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A New Framework For Supply Chain Risk Management Through Supply Chain Management Capability

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Abstract
Supply chain risk management is considered as one of the most powerful competitive tools for the companies. Therefore, the concept has caught the attention of researchers especially in the recent years. However, supply chain risk management has not been examined in the literature by considering the maturity and capability levels of supply chain members. This study aims to address this gap and develops a new framework on supply chain risk management which focuses on different supply chain orientation levels of the supply chains members. The framework proposed in this study is named as "Supply Chain Management Capability Model". This model is the first attempt to illustrate the required supply chain risk management capabilities of companies for different supply chain orientation levels. This model presents developing supply chain structures with increasing orientation levels, which also serve for Business to Business (B2B) and relationship marketing purposes. The results of this study show that supply chain members' capability levels also vary in terms of sustainability dimension. The results of the study provide relevant findings both to guide practitioners and motivate researchers to conduct further studies in this area.
Keywords: Supply Chain Management, Risk Management, Business Process Orientation, Supply Chain Process Models.

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Tedarik Zinciri Risk Yönetimi içinYeni bir Çerçeve: Tedarik Zinciri Yönetimi Yetkinliği Modeli

Özet

Tedarik zinciri risk yönetimi, firmalar için en kuvvetli rekabetçilik araçlarından biri olarak değerlendirilmektedir. Dolayısıyla bu konu, özellikle son yıllarda araştırmacıların ilgisini çekmeye başlamıştır. Ancak literatürde, tedarik zinciri risk yönetimi, tedarik zinciri üyelerinin olgunluk seviyeleri ve yeterlilikleri göz önünde bulundurularaktan incelenmemiştir. Bu çalışma, tedarik zinciri risk yönetiminin farklı tedarik zinciri yönelimlerine göre değerlendirildiği yeni bir çerçeve geliştirmeyi ve böylece literatürede belirtilen açığa katkı sağlamayı hedeflemektedir. Çalışmada önerilen çerçeve "Tedarik Zinciri Yönetimi Yeterlilik Modeli" olarak isimlendirilmiştir. Bu model, firmaların farklı tedarik zinciri yönelimlerine göre beklenen tedarik zinciri risk yönetimi yeterliliklerini göstermek ve tanımlamak amacıyla yapılan ilk girişimdir. Bu model artan yönelim seviyeleri ile gelişen tedarik zinciri yapılarını göstermekle beraber şirketler arası pazarlama ve ilişkisel pazarlama amaçlarına da hizmet etmektedir. Ayrıca çalışmanın temel bulguları, tedarik zinciri yeterlilik seviyelerinin sürdürülebilirlik boyutunda da farklılık gösterebileceğini belirtmektedir. Bu çalışmanın sonuçları, uygulamacılara yön verecek ve araştırmacıları yeni çalışmalara teşvik edecek bulgular sağlamaktadır.
Anahtar Kelimeler: Tedarik Zinciri Yönetimi, Risk Yönetimi, İş Süreç Yönelimleri, Tedarik Zinciri Süreç Modelleri.

1. INTRODUCTION

Improving supply chain orientation has become an underlying approach for the companies aiming to protect their competitive advantage. This is because, the better the supply chain orientation of a firm, the more competitive the company would be in the long run[1]. To manage the supply chain in a more effective and efficient manner, creating awareness on the strengths and opportunities is not enough. In this regard, it is vital to manage potential challenges and risks in the supply chain. Thus, supply chain risk management can be considered as one of the most powerful competitive tools for the companies. To improve the competitiveness of the supply chains and manage the challenges and potential risks, companies spend efforts to improve resilience and minimize vulnerability of the supply chains[2 3 4 5].

1 Mentzer et al., 'Defining Supply Chain Management', Journal of Business Logistics, Vol. 22, No. 2, 2001, p. 1-25.

2 Martin, Christopher and Helen Peck, 'Building the Resilient Supply Chain', International Journal of Logistics Management, Vol. 15, No. 2, 2004, p. 1-14.

3 Martin Christopher and Hau Lee, 'Mitigating Supply Chain Risk through Improved Confidence', International Journal of Physical Distribution & Logistics Management, Vol. 34, No. 5, 2004, p. 388-396.

4 Ila Manuj and John T. Mentzer, 'Global Supply Chain Risk Management Strategies', International Journal of Physical Distribution & Logistics Management, Vol. 38, No. 3, 2008, p. 192-223.

