

# A Novel Investigation about the Effect of Strategic Purchasing on Supply Chain: A New Analytical, Descriptive and Comparative Study

Adel Ghasemi\*

Department of Management, Islamic Azad University, Naragh Branch, Naragh, Markazi Province, Iran

**Abstract**— Strategic management and supply chain management (SCM) have numerous common interests but there is a weak relationship between them yet. We examine some regions of these common interests and suggest that how the cases in each cost can complete and confirm each other. Specifically, a number of theories of strategic management and emphasis on explaining the profits of company can be useful for SCM. New levels of analysis represented by SCM which in fact are new types of organization in strategic management. In general, we discuss about how increase in interaction between these important fields can improve knowledge development in both fields and hence, can improve the ability of organization to achieve its objectives.

**Index Terms**— Strategic Purchasing, Supply Chain Management (SCM), Business Management, Strategic Management, Marketing, Operation Management, Management Sciences, Purchasing, Logistic

## 1 INTRODUCTION

Supply chain management is investigated regarding the concepts obtained from various fields such as marketing, operation management, management sciences, purchasing, logistic, etc [1-18]. This multi disciplinary viewpoint, which is appropriate and necessary, shows us that supply chain involves various functional fields of an organization [19, 20].

In spite of considering this characteristic, SCM is widely ignored by strategic management field [21, 23, 26, 28, and 29]. It may be due to the multi disciplinary nature of strategic management and considering various fields by it. Strategic management is of heavy duties in marketing, behavioral sciences, economy and other disciplines. In addition, researchers of strategic management are proud to themselves as they consider a wide range of viewpoints [21-31]. Further, a perfect researcher explains a specific field as "a set of fields" in which, all fields are contributed in the process of knowledge development [32-35]. Regarding this characteristic and the reputation of SCM, at the other hand, it is clear that it should be noted that how SCM and strategic management can accord to each other for profitability in both fields [36-39].

In this regard, the general aim of the current study is identifying the reasonable common fields between strategic management and SCM [40]. While other papers in this field are investigated the reasonable important achievements of other fields in SCM, lack of attention to chains by strategic manage-

ment encourage us to have a common look to both fields [41-63]. Our goals are including: (1) What is SCM? (2) What is strategic management? (3) How strategic management can help to SCM? (4) How SCM can help to strategic management? When we sufficiently consider these questions, we will focus on ideas that may be flowed from one field to another one.

## 2 FOUR KEY QUESTIONS

Traditionally, organizations created some products and services through markets and or their hierarchies. The selection between them was frequently based on the type of decision-making. Many works in this field are looking for to determine when an organization shall make necessary decision for purchasing and or producing a product. For example, creating a product through (hierarchy) increases the ability for predicting but may be needed to high investment and hence, decreases the flexibility. Purchasing from market leads to flexibility and reduces investment but reduces the ability for predicting, too [64-77].

In fact, supply chain is something between hierarchy and market. Supply chain is a network of operators which begins from raw materials and ends to distributing the product. Some necessary operations may be performed in the company while it faces with some limitations to conduct the remaining ones. Ideally, supply chain has advantages of both market and hierarchy and at the same time, avoids the risks of both. For instance, long term relationships with supplier may be developed and help to stability of this relationship. Hence, ability for predicting is an important and favorite factor but not in the cost of losing flexibility which reduces the ability for reacting against variations of customer [78-84].

Supply chains are as old as business. However, the principles of modern chain were established 80 years ago. Supply chain of Henry Ford was including integrated vertical groups among all suppliers which provided raw materials for mon-

\*Adel Ghasemi, Corresponding Author, M.A. in Business Management, Department of Management, Islamic Azad University, Naragh Branch, Naragh, Markazi Province, Iran.

tage sections. In 1950, grocery industry tried to replace, daily, perishable goods such as vegetables and products to cook. By understanding this issue, Toyota Motors designed its well-known Kanban system in 1970 which aimed to reduce wastes and transportation costs of stock. The main factor of wastes was in processes. Regarding the cost advantages of Kanban system, it was performed in US. Companies accepted the principles of JIT and became compatible with it. The characteristic of JIT was repeated transportation of raw materials with good quality from neighboring companies. Success of JIT encouraged companies such as Wal-Mart to develop system abilities in sale so that provide some operations with detailed data and ordered cases. This perspective of SCM led to more and more customer-oriented companies and hence, more profits encouraged managers to develop the activities of supply chain. For example, UPS has been invested about 9 billion dollars in this issue since 1986. Supply chain management is still complex. Loyalty of members to the organization and or other members may be false. Such challenges may be led to failure of outputs. In this regard, the understanding about effective and ineffective chains may be the most important issue for focus by SCM. In addition, effective coordination may be related with key objectives about strategic management [85-90].

