *IIMB Management Review,* 23**,** 234-245.

GUSMEROTTI, N. M., CORSINI, F., TESTA, F., BORGHINI, A. & IRALDO, F. 2016. Predicting behaviours related to marine litter prevention: an empirical case based on junior high school students in Italy. *International Journal of Sustainable Society,* 8**,** 1-21.

HAMED, A. A. A., BOHAR, A. M. & SIAM, M. 2017a. The Impact of Supply Chain Management and Information Systems on Operational Performance: Empirical Evidence from SMEs in Saudi Arabia. *International Journal of Supply Chain Management,* 6.

HAMED, S., EL-BASSIOUNY, N. & TERNES, A. 2017b. Evidence-Based Design and Transformative Service Research application for achieving sustainable healthcare services: A developing country perspective. *Journal of Cleaner Production,* 140**,** 1885-1892.

HANDFIELD, R. B. & BECHTEL, C. 2002. The role of trust and relationship structure in improving supply chain responsiveness. *Industrial Marketing Management,* 31**,** 367-382.

HANDFIELD, R. B., COUSINS, P. D., LAWSON, B. & PETERSEN, K. J. 2015. How Can Supply Management Really Improve Performance? A Knowledge-Based Model Of Alignment Capabilities. *Journal of Supply Chain Management,* 51.

HANSJüRGENS, B., SCHRöTER-SCHLAACK, C., BERGHöFER, A. & LIENHOOP, N. 2017. Justifying social values of nature: Economic reasoning beyond self-interested preferences. *Ecosystem Services,* 23**,** 9-17.

HASAN, S. M., GAO, J., WASIF, M. & IQBAL, S. A. 2014. An integrated decision making framework for automotive product development with the supply chain. *Procedia CIRP,* 25**,** 10-18.

HE, Y. & LAI, K. K. 2012. Supply chain integration and service oriented transformation: Evidence from Chinese equipment manufacturers. *International Journal of Production Economics,* 135**,** 791-799.

HEA, Q., GHOBADIAN, A. & GALLEAR, D. 2013. Knowledge acquisition in supply chain partnerships: The role of power. *International Journal of Production Economics,* 141**,** 605–618.

HON, K. K. B. 2005. Performance and Evaluation of Manufacturing Systems. *CIRP Annals - Manufacturing Technology,* 54**,** 139-154.

HUANG, M.-C., YEN, G.-F. & LIU, T.-C. 2014a. Reexamining supply chain integration and the supplier's performance relationships under uncertainty. *Supply Chain Management: An International Journal,* 19**,** 67 - 78.

HUANG, Y.-C., YANG, M. & WANG, Y.-C. 2014b. Effects of green brand on green purchase intention. *Marketing Intelligence & Planning,* 32**,** 250 - 268.

HUNDAL, B. S. 2015. Consumer Perception towards Green Products : A Factor Analytic Approach. *Pacific Business Review International,* 7**,** 1-7.

HUO, B. 2012. The impact of supply chain integration on company performance: an organizational capability perspective. *Supply Chain Management: An International Journal,* 17**,** 596 - 610.

HUO, B., YE, Y., ZHAO, X. & SHOU, Y. 2016. The impact of human capital on supply chain integration and competitive performance. *International Journal of Production Economics*.

HUSSAIN, M., KHAN, M. & AL-AOMAR, R. 2015. A framework for supply chain sustainability in service industry with Confirmatory Factor Analysis. *Renewable and Sustainable Energy Reviews,* 55**,** 1-12.

HWANG, Y. D., LIN, Y. C. & LYU, J. 2008. The performance evaluation of SCOR sourcing process - The case study of Taiwan's TFT-LCD industry. *International Journal of Production Economics,* 115**,** 411-423.

HYMAN, D. & SHINGLER, J. 1999. The Hierarchy of Consumer Participation and Patterns of Economic, Social, and Political Participation. *The Journal of Consumer Affairs,* 33.

IBRAHIM, S. B. & HAMID, A. A. 2014. Supply Chain Management Practices and Supply Chain Performance Effectiveness. *International Journal of Science and Research,* 3**,** 187 - 195.

ISAACS, S. M. 2015. *Consumer perceptions of Eco-Friendly Products.* Doctoral, Walden University.

JOSHI YATISH & RAHMAN, Z. 2015. Factors Affecting Green Purchase Behaviour and Future Research Directions. *International Strategic Management Review,* 3**,** 128-143.

KACHE, F. & SEURING, S. 2014. Linking collaboration and integration to risk and performance in supply chains via a review of literature reviews. *Supply Chain Management: An International Journal,* 19**,** 664 - 682.

KANCHANAPIBUL, M., LACKA, E., WANG, X. & CHAN, H. K. 2014. An empirical investigation of green purchase behaviour among the young generation. *Journal of Cleaner Production,* 66**,** 528-536.

KANG, S.-H., KANG, B., SHIN, K., KIM, D. & HAN, J. 2012. A theoretical framework for strategy development to introduce sustainable supply chain management. *Procedia - Social and Behavioral Sciences,* 40**,** 631-635.

KARAKUDILAR, I. S. & SEZEN, B. 2012. Are the members of auto supply chains successful in building good supplier-buyer relationships? A survey of Turkish automotive industry. *Social and Behavioral Sciences,* 58**,** 1505 – 1514.

KARAOSMANOGLU, E., ALTINIGNE, N. & ISIKSAL, D. G. 2016. CSR motivation and customer extra-role behavior: Moderation of ethical corporate identity. *Journal of Business Research***,** -.

KHATTAB, S. A. A., ABU-RUMMAN, A. H. & MASSAD, M. 2015. The Impact of the Green Supply Chain Management on Environmental-Based Marketing Performance. *Journal of Service Science and Management***,** 588-597.

KIM, B. G., HWANG, J. S., SHIN, S. D., CHOI, J. H. & LEEM, C. S. 2008. A Study on Collaboration Informatization Level of Supply Chain Process : Korean Automobile Industry Case. *International Journal of u- and e- Service, Science and Technology,* 1.