5 Timothy J Pettit, Joseph Fiksel and Keely L. Croxton, 'Ensuring Supply Chain Resilience: Development of a Conceptual Framework', Journal of Business Logistics, Vol. 31, No. 1, 2010, p. 1- 21.

Therefore, it has recently been considered as a key area to identify and manage the potential risks through the processes of supply chain[6] [7] [8] [9].

Considering its importance, supply chain process models are improved with the involvement of supply chain risk management concept. One of the prominent examples is the Supply Chain Operations Reference (SCOR) Model. It is developed by Supply Chain Council in 1997, and considers risk management in its nineth version[10] [11]. In addition, it provides a comprehensive toolset which links business processes to performance metrics and best practices. Thus, SCOR model is an important reference for the companies which consider the performance metrics and industry best practices given in the SCOR Model as a benchmark, and implement them in their operations[12]. It provides a unique framework that integrates business processes, metrics, best practices and technology, and thus helps supply chain partners to improve supply chain activities to further improve the effectiveness of supply chain management. However, the risk management framework of the SCOR model does not consider and argue the differences in the supply chain orientations of the companies. Although Lockamy and McCormack[13], reveal the differences in the maturity levels of the supply chains in their model (Supply Chain Management Maturity Model, SCMM), the relation between risk management, best practices, performance metrics and different supply chain orientation levels still remains unmentioned in the literature. Supply chain orientation is defined as *"the recognition by an organization of the systemic, strategic implications of the tactical activities involved in managing the various flows in a supply chain"*[14]. Therefore, the degree of supply chain orientation of an organization determines the level of the effectiveness of managing the flows in its supply chain. This level of supply chain orientation can be measured through different factors including information sharing, coordination, process integration. [15]

In this study, we develop a new framework on supply chain risk management which focuses on different supply chain orientation levels of the supply chains by considering industry best practices and performance metrics implementations

6 Christopher and Peck, 'Building the Resilient Supply Chain', p. 1-14.

7 Christopher and Lee, 'Mitigating Supply Chain Risk through Improved Confidence', p. 388-396.

8 Uta Juttner, 'Supply Chain Risk Management, Understanding The Business Requirements From a Practitioner Perspective', International Journal of Logistics Management, Vol. 16, No. 1, 2005, p. 120-141.

9 Manuj and Mentzer, 'Global Supply Chain Risk Management Strategies', p. 192-223.

10 Supply Chain Operations Reference Model, Version 9. 2008. available at: http://archive.supplychain.org/galleries/publicgallery/SCOR%209.0%20Overview%20Booklet.pdf (accessed 01.06.2013).

11 McCormack et al., 'Managing Risk in Your Organization with the SCOR Methodology', The Supply Chain Council Risk Research Team, Supply Chain Council, 2008.

12 ibid.

13 Archie Lockamy III and Kevin McCormack, 'The Development of a Supply Chain Management Process Maturity Model Using the Concepts of Business Process Orientation', Supply Chain Management: An International Journal, Vol. 9, No. 4, 2004, p. 272-278.

14 Mentzer et al., 'Defining Supply Chain Management', p. 11.

15 S. Min and J. T. Mentzer, 'Developing and Measuring Supply Chain Management Concepts', Journal of Business Logistics, Vol. 25, No. 1, 2004, p. 63-99.

specifically. Our explanations are built on the key antecedents of supply chain management as the basis of developing the supply chain orientation, and thus improving supply chain capabilities. The framework is proposed as "Supply Chain Management Capability Model". Considering that supply chain models enable supply chain members better understand the supply chain coorination mechanism and manage relationship among members, the empirical evidence of the study based on this framework is likely to support supply chain members to sustain their competitive advantage.

2. LITERATURE REVIEW

Risks will always arise in some parts of supply chain business processes. Risks are triggered by uncertainties and companies should search for ways to mitigate the risks. Prior to analyzing the risks in supply chain management, it is important to define risk as a means of "*variation in the distribution of possible outcomes, their likelihoods and their subjective values*"[16]. Also, it is vital for companies to determine and manage the risks caused by the dynamics in the supply chain. Thus, in order to evaluate the risks in supply chain management, it is also necessary to define supply chain risk management. Among the several definitions of supply chain risk management[17] [18], one of the commonly referred one is "*the identification and management of risks for the supply chain, through a co-ordinated approach amongst supply chain members, to reduce supply chain vulnerability as a whole*"[19].