### 3 WHAT IS STRATEGIC MANAGEMENT?

Strategic management may be identified by other organizational sciences with emphasize on identification, definition and prediction of organizational operation determinatives. The main research questions in this field are that: "why some companies are of lower performance than other." In spite of various efforts for explaining the obtained organizational output in each discipline, strategic management researches have been shown that phenomena, which are originated from various levels of analysis, are of critical role in determining the organizational efficiency. While psychological researches are emphasized on the role of organizational and individual theories on considering the environment, strategic researches consider personal, organizational, environmental and other factors to understand why outputs of some companies are different with other. In addition, evolution of strategic fields may be conducted regarding various levels of analysis. The Chandler's book is widely recognized as the first example of strategic management researches and may be well-known since it explains the importance of problems in the level of company (such as strategy and structure for achieving success). Further, various types of organizations with different conditions and characteristics are considered in economic theory (Organic structure appropriate for active environments and mechanical structure appropriate for stable environments). However, they cannot describe the level of appropriateness. In response to this problem, child introduced the theory of strategic selection which emphasizes on decision making of people about the response to external conditions as the main determinative of performance.

Miles and Snow emphasized on the position levels of analysis. A position is related to companies which share, conceptually, a common profile for limited variables. Miles and Snow express four positions (defenders, futurists, analysts and re-

spondents) whose members share the structural and process strategic characteristics. For example, defender organizations are tend to have a limited product lines, structures and decision-makings become concentrated and have a complete technology for product.

Porter, as an economist, emphasized on general levels of analysis as a factor that can form the performance of the company. For instance, he considered the situations of private companies in the industries and their situations among a group of companies with similar strategy. To maximize the appropriate performance, company must employ a professional strategic group in a profitable industry. At the middle of 80s, a group of people were introduced in companies as high levels of analysis. The most important group was top management team (TMT) consisting of managing director and other top-level managers who are responsible for strategic decision-making. According to the theory of Hamberk and Mason as "top-level perspectives", the behavior of TMT could be predicted by investigating the working background and experiences of team members. This conceptual work formed a set of studies which aimed to relate characteristics of TMT with activities, processes and outputs of organization. Between 60s and 80s, these main levels introduced and became interested for researchers. In contrast, the theories in this field highly increased (in 90s and 2000). Economic theory and the theory of strategic selection represented the general conceptual perspectives in 80s. Resource, knowledge, representative theory, organizational (institutional) theory-based viewpoints were followed this trend. Against this trend, some researchers believed that this field may be ignored the important improvements and developments in business world. Another issue which should be considered is lack of attention to SCM and levels of supply chain in analysis.

### 4 HOW STRATEGIC MANAGEMENT CAN HELP TO SCM?

Applying various theories in a phenomenon is frequently led to better understanding than applying one theory. Regarding this issue, we believe that there are some guiding theories for strategic management which can affect SCM. In particular, applying these theories may be helped to solve the future problems of SCM and also, introduce a new field of studies.

Resource-based viewpoint (RBV) in one of these theories. This viewpoint focuses on properties of company. The most important properties are strategic resources. These resources make competitive advantages compared to other competitors and are hardly purchasable and or creatable. For example, copyright, fame, positive organizational culture may be accounted as strategic resources for some organizations. In contrast, many organizations have non-strategic properties and hence, they did not a special competitive ability for the organization.

SCM studies are frequently emphasized on material flow. However, considering RBV encourages deep looking at chains. In particular, this question is raised that if measures and or specific characteristics of supply chain are really rare, valuable and hardly accessible?

If it is, these individual elements may be made competitive

advantages for some chains. There is a study about this issue. Haltcheken and Nicole found that "cultural competitiveness" of supply chain (a level that assigned to members of supply chain about filling the gaps between customers and what they want) is related to ordered performance of time cycle. As culture is not sensible, advantage of culture should be evaluated indirectly using hidden variables which are presented in modeling the structural equations. The relationship between cultural competitiveness and time cycle leads to pay attention to the value of RVB in the concept of supply chain. Hence, although properties are less sensible in supply chain, it can understand that what would be their importance.

Some experts suggest a theory about focusing on a very important resource than considering various resources and this is knowledge. In particular, the effect of active environment and fast changes in information technology during 90s led to this conclusion that knowledge is the only resource for achieving competitive advantages. For this reason, they provided a framework in which, knowledge-based viewpoint (KBV) is the reasonable source of RBV.

It seems that KBV has vital applications for supply chain management, particularly, in the field of coordination. Traditional organizations were highly emphasized on hierarchy to make coordination. Supply chains have an adhocracy structure which has not a formal hierarchy structure. In addition, they should change based on the available knowledge to facilitate their operations. Therefore, KBV suggest that chains must develop so that such changes skilfully conducted. There are many supply chains that have not formal mechanisms of knowledge saving which is a vital issue in organization. One of the possible alternatives is that the initial supply chain culture affects cultural competitiveness. If it happens, KBV and RBV may be very close to each other and even, it will not possible to separate them in the concepts of supply chain.