KIM, S. W. 2009. An investigation on the direct and indirect effect of supply chain integration on firm performance. *International Journal of Production Economics,* 119**,** 328-346.

KIM, Y. J. & LEE, C.-I. 2015. Social values and economic dynamics. *Journal of Economic Dynamics & Control,* 53**,** 69–84.

KNIGHT, A. J. 2013. Evaluating local food programs: The case of Select Nova Scotia. *Evaluation and Program Planning,* 36**,** 29-39.

KOçOĞLU, İ., İMAMOĞLU, S. Z., İNCE, H. & KESKIN, H. 2011. The effect of supply chain integration on information sharing:Enhancing the supply chain performance. *The Proceedings of 7th International Strategic Management Conference,* 24**,** 1630-1649.

KOHLI, A. S. & JENSEN, J. B. 2010. Assessing Effectiveness of Supply Chain Collaboration: An Empirical Study. *An International Journal,* 11.

KOWALKOWSKI, C. 2010. What does a service-dominant logic really mean for manufacturing firms? *CIRP Journal of Manufacturing Science and Technology,* 3**,** 285-292.

KOZLENKOVA, I. V., HULT, G. T. M., LUND, D. J., MENA, J. A. & KEKEC, P. 2015. The Role of Marketing Channels in Supply Chain Management. *Journal of Retailing,* 91**,** 586-609.

KU, E. C. S., WU, W.-C. & CHEN, Y. J. 2016. The relationships among supply chain partnerships, customer orientation, and operational performance: the effect of flexibilit. *Information Systems and e-Business Management,* 14**,** 415-441.

KUMAR, D. & RAHMAN, Z. 2016. Buyer supplier relationship and supply chain sustainability: empirical study of Indian automobile industry. *Journal of Cleaner Production*.

KUMAR, N., AGRAHARI, R. P. & ROY, D. 2015. Review of green supply chain processes. *IFAC Proceedings Volumes (IFAC-PapersOnline),* 48**,** 374-381.

KUMAR, N. & KAPOOR, S. 2017. Do labels influence purchase decisions of food products? Study of young consumers of an emerging market. *British Food Journal,* 119**,** 218-229.

KUMAR, V., FANTAZY, K. A., KUMAR, U. & BOYLE, T. A. 2006. Implementation and management framework for supply chain flexibility. *Journal of Enterprise Information Management,* 19**,** 303 - 319.

KUPPELWIESER, V. G. & FINSTERWALDER, J. 2016. Transformative service research and service dominant logic: Quo Vaditis? *Journal of Retailing and Consumer Services,* 28**,** 91–98.

KWOK, L., HUANG, Y. K. & HU, L. 2016. Green attributes of restaurants: What really matters to consumers? *International Journal of Hospitality Management,* 55**,** 107-117.

LAMBERT, D. M. & COOPER, M. C. 2000. Issues in Supply Chain Management. *Industrial Marketing Management,* 29**,** 65-83.

LEAVY, B. 2006. Supply chain effectiveness: strategy and integration. *Handbook of Business Strategy,* 7**,** 331 - 336.

LEE, C. W., KWON, I.-W. G. & SEVERANCE, D. 2007. Relationship between supply chain performance and degree of linkage among supplier, internal integration, and customer. *Supply Chain Management: An International Journal,* 12**,** 444 - 452.

LEE, J., PALEKAR, U. S. & QUALLS, W. 2011. Supply chain efficiency and security: Coordination for collaborative investment in technology. *European Journal of Operational Research,* 210**,** 568-578.

LEE, S., HONG, J.-Y. & SUH, E. 2016. Measuring the change in knowledge sharing efficiency of virtual communities of practice: a case study. *International Journal of Technology Management,* 70.

LETAIFA, S. B. 2014. The uneasy transition from supply chains to ecosystems: The value-creation/value-capture dilemma. *Management Decision,* 52**,** 278-295.

LETAIFA, S. B., EDVARDSSONB, B. & TRONVOLL, B. 2016. The role of social platforms in transforming service ecosystems. *Journal of Business Research,* 69**,** 1933-1938.

LI, T. & ZHANG, H. 2015. Information sharing in a supply chain with a make-to-stock manufacturer. *Omega,* 50**,** 115-125.

LII, P. & KUO, F.-I. 2016. Innovation-oriented supply chain integration for combined competitiveness and firm performance. *International Journal of Production Economics,* 174**,** 142-155.

LIN, Y., WANG, Y. & YU, C. 2010. Investigating the drivers of the innovation in channel integration and supply chain performance: A strategy orientated perspective. *International Journal of Production Economics,* 127**,** 320-332.

LIU, Z., ANDERSON, T. D. & CRUZ, J. M. 2012. Consumer environmental awareness and competition in two-stage supply chains. *European Journal of Operational Research,* 218**,** 602-613.

LOHMAN, C., FORTUIN, L. & WOUTERS, M. 2004. Designing a performance measurement system: A case study. *European Journal of Operational Research,* 156**,** 267-286.

LóPEZ-FERNáNDEZ, A. M. & MANSILLA, R. 2015. Communicating on corporate social responsibility: a method to differentiate among socially responsible firms. *International Journal of Sustainable Society,* 7**,** 392-404.

LOTFI, Z., MUKHTAR, M., SAHRAN, S. & ZADEH, A. T. 2013. Information Sharing in Supply Chain Management. *Procedia Technology,* 11**,** 298 - 304.

LU, C., RONG, K., YOUA, J. & SHI, Y. 2014. Business ecosystem and stakeholders' role transformation: Evidence from Chinese emerging electric vehicle industry. *Expert Systems with Applications,* 41**,** 4579–4595.

LU HSU, J. & LIN, Y. T. 2006. Consumption and attribute perception of fluid milk in Taiwan. *Nutrition & Food Science,* 36**,** 177-182.

LU, J., LIN, H. T.-Y., HSU, J. L. & LIN, T.-Y. 2015. Carbon reduction knowledge and environmental consciousness in Taiwan. *Management of Environmental Quality: An International Journal,* 26**,** 37 - 52.