Reflecting the practitioners' perspective on the supply chain risk management has always been an interesting research area. The literature consists of various case studies to extend the academic studies to practical implementations[20] [21] [22] [23]. Each study provides different insights in creating awareness or in reinforcing other companies to focus on the issue. One important contribution is made by Juttner[24]. The study addresses business requirements from a practitioner perspective with an important note which highlights the underestimation of supply chain risk management's importance by many companies.

16 Christopher and Peck, 'Building the Resilient Supply Chain', p. 2.

17 Uta Juttner, Helen Peck and Martin Christopher, 'Supply Chain Risk Management: Outlining an Agenda for Future Research', International Journal of Logistics: Research and Applications, Vol. 6, No. 4, 2003, p. 197-210.

18 Manuj and Mentzer, 'Global Supply Chain Risk Management Strategies', p. 192-223.

19 Juttner, Peck and Christopher, 'Supply Chain Risk Management', p. 201.

20 Peter Finch, 'Supply Chain Risk Management' Supply Chain Management: An International Journal, Vol. 9, No. 2, 2004, p. 183-196.

21 Juttner, 'Supply Chain Risk Management', p. 120-141.

22 Christopher S. Tang, 'Perspectives in Supply Chain Risk Management', International Journal of Production Economics, Vol. 103, No. 2, 2006a, p. 451-488.

23 Omera Khan and Bernard Burnes, 'Risk and Supply Chain Management: Creating a Research Agenda', International Journal of Logistics Management, Vol. 18, No. 2, 2007, p. 197-216.

24 Juttner, 'Supply Chain Risk Management', p. 120-141.

Furthermore, what has been underlined in most of the studies[25] [26] [27] [28] [29] is the importance of integrating supply chain risk management concept into business processes for strong competitiveness and long term continuity purposes. This has triggered the efforts on adopting risk management concept into SCOR Model in Version 9[30]. The idea of SCOR Model Version 9.0 is the introduction of new management processes associated with supply chain risk management (plan risk, source risk, make risk, deliver risk and return risk). Besides, SCOR Model involves best practices and performance management practices. The best practices determined in the scope of the SCOR Model have gained great importance not only for risk management purposes but also for guiding the business improvements through benchmarking[31]. Best practices are listed in the model to provide a guide for the companies in their continuous development process. In this study, while developing our discussions on our model, we refer to the concepts of risk management, best practices and performance metrics explained in the SCOR Model.

As illustrated in Figure 1, in the SCOR Model, management processes are displayed in a standard form of five management processes; plan, source, make, deliver and return. Plan involves the processes to balance demand and supply to best meet sourcing, production and delivery requirements. Source process includes subproocesses for the procurement of goods and services to meet demand. Make involves the operational processes, whereas Deliver comprises the processes related to providing finished goods and services. Finally, return process stands for returning and receiving returned products. These processes are embodied with standard metrics to measure the business performance. SCOR model, by its five management processes, spans across all customer interactions, product transactions, and market interactions. Best practices are also considered within this scope. The best practices are identified based on management best in class performances and are considered as a valuable guide for the companies. They specify the proper strategy for the companies to further improve their processes and provide the latest benchmarks for the business models.

25 Andreas Norrman and Ulf Jansson, 'Ericsson's Proactive Supply Chain Risk Management Approach after a Serious Sub-Supplier Accident', International Journal of Physical Distribution & Logistics Management, Vol. 34, No. 5, 2004, p. 434-456.

26 Finch, 'Supply chain risk management', p. 183-196.

27 Juttner, 'Supply Chain Risk Management', p. 120-141.

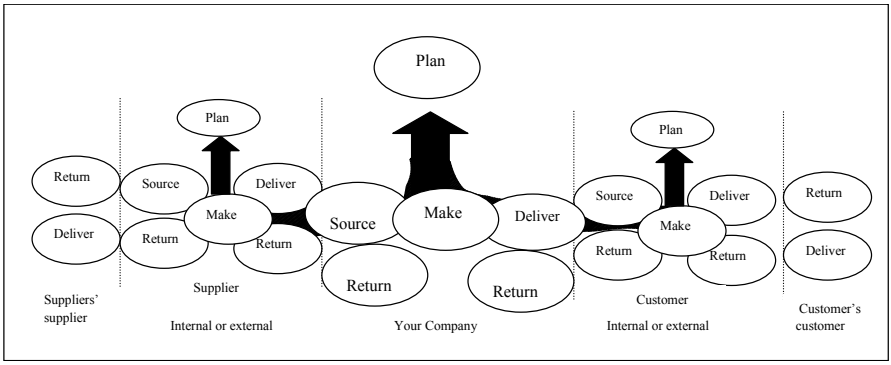
28 Christopher S. Tang, 'Robust Strategies for Mitigating Supply Chain Disruptions', International Journal of Logistics: Research and Applications, Vol. 9, No. 1, 2006b, p. 33-45.