Then, we consider representative theory. A relationship of this type is so that one side (usually manager) delegate to other side (representative). As these two sides are usually of different goals, representatives try to achieve their goals, considering the objectives of main institute. Consequently, manager must consider the behaviors of his representative and strong incentives to get assure that the performance of representative is towards the best profitability for manager.

The effects of SCM are frequently assumes that "sea tide fluctuate all boats". When a chain performs well, all members also perform well. However, more possibilities should be considered in representative theory. The relations make member supply chains more vulnerable because of more opportunism. A member of chain may be achieved to some profits due to the advantage of his partner. Investigations have been shown that such misuses are increasing and the best way to avoid it is that members have familiar with their roles so that the performance efficiency of a supply chain can be understood by them. Organizational (institutional) theory emphasizes on the role of specific external trends in formation of organizational options. It suggests that some companies may be emphasized on specific measures of supply chain since they observe that other companies also doing the same. in particular, the concept of imitative correspondence is focused on a process through it, the successfulness of organizations achieved through guidance

of managers about the proportionality of possible activities. For example, some companies may be focused on their relatively successful competitors who are emphasized on JIT and do this action in their organizations. Decision making based on imitative pressures may be conceptually reasonable when the selected action can accord with the conditions of stockholders and the necessary specific measures for organization. However, this reasonability may have not appropriate for supply chain since people may have not familiar with measures of supply chain at all. Therefore, although companies adjust the measures of supply chain in response to such imitative actions and try to improve the measures of chain, this would be harmful for them.

Regarding all above mentioned theories, it is the right time to know how strategic management can understand the reason of inability of some companies in implementation of SCM. Operation evaluations such as assessments of agility, quality, cost and flexibility are frequently the dependent variables of selecting in investigations of supply chain. Experts are often argued that SCM is like a metric scale but for these relations, claims are more important than data illustration. Therefore, there is necessary to perform wide studies to understand what and how option can develop supply chain activities, directly and indirectly, so that company will achieve to its considered profit and cost. Without considering these effects, SCM may be seen operationally better than strategic issues. However, we are not sure about this claim that investigations can identify the relations of SCM and outputs in the level of organization.

## 5 HOW SCM CAN HELP TO STRATEGIC MANAGEMENT?

As previously mentioned, strategic management is individual since it emphasizes on how multistage levels of analysis are of role in explaining operational outputs. A method to see the development of strategic management is providing new levels for analysis. After 90s and determining top management team, new level of analysis has not been introduced yet. We believe that supply chain can represent an important level to strategic management for investigation out of organization.

Strategic management researchers are interested to obtain strategic applications of supply chain based on the past trend. The works about TMT are less considered the activity of group which is more investigated in psychology and organization behavior. This may be a method for better understanding TMTs. Marketing and production management, management sciences, purchasing and logistics researchers have been some knowledge about the activities of supply chains. Most of these knowledge can be used for this problem. Strategic researchers should be informed to found a knowledge that can be used to achieve their objectives.

Another possibility is that supply chain does not consider as a level of analysis but consider as an organization. From Lewit's viewpoint, organization has four constitutive elements: partners, social culture, objectives and technology. Partners are who have some share through what they offer to organization. Specifically, supply chains have various partners who are want to have some share in this profit. Here, the most complicated concept is social culture, a model of relationship



between organization's partners. In supply chains, a social structure is such as communication between user, organizational buyer and external supplier which share their information to more coordination between activities.

However, this social structure cannot develop in organizations with traditional structures as members in a supply chain should be loyal to other partners. At the same time, resources and activities which are related with each other provide a strong social structure for the members of supply chain.

Similar to an organization, partners of supply chain are try back to back to achieve their objectives. Independent existences in a supply chain have specific roles to perform some activities and measures so that lead to achieving the goals. Each role of partners in supply chain is dependent to its belief about better achieving to objectives by teamwork in supply chain. Similar to human resource in traditional organizations, each member of supply chain is generally expertise in a specific activity which has the highest competitive advantage compared to other. Therefore, a supply chain is identified by the number of independent organizations which make the whole of chain and themselves through their skill in their field of activity.

Finally, according to Lewit's framework, technology is a process through it organization can conduct successfully its key duties. Since supply chains are produced and distributed for specific objectives to facilitate, they are very duty-oriented. Therefore, technology, as defined by Lewit, is a vital factor for supply chain. It seems that four characteristics of organization (partners, social structure, objectives and technology) are overlapped each other. Therefore, it is reasonable to consider a supply chain as an organization. In practice, strategic supply chains (chains that members are strategically, operationally and technologically integrated and linked to each other) may be followed the Lewit's criteria. This possibility can be explained by: "what may be important in the structure for a new organization?" a structure which forms regarding the borders, depth and proximity of interactions between partners. In this regard, we represent the following definition for supply chain: A supply chain organization has internal coordinated relations which utilizes from the resources of partners so that all members achieve to their common related objectives.

We hope that the future studies conclude that when these supply chain organizations grow up, the possible results of their performances on improvement and development of their results.