LU, W. & HORLU, G. S. A. 2017. Economic well-being of rural farm households in Ghana: A perspective of inequality and polarisation. *Journal of Rural Studies,* 55**,** 248e262.

LUO, H., SHA, S. & HUANG, G. Q. 2013. The Impact of Information and Knowledge sharing on the Buyer-supplier Relationship and Performance in Electronics Industry. *IFAC Proceedings Volumes,* 46**,** 1979-1984.

LUSCH, R. F. 2011. Reframing supply chain management: A service-dominant perspective. *Journal of Supply Chain Management,* 47**,** 14-18.

LUSCH, R. F. & VARGO, S. L. 2014. *Service-Dominant Logic: Premises, Perspectives, Possibilities,* Cambridge University Press.

LUSCH, R. F., VARGO, S. L. & GUSTAFSSON, A. 2016. Fostering a trans-disciplinary perspectives of service ecosystems. *Journal of Business Research,* 69**,** --.

LUSCH, R. F., VARGO, S. L. & MALTER, A. J. 2006. Marketing as Service-Exchange:. Taking a Leadership Role in Global Marketing Management. *Organizational Dynamics,* 35**,** 264-278.

LUSCH, R. F., VARGO, S. L. & O'BRIEN, M. 2007. Competing through service: Insights from service-dominant logic. *Journal of Retailing,* 83**,** 5-18.

MAAS, S., HARTMANN, E. & HERB, S. 2014. Supply chain services from a service-dominant perspective: a content analysis. *International Journal of Physical Distribution & Logistics Management,* 44**,** 58-79.

MARC, P. & BARBARA, C. 2013. An exploration of factors influencing car purchasing decisions. *International Journal of Retail & Distribution Management,* 41**,** 738 - 764.

MARIADOSS, B. J., CHI, T., TANSUHAJ, P. & POMIRLEANU, N. 2016. Influences of Firm Orientations on Sustainable Supply Chain Management. *Journal of Business Research,* 69**,** 3406–3414.

MARIMIN, ADHI, W. & DARMAWAN, M. A. 2017. Decision Support System for Natural Rubber Supply Chain Management Performance Measurement: A Sustainable Balanced Scorecard Approach. *International Journal of Supply Chain Management,* 6.

MARINAGI, C., TRIVELLAS, P. & REKLITIS, P. 2015. Information Quality and Supply Chain Performance: The Mediating Role of Information Sharing. *Procedia - Social and Behavioral Sciences,* 175**,** 473-479.

MARINAGI, C., TRIVELLAS, P. & SAKAS, D. P. 2014. The impact of Information Technology on the development of Supply Chain Competitive Advantage. *Social and Behavioral Sciences,* 147**,** 586 – 591.

MARKMAN, G. D. & KRAUSE, D. 2016. Theory Building Surrounding Sustainable Supply Chain Management: Assessing What We Know, Exploring Where To Go. *Journal of Supply Chain Management,* 52.

MARTíNEZ-MARTíNEZ, A., CEGARRA-NAVARRO, J.-G. & GARCíA-PEREZ, A. 2015. Environmental knowledge management : A long-term enabler of tourism development. 50.

MASSOUD, M. A., ISSA, S., EL-FADEL, M. & JAMALI, I. 2016. Sustainable livelihood approach towards enhanced management of rural resources. *International Journal of Sustainable Society,* 8**,** 54-72.

MEHO, L. I. 2006. E-Mail Interviewing in Qualitative Research: AMethodological Discussion. *International Review of Research in Open and Distance Learning,* 14**,** 90-103.

MEI, N. S., WAI, C. W. & AHAMAD, R. 2016. Environmental Awareness and Behaviour Index for Malaysia. *Procedia - Social and Behavioral Sciences,* 222**,** 668-675.

MEIXELL, M. J. & GARGEYA, V. B. 2005. Global supply chain design: A literature review and critique. *Transportation Research Part E: Logistics and Transportation Review,* 41**,** 531-550.

MENDE, M. & DOORN, J. V. 2014. Coproduction of Transformative Services as a Pathway to Improved Consumer Well-Being: Findings From a Longitudinal Study on Financial Counseling. *Journal of Service Research,* 18**,** 351-368.

MENTZER, J. T., DEWITT, W., KEEBLER, J. S., MIN, S., NIX, N. W. & SMITH, C. D. 2001. Defining supply chain management. *Journal of Business Logistics,* 22.

MEYNHARDT, T., CHANDLER, J. D. & STRATHOFF, P. 2016. Systemic principles of value co-creation: Synergetics of value and service ecosystems. *Journal of Business Research,* 69**,** -.

MICK, D. G. 2006. Meaning and mattering through transformative consumer research. *Forthcoming in Advances in Consumer Research,* 33.

MIN, H. & ZHOU, G. 2002. Supply chain modeling: past, present and future. *Computers & Industrial Engineering,* 43**,** 231-249.

MIN, S., ROATH, A. S., DAUGHERTY, P. J., GENCHEV, S. E., CHEN, H. & ARNDT, A. D. 2005. Supply chain collaboration: what's happening? *The International Journal of Logistics Management,* 16**,** 237 - 256.

MINTON, E. A. & CORNWELL, T. B. 2016. The Cause Cue Effect: Cause-Related Marketing and Consumer Health Perceptions. *The Journal Of Consumer Affairs***,** 372–402.

MOHR, L. A. & WEBB, D. J. 2005. The Effects of Corporate Social Responsibility and Price on Consumer Responses. *The Journal of Consumer Affairs,* 39.

MOHR, L. A., WEBB, D. J. & HARRIS, K. E. 2001. Do Consumers Expect Companies to be Socially Responsible? The Impact of Corporate Social Responsibility on Buying Behavior. *The Journal of Consumer Affairs,* 35.

MUEGGE, S. M. & MEZEN, M. 2017. Business ecosystems and new venture business models: an exploratory study of participation in the Lead To Win job-creation engine. *International Journal of Technology Management,* 75.