29 Mauricio F. Blos, Mohammed Quaddus, H.M. Wee, Kenji Watanabe, 'Supply Chain Risk Management SCRM: A Case Study on the Automotive and Electronic Industries in Brazil', Supply Chain Management-An International Journal, Vol. 14, No. 4, 2009, p. 247-252.

30 Supply Chain Operations Reference Model, Version 9. 2008. available at: http://archive.supplychain.org/galleries/publicgallery/SCOR%209.0%20Overview%20Booklet.pdf (accessed 01.06.2013).

31 McCormack et al., 'Managing Risk in Your Organization with the SCOR Methodology'.

Figure 1: *The SCOR Model* [32]



Furthermore, while developing the new framework presented in this study, we utilized the maturity levels of SCMM Model of Lockamy and McCormack[33]. Supply Chain Management Process Maturity Model (SCMM) developed by Lockamy and McCormack[34] is based on the idea of process maturities and conceptualizes process maturity levels in relation to the framework provided by the SCOR model's four management processes (namely; plan, source, make, and deliver). SCMM assumes that the progress towards goal achievement comes in stages, which are determibed by the degree to which the process is explicitly defined, managed, measured and controlled[35].

As illustrated in Figure 2, SCMM has five stages representing the progress through the maturity levels: Ad Hoc, Defined, Linked, Integrated and Extended. In the Ad Hoc level, processes are unstructured, ill-defined, and managed as individual traditional functions. In the Defined level, basic processes are defined, documented, whereas cooperation is only at traditional levels. Linked level is the breakthough level at which process management is strategically employed, and common process measures and goals are shared with increased cooperation between intra-company functions and other supply chain partners. In the Integrated level, coopearation is taken to the process level with advanced process management practices, and increased embeddedness in the organization. Extended level is where horizontal, customer-focused, collaborative culture in place among the extended network structure[36]. The characteristics associated with process maturity such as predictability, capability, control, effectiveness and efficiency are considered in the model[37]. Besides, the relation between maturity levels and uncertainty

32 Supply Chain Operations Reference Model, Version 9. 2008. available at: http://archive.supplychain.org/galleries/publicgallery/SCOR%209.0%20Overview%20Booklet.pdf (accessed 01.06.2013).

33 Lockamy III and McCormack, 'The Development of a Supply Chain Management Process Maturity', p. 272-278.

34 ibid.

35 ibid.

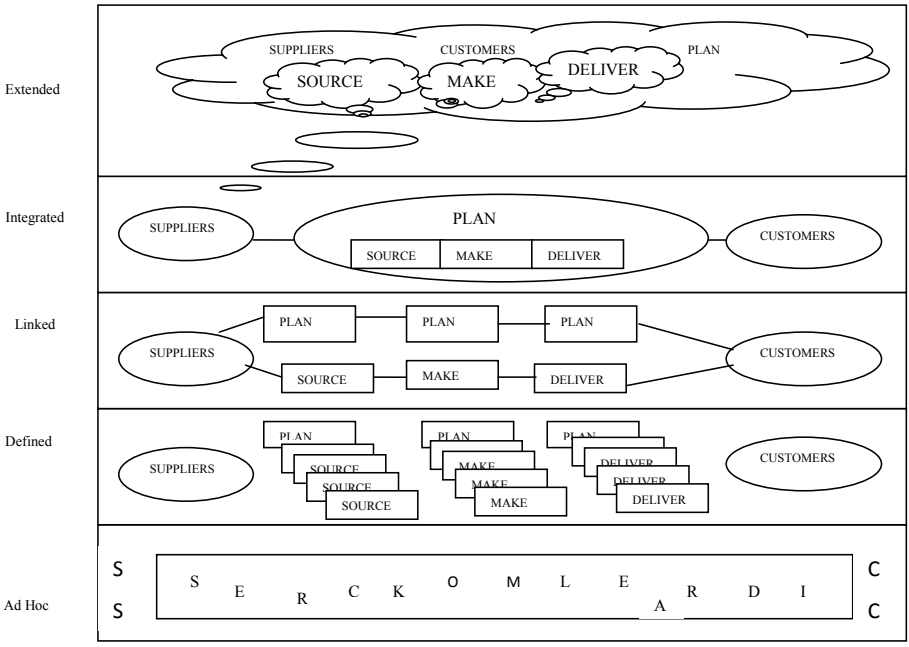
36 ibid.