## 6 CONCLUSION

The common point of strategic management and supply chain is of some applications for managers. Competition of supply chains against each other is a new thinking method which is very necessary in today world. This is currently youth. In some chains, representatives of suppliers are gathered in a place and help each other for planning and timing of products regarding the performance of customer. It may be needed to consider a supply chain as an organization.

We believe that structuring based on main theories such as RBV and KBV can lead to competition between chains. This advantage can create a type of information and or other re-

sources such as culture. Recently, some precursor organizations have been achieved to competitive advantages regarding the members of their supply chain. They also use from technologies such as regarding the purchasing systems, electronic ordering and banking control systems to achieve competitive advantage. However, as we know, they are not willing to have another jump and use from supply chain only as a tool through it, develop the usual inter-organization strategies. Such approaches have not successful in long term. Organization may not be adjusted to successful behaviors and it may be harmful for organization. In this regard, organizational (institutional) theory based ideas are an important alarm for high management potentials.

The aim of the current paper was improving the interaction between strategic management and SCM. It is clear that these two fields are of many common points to share with each other. In addition, we are not sure about the performance of SCM in improving the outputs and improving the performance of company. Hence, academic researchers must be highly interacted with each other in these fields to show that how measures of supply chain can affect the results of company. This opportunity leads to more cooperation and coordination in these fields. Today, activities about the common points between strategic management and SCM need to more attention and support. We hope that more papers will publish about these common points in the current decade.

## REFERENCES

- [1] Nick Wildgoose, 6 - Supply Chain Risk Management, In Enterprise Risk Management, edited by Philip E.J. Green, Butterworth-Heinemann, Boston, 2016, Pages 75-87.
- [2] Thomas B. Long, William Young, An exploration of intervention options to enhance the management of supply chain greenhouse gas emissions in the UK, Journal of Cleaner Production, Volume 112, Part 3, 20 January 2016, Pages 1834-1848.
- [3] Danping Wang, Gang Du, Roger J. Jiao, Ray Wu, Jianping Yu, Dong Yang, A Stackelberg game theoretic model for optimizing product family architecting with supply chain consideration, International Journal of Production Economics, Volume 172, February 2016, Pages 1-18.
- [4] Qiao Zhang, Wansheng Tang, Jianxiang Zhang, Green supply chain performance with cost learning and operational inefficiency effects, Journal of Cleaner Production, Volume 112, Part 4, 20 January 2016, Pages 3267-3284.
- [5] Faisal Aqlan, A software application for rapid risk assessment in integrated supply chains, Expert Systems with Applications, Volume 43, January 2016, Pages 109-116.
- [6] Frank Wiengarten, Paul Humphreys, Cristina Gimenez, Ronan McIvor, Risk, risk management practices, and the success of supply chain integration, International Journal of Production Economics, Volume 171, Part 3, January 2016, Pages 361-370.
- [7] Bo Li, Mengyan Zhu, Yushan Jiang, Zhenhong Li, Pricing policies of a competitive dual-channel green supply chain, Journal of Cleaner Production, Volume 112, Part 3, 20 January 2016, Pages 2029-2042.
- [8] Matloub Hussain, Mehmood Khan, Raid Al-Aomar, A framework for supply chain sustainability in service industry with Confirmatory Factor Analysis, Renewable and Sustainable Energy Reviews, Volume 55, March 2016, Pages 1301-1312.
- [9] Stephan Sluis, Pietro De Giovanni, The selection of contracts in supply chains: An empirical analysis, Journal of Operations Management, Volume 41, January 2016, Pages 1-11.