MUSSELWHITE, K., CUFF, L., MCGREGOR, L. & KING, K. M. 2007. The telephone interview is an effective method of data collection in clinical nursing research: A discussion paper. *International Journal of Nursing Studies,* 44**,** 1064-1070.

NACIRI, S., CHEIKHROUHOU, N., POULY, M., BINGGELI, J. C. & GLARDON, R. M. 2011. ERP data sharing framework using the Generic Product Model (GPM). *Expert Systems with Applications,* 38**,** 1203-1212.

NADINE, K. 2013. Sustainability Performance Measurement for Green Supply Chain Management. *IFAC Proceedings Volumes (IFAC-PapersOnline),* 6**,** 71-78.

NASLUND, D. & WILLIAMSON, S. 2010. What is Management in Supply Chain Management? - A Critical Review of Definitions, Frameworks and Terminology. *Journal of Management Policy and Practice,* 11**,** 11 - 28.

NDUBISI, N. O., JANTAN, M., HING, L. C. & AYUB, M. S. 2005. Supplier selection and management strategies and manufacturing flexibility. *Journal of Enterprise Information Management,* 18**,** 330-349.

NTABE, E. N., LEBEL, L., MUNSON, A. D. & SANTA-EULALIA, L. A. 2015. A systematic literature review of the supply chain operations reference (SCOR) model application with special attention to environmental issues. *International Journal of Production Economics,* 169**,** 310-332.

OKONGWU, U., LAURAS, M., FRANC, J. & DESCHAMPS, J.-C. 2016. Impact of the integration of tactical supply chain planning determinants on performance. *Journal of Manufacturing Systems,* 38**,** 181-194.

OLUGU, E. U., WONG, K. Y. & SHAHAROUN, A. M. 2011. Development of key performance measures for the automobile green supply chain. *Resources, Conservation and Recycling,* 55**,** 567-579.

OSMAN, A., OTHMAN, Y. H., SALAHUDIN, S. N. & ABDULLAH, M. S. 2016. The Awareness and Implementation of Green Concepts in Marketing Mix: A Case of Malaysia. *Procedia Economics and Finance,* 35**,** 428-433.

OSTROM, A. L., BITNER, M. J., BROWN, S. W., BURKHARD, K. A., GOUL, M., SMITH-DANIELS, V., DEMIRKAN, H. & RABINOVICH, E. 2010. Moving Forward and Making a Difference: Research Priorities for the Science of Service. *Journal of Service Research,* 13**,** 4-36.

PAGELL, M. & SHEVCHENKO, A. 2014. Why Research In Sustainable Supply Chain Management Should Have No Future. *Journal of Supply Chain Management,* 50.

PANAGOPOULOS, T., DUQUE, J. A. G. & DAN, M. B. 2016. Urban planning with respect to environmental quality and human well-being. *Environmental Pollution,* 208**,** 137-144.

PANAYIDES, P. M. & VENUS LUN, Y. H. 2009. The impact of trust on innovativeness and supply chain performance. *International Journal of Production Economics,* 122**,** 35-46.

PAPADAS, K.-K., AVLONITIS, G. J. & CARRIGAN, M. 2017. Green marketing orientation: Conceptualization, scale development and validation. *Journal of Business Research,* 80**,** 236–246.

PEDRO JOSé MARTíNEZ-JURADO & MOYANO-FUENTES, J. 2014. Lean management, supply chain management and sustainability: A literature review. *Journal of Cleaner Production,* 85**,** 134-150.

PEREIRA, P. C. 2014. Milk nutritional composition and its role in human health. *Nutrition,* 30**,** 619–627.

PILKAUSKAITE-VALICKIENEA, R. & GABRIALAVICIUTE, I. 2015. The Role of School Context On Subjective Well-Being and Social Well-Being in Adolescence. *Procedia - Social and Behavioral Sciences,* 191**,** 2588 – 2592.

POLONSKY, M. J. 2011. Transformative green marketing: Impediments and opportunities. *Journal of Business Research,* 64**,** 1311–1319.

POTHITOU, M., HANNA, R. F. & CHALVATZIS, K. J. 2016. Environmental knowledge , pro-environmental behaviour and energy savings in households : An empirical study. *Applied Energy*.

POUDYAL, N. C., BOWKER, J. M. & SIRY, J. P. 2015. Factors influencing buyers' willingness to offer price premiums for carbon credits sourced from urban forests. *International Journal of Sustainable Society,* 7**,** 205-220.

PRAJOGO, D. & OLHAGER, J. 2012. Supply chain integration and performance: The effects of long-term relationships, information technology and sharing, and logistics integration. *International Journal of Production Economics,* 135**,** 514-522.

PRASETYANTI, L. A. & SIMATUPANG, T. M. 2015. A Framework for Service-based Supply Chain. *Procedia Manufacturing,* 4**,** 146-154.

PUNITHA, S., AZIZ, Y. A. & RAHMAN, A. A. 2016. Consumers' Perceptions of Green Marketing in the Hotel Industry. *Asian Social Science ·,* 12**,** 1-16.

QRUNFLEH, S. & TARAFDAR, M. 2014. Supply chain information systems strategy: Impacts on supply chain performance and firm performance. *International Journal of Production Economics,* 147**,** 340-350.

RAMANATHAN, U. & GUNASEKARAN, A. 2014. Supply chain collaboration : Impact of success in long-term partnerships. *International Journal of Production Economics,* 147**,** 252-259.

RANDALL, W. S., WITTMANN, C. M., NOWICKI, D. R. & POHLEN, T. L. 2014. Service-dominant logic and supply chain management: Are we there yet? *International Journal of Physical Distribution & Logistics Management,* 44**,** 113-131.

RAZAK, I., NIRWANTO, N. & TRIATMANTO, B. 2016. The Impact of Product Quality and Price on Customer Satisfaction with the Mediator of Customer Value. *Journal of Marketing and Consumer Research,* 30**,** 59-68.

RAZIUDDIN, K., SIWAR, C., CHAMHURI, N. & HASAN, F. 2016. Integrating General Environmental Knowledge and Eco-Label Knowledge in Understanding Ecologically Conscious Consumer Behavior. *Procedia Economics and Finance,* 37**,** 39-45.