37 ibid.

is also mentioned in another study[38]. They state that, as the supply chain process maturity increases, uncertainty decreases, and accordingly the performance of the supply chains increases.

Seemingly, existing literature does not provide a combined viewpoint on the concepts of risk management, best practices and performance metrics implementations shaped by different supply chain orientation levels. To fill such a research gap, we propose a new framework titled as "Supply Chain Management Capability Model". While developing this new framework, we utilized the maturity levels of SCMM Model which refers to the management processes of the SCOR Model.

Figure 2: *Supply Chain Management Process Maturity Model* [39]



3. A NEW FRAMEWORK: SUPPLY CHAIN MANAGEMENT CAPABILITY (SCMC) MODEL

As mentioned in previous sections, supply chain orientation and accordingly supply chain management are supported by a number of key antecedents. These key

38 Lockamy III et al., 'The Impact of Process Maturity and Uncertainty on Supply Chain Performance: An Empirical Study', International Journal of Manufacturing Technology and Management, Vol. 15, No. 1, 2008, p. 12-27.

39 Lockamy III and McCormack, 'The Development of a Supply Chain Management Process Maturity', p. 272-278.

antecedents of supply chain management are trust[40 41 42 43 44], interfunctional coordination[45 46 47 48], cooperation[49 50 51], collaboration[52 53 54], commitment[55 56 57 58], power[59]

40 Hau L. Lee and Corey Billington, 'Managing Supply Chain Inventory: Pittfalls and Opportunities', Sloan Management Review, 1992, Vol. 33, No. 3i, p. 65-73.

41 Ik-Whan G. Kwon and Taewon Suh, 'Factors Affecting the Level of Trust and Commitment in Supply Chain Relationships', Journal of Supply Chain Management, Vol. 40, No. 1, 2004, p. 4-14.

42 Jan K. Arnulf, Heidi C. Dreyer and Carl Erik Grenness, 'Trust and Knowledge Creation: How the Dynamics of Trust and Absorptive Capacity May Affect Supply Chain Management Development Projects', International Journal of Logistics: Research and Applications, Vol. 8, No. 3, 2005, p. 225-236.

43 David J Ketchen, G. Tomas M. Hult and Stanley F. Slater, 'Toward Greater Understanding of Market Orientation and the Resource‐Based View', Strategic Management Journal, Vol. 28, No. 9, 2007, p. 961-964.

44 Daniel Corsten, Thomas Gruen and Marion Peyinghaus, 'The Effects of Supplier-to-Buyer Identification on Operational Performance—An Empirical Investigation of Inter-Organizational Identification in Automotive Relationships', Journal of Operations Management, Vol. 29, No. 6, 2011, p. 549-560.

45 James C. Anderson, 'Relationships in Business Markets: Exchange Episodes, Value Creation, and Their Empirical Assessment', Journal of the Academy of Marketing Science, Vol. 23, No.4, 1995, p. 346-350.

46 Martin Christopher and Uta Juttner, 'Supply Chain Relationships: Making the Transition to Closer Integration', International Journal of Logistics: Research and Applications, Vol. 3, No. 1, 2000, p. 5-23.

47 Matthias Holweg and Frits K. Pil, 'Theoretical Perspectives on the Coordination of Supply Chains.' Journal of Operations Management, Vol. 26, No. 3, 2008, p. 389-406.

48 Bikram K. Bahinipati, Arun Kanda, and S. G. Deshmukh, 'Coordinated Supply Management: Review, Insights, and Limitations', International Journal of Logistics: Research and Applications, Vol. 12, No. 6, 2009, p. 407-422.

49 Jack Gaj Van Der Vorst and Adrie JM Beulens, 'A Research Model for the Redesign of Food Supply Chains', International Journal of Logistics: Research and Applications, Vol. 2, No. 2, 1999, p. 161-174.

50 Hung et al., 'Sharing Information Strategically in a Supply Chain: Antecedents, Content and Impact', International Journal of Logistics: Research and Applications, Vol. 14, No. 2, 2011, p. 111-133.

51 Usha Ramanathan and Angappa Gunasekaran, 'Supply Chain Collaboration: Impact of Success in Long-term Partnerships', International Journal of Production Economics, Vol. 147, 2014, p. 252-259.