- [10] Han Wang, Richard Mastragostino, Christopher L.E. Swartz, Flexibility analysis of process supply chain networks, *Computers & Chemical Engineering*, Volume 84, 4 January 2016, Pages 409-421.
- [11] Nicoletta Paolucci, Fabrizio Bezzo, Alessandro Tugnoli, A two-tier approach to the optimization of a biomass supply chain for pyrolysis processes, *Biomass and Bioenergy*, Volume 84, January 2016, Pages 87-97.
- [12] Francesco Costantino, Giulio Di Gravio, Ahmed Shaban, Massimo Tronci, Smoothing inventory decision rules in seasonal supply chains, *Expert Systems with Applications*, Volume 44, February 2016, Pages 304-319.
- [13] Meng Sha, Rajagopalan Srinivasan, Fleet sizing in chemical supply chains using agent-based simulation, *Computers & Chemical Engineering*, Volume 84, 4 January 2016, Pages 180-198.
- [14] Kannan Govindan, Stefan Seuring, Qinghua Zhu, Susana Garrido Azevedo, Accelerating the transition towards sustainability dynamics into supply chain relationship management and governance structures, *Journal of Cleaner Production*, Volume 112, Part 3, 20 January 2016, Pages 1813-1823.
- [15] Ma Zu-Jun, Nian Zhang, Ying Dai, Shu Hu, Managing channel profits of different cooperative models in closed-loop supply chains, *Omega*, Volume 59, Part B, March 2016, Pages 251-262.
- [16] Nitaigour Mahalik and Kiseon Kim, 2 - The Role of Information Technology Developments in Food Supply Chain Integration and Monitoring, In *Woodhead Publishing Series in Food Science, Technology and Nutrition*, edited by C.E. Leadley, Woodhead Publishing, 2016, Pages 21-37.
- [17] Anil Singh, James T.C. Teng, Enhancing supply chain outcomes through Information Technology and Trust, *Computers in Human Behavior*, Volume 54, January 2016, Pages 290-300.
- [18] Chong Wu, David Barnes, An integrated model for green partner selection and supply chain construction, *Journal of Cleaner Production*, Volume 112, Part 3, 20 January 2016, Pages 2114-2132.
- [19] Wenchong Chen, Jing Li, Xiaojie Jin, The replenishment policy of agri-products with stochastic demand in integrated agricultural supply chains, *Expert Systems with Applications*, Volume 48, 15 April 2016, Pages 55-66.
- [20] Xavier Brusset, Does supply chain visibility enhance agility?, *International Journal of Production Economics*, Volume 171, Part 1, January 2016, Pages 46-59.
- [21] Rosa Caiazza, Tiziana Volpe, John L. Stanton, Global supply chain: The consolidators' role, *Operations Research Perspectives*, Volume 3, 2016, Pages 1-4.
- [22] Fu Jia, Xiaofeng Wang, Navonil Mustafee, Liang Hao, Investigating the feasibility of supply chain-centric business models in 3D chocolate printing: A simulation study, *Technological Forecasting and Social Change*, Volume 102, January 2016, Pages 202-213.
- [23] Sónia R. Cardoso, Ana Paula Barbosa-Póvoa, Susana Relvas, Integrating financial risk measures into the design and planning of closed-loop supply chains, *Computers & Chemical Engineering*, Volume 85, 2 February 2016, Pages 105-123.
- [24] Mihalis Giannakis, Thanos Papadopoulos, Supply chain sustainability: A risk management approach, *International Journal of Production Economics*, Volume 171, Part 4, January 2016, Pages 455-470.
- [25] Marco Formentini, Paolo Taticchi, Corporate sustainability approaches and governance mechanisms in sustainable supply chain management, *Journal of Cleaner Production*, Volume 112, Part 3, 20 January 2016, Pages 1920-1933.
- [26] Liang Tang, Ke Jing, Jie He, H. Eugene Stanley, Complex interdependent supply chain networks: Cascading failure and robustness, *Physica A: Statistical Mechanics and its Applications*, Volume 443, 1 February 2016, Pages 58-69.
- [27] Chun Hsion Lim, Hon Loong Lam, Biomass supply chain optimisation via novel Biomass Element Life Cycle Analysis (BELCA), *Applied Energy*, Volume 161, 1 January 2016, Pages 733-745.
- [28] Martin Tidy, Xiaojun Wang, Mark Hall, The role of Supplier Relationship Management in reducing Greenhouse Gas emissions from food supply chains: supplier engagement in the UK supermarket sector, *Journal of Cleaner Production*, Volume 112, Part 4, 20 January 2016, Pages 3294-3305.