RIM, H., YANG, S.-U. & LEE, J. 2016. Strategic partnerships with nonprofits in corporate social responsibility (CSR): The mediating role of perceived altruism and organizational identification. *Journal of Business Research,* 69**,** 3213-3219.

ROE, B., TEISL, M. F., RONG, H. & LEVY, A. S. 2001. Characteristics of Consumer-Preferred Labeling Policies: Experimental Evidence from Price and Environmental Disclosure for Deregulated Electricity Services. *The Journal of Consumer Affairs,* 35.

ROHRBECK, R., KONNERTZ, L. & KNAB, S. 2013. Collaborative business modelling for systemic and sustainability innovations. *International Journal of Technology Management*.

RööS, E. & TJäRNEMO, H. 2011. Challenges of carbon labelling of food products: a consumer research perspective. *British Food Journal,,* 113**,** 982-996.

ROSENBAUM, M. S. 2015. Transformative service research: focus on well-being. *The Service Industries Journal*.

ROSENBAUM , M. S., CORUS, C., OSTROM, A. L., ANDERSON, L., FISK, R. P., GALLAN, A. S., GIRALDO, M., MENDE, M., MULDER, M., RAYBURN, S. W., SHIRAHADA, K. & WILLIAMS, J. D. 2011. Conceptualization and Aspirations of Transformative Service Research. *Journal of research and consumers*.

RYOO, S. Y. & KIM, K. K. 2015. The impact of knowledge complementarities on supply chain performance through knowledge exchange. *Expert Systems with Applications,* 42**,** 3029-3040.

RYU, I., SO, S. & KOO, C. 2009. The role of partnership in supply chain performance. *Industrial Management and Data Systems,* 109**,** 496 - 514.

SACHDEV, S. 2011. Eco-Friendly Products and Consumer Perception. *Journal of Multidisciplinary Research,* 1**,** 279-287.

SAINI, B. 2013. Green marketing and its impact on consumer buying behaviour. *International Journal of Engineering Science Invention,* 2**,** 61-64.

SALEEM, A., GHAFAR, A., IBRAHIM, M., YOUSUF, M. & AHMED, N. 2015. Product Perceived Quality and Purchase Intention with Consumer Satisfaction. *Global Journal of Management and Business Research: E Marketing,* 15.

SARKKI, S. 2017. Governance services: Co-producing human well-being with ecosystem services. *Ecosystem Services,* 27**,** 82–91.

SCHALTEGGER, S. & BURRITT, R. 2014. Measuring and Managing Sustainability Performance of Supply Chains. *Supply Chain Management: An International Journal,* 19**,** 232-241.

SHAFIEE, M., HOSSEINZADEH LOTFI, F. & SALEH, H. 2014. Supply chain performance evaluation with data envelopment analysis and balanced scorecard approach. *Applied Mathematical Modelling,* 38**,** 5092-5112.

SHIRAHADA, K. & FISK, R. P. 2014. Service sustainability: A tripartite value co-creation perspective. *Progressive trends in knowledge and system-based science for service innovation.* IGI Global.

SHNAYDER, L., VAN RIJNSOEVER, F. J. & HEKKERT, M. P. 2016. Motivations for Corporate Social Responsibility in the packaged food industry: An institutional and stakeholder management perspective. *Journal of Cleaner Production,* 122**,** 212-227.

SHRIVASTAVA, P., IVANAJ, S. & IVANAJ, V. 2016. Strategic technological innovation for sustainable development. *International Journal of Technology Management,* 70.

SILVESTRE, B. S. 2015. Sustainable supply chain management in emerging economies: Environmental turbulence, institutional voids and sustainability trajectories. *International Journal of Production Economics,* 167**,** 156-169.

SIMATUPANG, T. M. & SRIDHARAN, R. 2002. The Collaborative Supply Chain. *The International Journal of Logistics Management,* 13**,** 15 - 30.

SINGH, P. J. & POWER, D. 2009. The nature and effectiveness of collaboration between firms, their customers and suppliers: a supply chain perspective. *Supply Chain Management: An International Journal,* 14**,** 189 - 200.

SUKATI, I., HAMID, A. B., BAHARUN, R. & YUSOFF, R. M. 2012. The Study of Supply Chain Management Strategy and Practices on Supply Chain Performance. *Procedia - Social and Behavioral Sciences,* 40**,** 225 – 233.

SUKI, N. M. 2013. Young consumer ecological behaviour The effects of environmental knowledge, healthy food, and healthy way of life with the moderation of gender and age. *Management of Environmental Quality: An International Journal,* 24**,** 726 - 737.

SUKI, N. M. 2016. knowledge Green product purchase intention : impact of green brands , attitude , and knowledge. *British Food Journal,* 118**,** 2893 - 2910.

SZOLNOKI, G. & HOFFMANN, D. 2013. Online, face-to-face and telephone surveys - Comparing different sampling methods in wine consumer research. *Wine Economics and Policy,* 2**,** 57-66.

TANG, C., GUO, L. & GOPINATH, M. 2016. A Social-Cognitive Model of Consumer Well-Being: A Longitudinal Exploration of the Role of the Service Organization. *Journal of Service Research,* 19**,** 307-321.

THAKUR, S. & AURORA, R. 2015. Consumer Preferences change when it comes to green Marketing. *International Journal of Recent Research Aspects,* 2**,** 245-255.

THOMéA, A. M. T., SCAVARDA, L. F., PIRES, S. R. I., CERYNO, P. & KLINGEBIEL, K. 2014. A multi-tier study on supply chain flexibility in the automotive industry. *International Journal of Production Economics,* 158**,** 91-105.

TIWARI, A. K., TIWARI, A. & SAMUEL, C. 2015. Supply chain flexibility : a comprehensive review. *Management Research Review,* 38**,** 767 - 792.

TOKMAN, M. & BEITELSPACHER, L. S. 2011. Supply chain networks and service-dominant logic: suggestions for future research. *International Journal of Physical Distribution & Logistics Management,* 41**,** 717-726.

TRKMAN, P., MCCORMACK, K., DE OLIVEIRA, M. P. V. & LADEIRA, M. B. 2010. The impact of business analytics on supply chain performance. *Decision Support Systems,* 49**,** 318-327.

TüRKKAHRAMANA, M. 2014. Social values and value education. *Procedia - Social and Behavioral Sciences,* 116**,** 633-638.

TZILIVAKIS, J., GREEN, A., WARNER, D., MCGEEVOR, K. & LEWIS, K. 2012. A framework for practical and effective eco-labelling of food products. *Sustainability Accounting, Management and Policy Journal,* 3**,** 50-73.

UKKO, J., TENHUNEN, J. & RANTANEN, H. 2007. Performance measurement impacts on management and leadership: Perspectives of management and employees. *International Journal of Production Economics,* 110**,** 39-51.

UYGUN, Ö. & DEDE, A. 2016. Performance evaluation of green supply chain management using integrated fuzzy multi-criteria decision making techniques. *Computers & Industrial Engineering,* 102**,** 502-511.

UYSAL, F. 2012. An Integrated Model for Sustainable Performance Measurement in Supply Chain. *Procedia - Social and Behavioral Sciences,* 62**,** 689-694.

VALAJOOZI, M. R. & ZANGI, N. O. 2016. A review on visual criteria of pure milk packaging for parents and their children (case study: Tehran, Iran). *British Food Journal,* 118**,** 83-99.

VARGO, S. L. 2007. On A Theory of Markets and Marketing: From Positively Normative to Normatively Positive. *Australasian Marketing Journal,* 15**,** 53-60.

VARGO, S. L. 2009. Toward a transcending conceptualization of relationship: a service-dominant logic perspective. *Journal of Business & Industrial Marketing,* 24**,** 373-379.

VARGO, S. L. 2010. Practices, systems, and meaning-making: An introduction to the special section on markets and marketing. *Australasian Marketing Journal,* 18**,** 233-235.

VARGO, S. L. & LUSCH, R. F. 2004. Evolving to a New Dominant Logic for Marketing. *Journal of Marketing,* 68**,** 1–17.

VARGO, S. L. & LUSCH, R. F. 2008a. From goods to service(s): Divergences and convergences of logics. *Industrial Marketing Management,* 37**,** 254-259.

VARGO, S. L. & LUSCH, R. F. 2008b. Service-dominant logic: Continuing the evolution. *Journal of the Academy of Marketing Science,* 36**,** 1-10.

VARGO, S. L. & LUSCH, R. F. 2015. Institutions and axioms: an extension and update of service-dominant logic. *The Journal of the Academy of Marketing Science*.

VELICER, W. F. & FAVA, J. L. 1998. Effects of variable and subject sampling on factor pattern recovery. *Psychological Methods,* 3**,** 231-251.

VELVIN, J., BJøRNSTAD, K. & KROGH, E. 2016. Social value change, embeddedness and social entrepreneurship. *Journal of Enterprising Communities: People and Places in the Global Economy,* 10**,** 262-280.

VICENTE-MOLINA, M. A., FERN??NDEZ-SAINZ, A. & IZAGIRRE-OLAIZOLA, J. 2013. Environmental knowledge and other variables affecting pro-environmental behaviour: Comparison of university students from emerging and advanced countries. *Journal of Cleaner Production,* 61**,** 130-138.

VIJAYASARATHY, L. R. 2010. An investigation of moderators of the link between technology use in the supply chain and supply chain performance. *Information & Management,* 47**,** 364-371.

VINOD, S. 2016. A Study on Customers Perception towards Green Marketing and Products with Special Reference to Thiruvananthapuram City. *International Journal of Recent Research in Commerce Economics and Management,* 3**,** 28-33.

WALKER, H., DI SISTO, L. & MCBAIN, D. 2008. Drivers and barriers to environmental supply chain management practices: Lessons from the public and private sectors. *Journal of Purchasing and Supply Management,* 14**,** 69-85.

WIBOWO, M. A. & SHOLEH, M. N. 2015. The analysis of supply chain performance measurement at construction project. *Procedia Engineering,* 125**,** 25-31.

WIENGARTEN, F., HUMPHREYS, P., GIMENEZ, C. & MCIVOR, R. 2016. Risk, risk management practices, and the success of supply chain integration. *International Journal of Production Economics,* 171**,** 361-370.

WIJESINHA-BETTONI, R. & BURLINGAME, B. 2013. *Milk and dairy product composition*, Food and Agriculture Organization of The United Nations.

WILLIS, G., GENCHEV, S. E. & CHEN, H. 2016. Supply chain learning , integration , and flexibility performance : an empirical study in India. *The International Journal of Logistics Management,* 27**,** 755 - 769.

WILSON, K., ROE, B. & WRIGHT, L. 1998. Telephone or face-to-face interviews?: a decision made on the basis of a pilot study. *International Journal of Nursing Studies,* 35**,** 314-321.

WIRTH, H., KULCZYCKA, J., HAUSNER, J. & KO??SKI, M. 2016. Corporate Social Responsibility: Communication about social and environmental disclosure by large and small copper mining companies. *Resources Policy,* 49**,** 53-60.

WONG, C. W. Y., LAI, K. H. & BERNROIDER, E. W. N. 2015. The performance of contingencies of supply chain information integration: The roles of product and market complexity. *International Journal of Production Economics,* 165**,** 1-11.

WONGA, C. Y. & BOON-ITT, S. 2008. The influence of institutional norms and environmental uncertainty on supply chain integration in the Thai automotive industry. *International Journal of Production Economics,* 115**,** 400–410.

WOOLLISCROFT, P., CAGANOVA, D., CAMBAL, M., HOLECEK, J. & PUCIKOVA, L. 2013. Implications for optimisation of the automotive supply chain through knowledge management. *Procedia CIRP,* 7**,** 211-216.

WU, I. L., CHUANG, C. H. & HSU, C. H. 2014. Information sharing and collaborative behaviors in enabling supply chain performance: A social exchange perspective. *International Journal of Production Economics,* 148**,** 122-132.