- [29] Fouad El Ouardighi, Jeong Eun Sim, Bowon Kim, Pollution accumulation and abatement policy in a supply chain, *European Journal of Operational Research*, Volume 248, Issue 3, 1 February 2016, Pages 982-996.
- [30] Jun-Yeon Lee, Richard K. Cho, Seung-Kuk Paik, Supply chain coordination in vendor-managed inventory systems with stockout-cost sharing under limited storage capacity, *European Journal of Operational Research*, Volume 248, Issue 1, 1 January 2016, Pages 95-106.
- [31] Onur Kaya, Busra Urek, A mixed integer nonlinear programming model and heuristic solutions for location, inventory and pricing decisions in a closed loop supply chain, *Computers & Operations Research*, Volume 65, January 2016, Pages 93-103.
- [32] Semih Coskun, Leyla Ozgur, Olcay Polat, Askiner Gungor, A model proposal for green supply chain network design based on consumer segmentation, *Journal of Cleaner Production*, Volume 110, 1 January 2016, Pages 149-157.
- [33] Marcel Bogers, Ronen Hadar, Arne Billberg, Additive manufacturing for consumer-centric business models: Implications for supply chains in consumer goods manufacturing, *Technological Forecasting and Social Change*, Volume 102, January 2016, Pages 225-239.
- [34] Jianghua Wu, Ananth Iyer, Paul V. Preckel, Information visibility and its impact in a supply chain, *Operations Research Letters*, Volume 44, Issue 1, January 2016, Pages 74-79.
- [35] Felix T.S. Chan, Aditya Jha, Manoj K. Tiwari, Bi-objective optimization of three echelon supply chain involving truck selection and loading using NSGA-II with heuristics algorithm, *Applied Soft Computing*, Volume 38, January 2016, Pages 978-987.
- [36] Charbel José Chiappetta Jabbour, Ana Beatriz Lopes de Sousa Jabbour, Green Human Resource Management and Green Supply Chain Management: linking two emerging agendas, *Journal of Cleaner Production*, Volume 112, Part 3, 20 January 2016, Pages 1824-1833.
- [37] Riccardo Accorsi, Susan Cholette, Riccardo Manzini, Chiara Pini, Stefano Penazzi, The land-network problem: ecosystem carbon balance in planning sustainable agro-food supply chains, *Journal of Cleaner Production*, Volume 112, Part 1, 20 January 2016, Pages 158-171.
- [38] C.C. Craig, M.D. Buser, R.S. Frazier, S.S. Hızıroglu, R.B. Holcomb, R.L. Huhnke, Conceptual design of a biofeedstock supply chain model for eastern redcedar, *Computers and Electronics in Agriculture*, Volume 121, February 2016, Pages 12-24.
- [39] Felicity C. Denham, Wahidul K. Biswas, Vicky A. Solah, Janet R. Howieson, Greenhouse gas emissions from a Western Australian finfish supply chain, *Journal of Cleaner Production*, Volume 112, Part 3, 20 January 2016, Pages 2079-2087.
- [40] Birome Holo Ba, Christian Prins, Caroline Prod'homme, Models for optimization and performance evaluation of biomass supply chains: An Operations Research perspective, *Renewable Energy*, Volume 87, Part 2, March 2016, Pages 977-989.
- [41] Sushil R. Poudel, Mohammad Marufuzzaman, Linkan Bian, Designing a reliable bio-fuel supply chain network considering link failure probabilities, *Computers & Industrial Engineering*, Volume 91, January 2016, Pages 85-99.
- [42] Cristina Sancha, Cristina Gimenez, Vicenta Sierra, Achieving a socially responsible supply chain through assessment and collaboration, *Journal of Cleaner Production*, Volume 112, Part 3, 20 January 2016, Pages 1934-1947.
- [43] Carlos Miret, Philippe Chazara, Ludovic Montastruc, Stéphane Negny, Serge Domenech, Design of bioethanol green supply chain: Comparison between first and second generation biomass concerning economic, environmental and social criteria, *Computers & Chemical Engineering*, Volume 85, 2 February 2016, Pages 16-35.
- [44] Sini Laari, Juuso Töyli, Tomi Solakivi, Lauri Ojala, Firm performance and customer-driven green supply chain management, *Journal of Cleaner Production*, Volume 112, Part 3, 20 January 2016, Pages 1960-1970.
- [45] Miriam M. Wilhelm, Constantin Blome, Vikram Bhakoo, Antony Paulraj, Sustainability in multi-tier supply chains: Understanding the double agency role of the first-tier supplier, *Journal of Operations Management*, Volume 41, January 2016,