XU, J., LI, B. & WU, D. 2009. Rough data envelopment analysis and its application to supply chain performance evaluation. *International Journal of Production Economics,* 122**,** 628-638.

YANG, D., LU, Y., ZHU, W. & SU, C. 2015. Going green: How different advertising appeals impact green consumption behavior. *Journal of Business Research,* 68**,** 2663-2675.

YEUNG, J. H. Y., SELEN, W., ZHANG, M. & HUO, B. 2009. The effects of trust and coercive power on supplier integration. *International Journal of Production Economics,* 120**,** 66-78.

YOO, J., CHOI, S., CHOI, M. & RHO, J. 2014. Why people use Twitter: social conformity and social value perspectives. *Online Information Review,* 38**,** 265-283.

YU, M.-M., TING, S.-C. & CHEN, M.-C. 2010. Evaluating the cross-efficiency of information sharing in supply chains. *Expert Systems with Applications,* 37**,** 2891-2897.

YUSOFF, Y. B. M., ASHARI, H. B. & SALLEH, M. N. B. 2016. The Impact of Supply Chain Management as Mediator between Strategic Orientations and Supply Chain Performance. *International Journal of Supply Chain Management,* 5.

ZAILANI, S. & RAJAGOPAL, P. 2005. Supply chain integration and performance: US versus East Asian companies. *Supply Chain Management: An International Journal,* 10**,** 379 - 393.

ZAREIE, B. & NAVIMIPOUR, N. J. 2016. The impact of electronic environmental knowledge on the environmental behaviors of people. *Computers in Human Behavior,* 59**,** 1-8.

ZELBST, P. J., GREEN, K. W. J. & SOWER, V. E. 2009. Impact of supply chain linkages on supply chain performance. *Industrial Management & Data Systems,* 109**,** 665 - 682.

ZHANG, J. & CHEN, J. 2013. Coordination of information sharing in a supply chain. *International Journal of Production Economics,* 143**,** 178-187.

ZHANG, M., ZHAO, X., VOSS, C. & ZHU, G. 2016. Innovating through services, co-creation and supplier integration: Cases from China. *International Journal of Production Economics,* 171**,** 289-300.

ZHANG, X. & CHEN, R. 2008. Examining the mechanism of the value co-creation with customers. *International Journal of Production Economics,* 116**,** 242-250.

ZHOU, H., SHOU, Y., ZHAI, X., LI, L., WOOD, C. & WU, X. 2014. Supply chain practice and information quality: A supply chain strategy study. *International Journal of Production Economics,* 147**,** 624-633.

ZHU, Q., FENG, Y. & CHOI, S.-B. 2016. The role of customer relational governance in environmental and economic performance improvement through green supply chain management. *Journal of Cleaner Production***,** 1-8.

ZHU, Q. & SARKIS, J. 2016. Green marketing and consumerism as social change in china: Analyzing the literature. *International Journal of Production Economics*.

ZHU, Q., SARKIS, J. & LAI, K. 2008. Green supply chain management implications for "closing the loop". *Transportation Research. Part E, Logistics & Transportation Review,* 44**,** 1.

ZIN, N. M., SULAIMAN, S., RAMLI, A. & NAWAWI, A. 2013. Performance Measurement and Balanced Scorecard Implementation: Case evidence of a Government-linked Company. *Procedia Economics and Finance,* 7**,** 197-204.

ZSóKA, Á., MARJAINé SZERéNYI, Z., SZéCHY, A. & KOCSIS, T. 2013. Greening due to environmental education? Environmental knowledge, attitudes, consumer behavior and everyday pro-environmental activities of Hungarian high school and university students. *Journal of Cleaner Production,* 48**,** 128-138.

Appendix

Appendix A

Sub-study 2: Raw data

SEX	**性別** 単一回答	N	%
1	男性	309	50.0
2	女性	309	50.0
	全体	618	100.0

AGEID	**年齢** 単一回答	N	%
1	12 才未満	0	0.0
2	12 才～19 才	0	0.0
3	20 才～24 才	32	5.2
4	25 才～29 才	64	10.4
5	30 才～34 才	83	13.4
6	35 才～39 才	88	14.2
7	40 才～44 才	100	16.2
8	45 才～49 才	88	14.2
9	50 才～54 才	87	14.1
10	55 才～59 才	76	12.3
11	60 才以上	0	0.0
	全体	618	100.0

PREFECTURE	**都道府県** 単一回答	N	%
1	北海道	33	5.3
2	青森県	7	1.1
3	岩手県	2	0.3
4	宮城県	9	1.5
5	秋田県	8	1.3
6	山形県	2	0.3
7	福島県	9	1.5
8	茨城県	12	1.9
9	栃木県	9	1.5
10	群馬県	6	1.0
11	埼玉県	35	5.7
12	千葉県	31	5.0
13	東京都	78	12.6
14	神奈川県	53	8.6
15	新潟県	9	1.5
16	富山県	1	0.2
17	石川県	4	0.6
18	福井県	3	0.5
19	山梨県	3	0.5
20	長野県	6	1.0
21	岐阜県	9	1.5
22	静岡県	19	3.1
23	愛知県	40	6.5
24	三重県	6	1.0
25	滋賀県	8	1.3
26	京都府	16	2.6
27	大阪府	49	7.9
28	兵庫県	47	7.6
29	奈良県	7	1.1

PREFECTURE	**都道府県** 単一回答	N	%
30	和歌山県	2	0.3
31	鳥取県	0	0.0
32	島根県	4	0.6
33	岡山県	5	0.8
34	広島県	14	2.3
35	山口県	8	1.3
36	徳島県	5	0.8
37	香川県	4	0.6
38	愛媛県	5	0.8
39	高知県	3	0.5
40	福岡県	14	2.3
41	佐賀県	2	0.3
42	長崎県	10	1.6
43	熊本県	6	1.0
44	大分県	4	0.6
45	宮崎県	5	0.8
46	鹿児島県	6	1.0
47	沖縄県	0	0.0
	全体	618	100.0

AREA	**地域** 単一回答	N	%
1	北海道	33	5.3
2	東北地方	37	6.0
3	関東地方	224	36.2
4	中部地方	100	16.2
5	近畿地方	129	20.9
6	中国地方	31	5.0
7	四国地方	17	2.8
8	九州地方	47	7.6
	全体	618	100.0

MARRIED	**未既婚** 単一回答	N	%
1	未婚	233	37.7
2	既婚	385	62.3
	全体	618	100.0

CHILD	**子供の有無** 単一回答	N	%
1	子供なし	270	43.7
2	子供あり	348	56.3
	全体	618	100.0

HINCOME	**世帯年収** 単一回答	N	%
1	200 万未満	43	7.0
2	200～400 万未満	96	15.5
3	400～600 万未満	120	19.4
4	600～800 万未満	95	15.4
5	800～1000 万未満	65	10.5
6	1000～1200 万未満	26	4.2
7	1200～1500 万未満	12	1.9
8	1500～2000 万未満	6	1.0
9	2000 万円以上	5	0.8
10	わからない	54	8.7
	無回答	96	15.5
	全体	618	100.0

PINCOME	**個人年収** 単一回答	N	%
1	200 万未満	206	33.3
2	200～400 万未満	124	20.1
3	400～600 万未満	70	11.3
4	600～800 万未満	48	7.8
5	800～1000 万未満	30	4.9
6	1000～1200 万未満	5	0.8
7	1200～1500 万未満	5	0.8
8	1500～2000 万未満	1	0.2
9	2000 万円以上	4	0.6
10	わからない	31	5.0
	無回答	94	15.2
	全体	618	100.0

JOB	**職業** 単一回答	N	%
1	公務員	21	3.4
2	経営者・役員	13	2.1
3	会社員(事務系)	94	15.2
4	会社員(技術系)	86	13.9
5	会社員(その他)	91	14.7
6	自営業	28	4.5
7	自由業	15	2.4
8	専業主婦(主夫)	113	18.3
9	パート・アルバイト	82	13.3
10	学生	21	3.4
11	その他	32	5.2
12	無職	22	3.6
	全体	618	100.0

Sub-study 2: Questionnaire

Q1 地球温暖化の主な原因は何ですか？※分からない方も以下の中から当てはまると思うものをお選びください。

1. 極地の海氷が溶けたこと
2. 気候変動が起きたこと
3. 地球上に二酸化炭素が増えたこと
4. 上記のすべて
5. 上記のどれでもない

Q2 次のうち、どの国が現在最もエネルギーを消費している国だと思いますか？次のうちから１つ選んでお答えください。

1. インド
2. 中国
3. ロシア
4. アメリカ
5. メキシコ
6. わからない

Q3 グリーン消費と聞いて何を思い浮かべますか？

1. リサイクル可能な製品を購入すること
2. 輸送コストをかけずに調達された製品を購入すること
3. 低い環境負荷で作られた製品を使用すること
4. 使い終わった製品を分別して廃棄すること
5. その他【　　】[　　]

Q4 環境に優しい製品と聞いて何を浮かべますか？

1. 低コストで作られた製品
2. 環境保全に貢献する製品
3. 品質の高い製品
4. リサイクル可能な製品
5. 上記のすべて
6. その他【　　】[　　]

Q5 ３つのパッケージの説明案について、以下の項目に関するあなたの考えに最もふさわしい選択肢を、それぞれ一つずつ選んで回答してください。

1 グリーンプロセス, 2 グリーン製品 3 グリーンリレーションシップ, 4 判断できない

1. どれが「緑の牛乳が良い品質である」と感じますか？
2. どれが「社会への高い責任がある」と感じますか？

3. どれが、好感が持てますか？
4. どれが「子供や次世代のために良い消費ができる」と感じますか？

Q6 「緑の牛乳」は環境に配慮した製品のため、通常の牛乳と比較して価格が高いという特徴があります。例えば一般的な牛乳が、スーパーで「200 円」で販売されていた場合、あなたは緑の牛乳がいくらであれば購入を検討しますか？※税込み価格としてお答えください。

1. 5%アップの 210 円
2. 10%アップの 220 円
3. 15%アップの 230 円
4. 20%アップの 240 円
5. 25%アップの 250 円
6. それ以上でも検討する
7. 購入を検討しない

List of Contribution

International journal

Nitipon Tansakul, Suthathip Suanmali, and Kunio Shirahada. "Conceptualizing a Transformative Supply Chain for Ecosystem Well-being", The Service Industries Journal (in press)

Nitipon Tansakul, Suthathip Suanmali, and Kunio Shirahada. "The Impact of Product Labels on Green Preferences and Perceptions of Customers: An Empirical Study of Milk Products in Japan", International Journal of Sustainable Society, Vol.10, No.2, 2018

Nitipon Tansakul, Suthathip Suanmali, Chayakrit Charoensiriwath, and Kunio Shirahada (2018). "Critical Factors for Constructing an Effective Supply Chain Network", International Journal of Supply Chain Management, Vol.7, No.5, 2018

International conferences

Nitipon Tansakul, Suthathip Suanmali, and Kunio Shirahada (2018). "The Impact of Supply Chain Integration on Market Flexibility for Electric Vehicle Development in Thailand: A Structural Equation Model", GMC 2018, Tokyo, Japan, July 26-29, 2018

Nitipon Tansakul, Suthathip Suanmali, and Kunio Shirahada (2018). "Supply Chain Management as A Transformative Service", SERVSIG 2018, Paris, France, June 14-16, 2018

Nitipon Tansakul and Kunio Shirahada (2016). "Analysis of Thailand's industrial competitiveness in ASEAN Economic Community Era: The case of automotive industry", PICMET'16, Hawaii, USA, September 4 – 8, 2016

Poster presentation

Nitipon Tansakul, Suthathip Suanmali, and Kunio Shirahada (2018). "Conceptualizing A Transformative Supply Chain for Ecosystem Well-Being", JWC 2018, Ishikawa, Japan, February 27-28, 2018