Pages 42-60.

- [46] Yuan-Hsu Lin, Ming-Lang Tseng, Assessing the competitive priorities within sustainable supply chain management under uncertainty, *Journal of Cleaner Production*, Volume 112, Part 3, 20 January 2016, Pages 2133-2144.
- [47] Sherif A. Masoud, Scott J. Mason, Integrated cost optimization in a two-stage, automotive supply chain, *Computers & Operations Research*, Volume 67, March 2016, Pages 1-11.
- [48] Mehmet Sekip Altug, Supply chain contracting for vertically differentiated products, *International Journal of Production Economics*, Volume 171, Part 1, January 2016, Pages 34-45.
- [49] Nelson Chibeles-Martins, Tânia Pinto-Varela, Ana P. Barbosa-Póvoa, Augusto Q. Novais, A multi-objective meta-heuristic approach for the design and planning of green supply chains - MBSA, *Expert Systems with Applications*, Volume 47, 1 April 2016, Pages 71-84.
- [50] Hongyan Dai, Jianbin Li, Nina Yan, Weihua Zhou, Bullwhip effect and supply chain costs with low- and high-quality information on inventory shrinkage, *European Journal of Operational Research*, Volume 250, Issue 2, 16 April 2016, Pages 457-469.
- [51] Gül E. Kremer, Karl Haapala, Alper Murat, Ratna Babu Chinnam, Kyoungyun Kim, Leslie Monplaisir, Ting Lei, Directions for instilling economic and environmental sustainability across product supply chains, *Journal of Cleaner Production*, Volume 112, Part 3, 20 January 2016, Pages 2066-2078.
- [52] Michal Kulak, Thomas Nemecek, Emmanuel Frossard, Gérard Gaillard, Eco-efficiency improvement by using integrative design and life cycle assessment. The case study of alternative bread supply chains in France, *Journal of Cleaner Production*, Volume 112, Part 4, 20 January 2016, Pages 2452-2461.
- [53] Pietro De Giovanni, Puduru V. Reddy, Georges Zaccour, Incentive strategies for an optimal recovery program in a closed-loop supply chain, *European Journal of Operational Research*, Volume 249, Issue 2, 1 March 2016, Pages 605-617.
- [54] Fatih Mutlu, Mohamed K. Msakni, Hakan Yildiz, Erkut Sönmez, Shaligram Pokharel, A comprehensive annual delivery program for upstream liquefied natural gas supply chain, *European Journal of Operational Research*, Volume 250, Issue 1, 1 April 2016, Pages 120-130.
- [55] Imen Nouira, Ramzi Hammami, Yannick Frein, Cecilia Temponi, Design of forward supply chains: Impact of a carbon emissions-sensitive demand, *International Journal of Production Economics*, Volume 173, March 2016, Pages 80-98.
- [56] Juhong Gao, Hongshuai Han, Litng Hou, Haiyan Wang, Pricing and effort decisions in a closed-loop supply chain under different channel power structures, *Journal of Cleaner Production*, Volume 112, Part 3, 20 January 2016, Pages 2043-2057.
- [57] Fang Zhang, Junhai Ma, Research on the complex features about a dual-channel supply chain with a fair caring retailer, *Communications in Nonlinear Science and Numerical Simulation*, Volume 30, Issues 1-3, January 2016, Pages 151-167.
- [58] Jianping Peng, Jing Quan, Guoying Zhang, Alan J. Dubinsky, Mediation effect of business process and supply chain management capabilities on the impact of IT on firm performance: Evidence from Chinese firms, *International Journal of Information Management*, Volume 36, Issue 1, February 2016, Pages 89-96.
- [59] Zhibing Lin, Price promotion with reference price effects in supply chain, *Transportation Research Part E: Logistics and Transportation Review*, Volume 85, January 2016, Pages 52-68.
- [60] Mark A. Jacobs, Wantao Yu, Roberto Chavez, The effect of internal communication and employee satisfaction on supply chain integration, *International Journal of Production Economics*, Volume 171, Part 1, January 2016, Pages 60-70.
- [61] Michael Becker-Peth, Ulrich W. Thonemann, Reference points in revenue sharing contracts – How to design optimal supply chain contracts, *European Journal of Operational Research*, Volume 249, Issue 3, 16 March 2016, Pages 1033-1049.
- [62] Yun Bai, Yanfeng Ouyang, Jong-Shi Pang, Enhanced models and improved solution for competitive biofuel supply chain design under land use constraints, *European Journal of Operational Research*, Volume 249, Issue 1, 16 February 2016, Pages 281-297.
- [63] Moza A. Al-Busaidi, David J. Jukes, Shekar Bose, Seafood safety and quality: An analysis of the supply chain in the Sultanate of Oman, *Food Control*, Volume 59, January 2016, Pages 651-662.
- [64] Jing Zhu, Tamer Boyaci, Saibal Ray, Effects of upstream and downstream mergers on supply chain profitability, *European Journal of Operational Research*, Volume 249, Issue 1, 16 February 2016, Pages 131-143.
- [65] Scott Unger, Amy Landis, Assessing the environmental, human health, and economic impacts of reprocessed medical devices in a Phoenix hospital's supply chain, *Journal of Cleaner Production*, Volume 112, Part 3, 20 January 2016, Pages 1995-2003.
- [66] Fengli Zhang, Dana Johnson, Mark Johnson, David Watkins, Robert Froese, Jinjiang Wang, Decision support system integrating GIS with simulation and optimisation for a biofuel supply chain, *Renewable Energy*, Volume 85, January 2016, Pages 740-748.
- [67] Vinod Kumar, Sushil Kumar Purbey, Ajit Kumar Dubedi Anal, Losses in litchi at various stages of supply chain and changes in fruit quality parameters, *Crop Protection*, Volume 79, January 2016, Pages 97-104.
- [68] Kenji Matsui, Asymmetric product distribution between symmetric manufacturers using dual-channel supply chains, *European Journal of Operational Research*, Volume 248, Issue 2, 16 January 2016, Pages 646-657.
- [69] Marcus Brandenburg, Supply chain efficiency, value creation and the economic crisis - An empirical assessment of the European automotive industry 2002-2010, *International Journal of Production Economics*, Volume 171, Part 3, January 2016, Pages 321-335.
- [70] Byung-Gak Son, ManMohan Sodhi, Canan Kocabasoglu-Hillmer, Tae-Hee Lee, Supply chain information in analyst reports on publicly traded companies, *International Journal of Production Economics*, Volume 171, Part 3, January 2016, Pages 350-360.
- [71] Yun Huang, Kai Wang, Ting Zhang, Chuan Pang, Green supply chain coordination with greenhouse gases emissions management: a game-theoretic approach, *Journal of Cleaner Production*, Volume 112, Part 3, 20 January 2016, Pages 2004-2014.
- [72] David Richard Lyon, Chapter 3 - Methane Emissions from the Natural Gas Supply Chain, In *Environmental and Health Issues in Unconventional Oil and Gas Development*, edited by Debra KadenTracie Rose, Elsevier, 2016, Pages 33-48.
- [73] Mingquan Cui, Maoying Xie, Zhina Qu, Sijun Zhao, Junwei Wang, Yang Wang, Tao He, Hongyu Wang, Zhicai Zuo, Congming Wu, Prevalence and antimicrobial resistance of Salmonella isolated from an integrated broiler chicken supply chain in Qingdao, China, *Food Control*, Volume 62, April 2016, Pages 270-276.
- [74] Michael F. Ashby, Chapter 5 - Materials Supply-Chain Risk, In *Materials and Sustainable Development*, edited by Michael F. Ashby, Butterworth-Heinemann, Boston, 2016, Pages 85-100.
- [75] Wei Wang, Gang Li, T.C.E. Cheng, Channel selection in a supply chain with a multi-channel retailer: The role of channel operating costs, *International Journal of Production Economics*, Volume 173, March 2016, Pages 54-65.
- [76] S.M. Nazmul Alam, Chapter 6 - Safety in the Shrimp Supply Chain, In *Regulating Safety of Traditional and Ethnic Foods*, edited by Vishweshwaraiah PrakashOlga Martín-BellosoLarry KeenerSián AstleySusanne BraunHelena McMahonHuub Lelieveld, Academic Press, San Diego, 2016, Pages 99-123.
- [77] Annelies De Meyer, Dirk Cattrysse, Jos Van Orshoven, Considering biomass growth and regeneration in the optimisation of biomass supply chains, *Renewable Energy*, Volume 87, Part 2, March 2016, Pages 990-1002.
- [78] Zhen-Zhen Jia, Jean-Christophe Deschamps, Rémy Dupas, A negotiation protocol to improve planning coordination in transport-driven supply chains, *Journal of Manufacturing Systems*, Volume 38, January 2016, Pages 13-26.
- [79] Daniel Klein, Christian Wolf, Christoph Schulz, Gabriele Weber-Blaschke, Environmental impacts of various biomass supply chains for the provision of raw

wood in Bavaria, Germany, with focus on climate change, *Science of The Total Environment*, Volume 539, 1 January 2016, Pages 45-60.

[80] Omid Sanei Bajgiran, Masoumeh Kazemi Zanjani, Mustapha Nourelfath, The value of integrated tactical planning optimization in the lumber supply chain, *International Journal of Production Economics*, Volume 171, Part 1, January 2016, Pages 22-33.

[81] I. Ribeiro, J. Kaufmann, A. Schmidt, P. Peças, E. Henriques, U. Götze, Fostering selection of sustainable manufacturing technologies – a case study involving product design, supply chain and life cycle performance, *Journal of Cleaner Production*, Volume 112, Part 4, 20 January 2016, Pages 3306-3319.

[82] Chunguang Bai, Dileep Dhavale, Joseph Sarkis, Complex investment decisions using rough set and fuzzy c-means: An example of investment in green supply chains, *European Journal of Operational Research*, Volume 248, Issue 2, 16 January 2016, Pages 507-521.

[83] Yong Shin Park, Gokhan Egilmez, Murat Kucukvar, Emergy and end-point impact assessment of agricultural and food production in the United States: A supply chain-linked Ecologically-based Life Cycle Assessment, *Ecological Indicators*, Volume 62, March 2016, Pages 117-137.

[84] Martha Demertzi, Rui Pedro Silva, Belmira Neto, Ana Cláudia Dias, Luís Arroja, Cork stoppers supply chain: potential scenarios for environmental impact reduction, *Journal of Cleaner Production*, Volume 112, Part 3, 20 January 2016, Pages 1985-1994.

[85] Laura Roibás, Aziz Elbehri, Almudena Hospido, Carbon footprint along the Ecuadorian banana supply chain: methodological improvements and calculation tool, *Journal of Cleaner Production*, Volume 112, Part 4, 20 January 2016, Pages 2441-2451.

[86] Heti Mulyati, Sustainability in Supply Chain Management Casebook: Applications in SCM: a book review, *Journal of Cleaner Production*, Volume 110, 1 January 2016, Pages 198-199.

[87] Katrina Lintukangas, Anni-Kaisa Kähkönen, Paavo Ritala, Supply risks as drivers of green supply management adoption, *Journal of Cleaner Production*, Volume 112, Part 3, 20 January 2016, Pages 1901-1909.

[88] Jukka Hallikas, Katrina Lintukangas, Purchasing and supply: An investigation of risk management performance, *International Journal of Production Economics*, Volume 171, Part 4, January 2016, Pages 487-494.

[89] B.C. Giri, S. Sharma, Optimal production policy for a closed-loop hybrid system with uncertain demand and return under supply disruption, *Journal of Cleaner Production*, Volume 112, Part 3, 20 January 2016, Pages 2015-2028.

[90] Per Engelseh, Aligning end-to-end seafood supply through a series of markets, *International Journal of Production Economics*, Volume 173, March 2016, Pages 99-110.