52 Hiro Izushi and Kevin Morgan, 'Management of Supplier Associations: Observations from Wales', International Journal of Logistics: Research and Applications, Vol. 1, No. 1, 1998, p. 75-91.

53 Akintola Akintoye, George McIntosh, and Eamon Fitzgerald, 'A survey of supply chain collaboration and management in the UK construction industry', European Journal of Purchasing & Supply Management, Vol. 6, No. 3, 2000, p. 159-168.

54 Vaidyanathan Jayaraman, Anthony D. Ross and Anurag Agarwal, 'Role of Information Technology and Collaboration in Reverse Logistics Supply Chains', International Journal of Logistics: Research and Applications, Vol. 11, No. 6, 2008, p. 409-425.

55 Lee and Billington, 'Managing Supply Chain Inventory', p. 65-73.

56 Christopher and Juttner, 'Supply Chain Relationships', p. 5-23.

57 Alan Smart and Alan Harrison, 'Reverse Auctions as a Support Mechanism in Flexible Supply Chains', International Journal of Logistics, Vol. 5, No. 3, 2002, p. 275-284.

58 Zhao et al., 'The Impact of Power and Relationship Commitment on the Integration Between Manufacturers and Customers in a Supply Chain', Journal of Operations Management, Vol. 26, No. 3, 2008, p. 368–388.

59 Peter Stannack, 'Purchasing Power and Supply Chain Management Power—Two Different Paradigms? A Response to Ramsay's 'Purchasing power' (1995)', European Journal of Purchasing & Supply Management, Vol. 2, No. 1, 1996, p. 47-56.

[60] [61], risk & reward sharing[62] [63], integration of key processes[64] [65] [66] [67], long term relationship[68] [69] [70], and interdependence within and among supply chain partners[71] [72] [73] [74]. Supply chain members' approach and course of strategy on these issues identify the level of their supply chain orientation. High level of supply chain orientation serves for relationship marketing purposes such as establishing, developing and maintaining thriving relationships[75],. Therefore, Supply Chain Management Capability Model is based upon relationship marketing framework in line with the given supply chain antecedents.

This also determines the capabilities of supply chain members. Therefore, supply chain members having different levels of supply chain orientation also differ in their capabilities. By building on this framework, SCMC Model (in Figure 3) depicts the changing capabilities of supply chains with a specific emphasis on risk management, best practices and performance metrics implementations of supply chain members. Whilst presenting this idea, SCMC Model utilizes the maturity

60 Ilaria Giannoccaro and Pierpaolo Pontrandolfo, 'The Organizational Perspective in Supply Chain Management: An Empirical Analysis in Southern Italy', International Journal of Logistics: Research and Applications, Vol. 6, No. 3, 2003, p. 107-123.

61 D. A. Hensher and S. M. Puckett, 'Power, Concession and Agreement in Freight Distribution Chains: Subject to Distance-Based User Charges', International Journal of Logistics: Research and Applications, Vol. 11, No. 2, 2008, p. 81-100.

62 Konstantin Makukha and Richard Gray, 'Logistics Partnerships Between Shippers and Logistics Service Providers: The Relevance of Strategy', International Journal of Logistics: Research and Applications, Vol. 7, No. 4, 2004, p. 361-377.

63 Tang, 'Robust Strategies for Mitigating Supply Chain Disruptions', b, p. 33-45.

64 Lisa M. Ellram and Martha C. Cooper, 'Supply Chain Management, Partnerships, and the Shipper- Third Party Relationship', Journal of Logistics Management, Vol. 1, No. 2, 1990, p. 1-10.

65 Hau L. Lee, 'Creating Value Through Supply Chain Integration', Supply Chain Management Review, Vol. 4, No. 4, 2000, p. 30-36.

66 Douglas M. Lambert, 'Supply Chain Management', Chap. 1 in, Supply Chain Management-Processes, Partnerships , Performance, (edited by Douglas M. Lambert, 1-23. Florida: Supply Chain Management Institute, 2008)

67 Robert, Boute, Roland Van Dierdonck, and Ann Vereecke, 'Organising for Supply Chain Management', International Journal of Logistics: Research and Applications, Vol. 14, No. 5, 2011, p. 297-315.

68 Ellram and Cooper, 'Supply Chain Management, Partnerships, and the Shipper- Third Party Relationship', p. 1-10.

69 Christopher S. Tang, 'Supplier Relationship Map', International Journal of Logistics Research and Applications, Vol. 2, No. 1, 1999, p. 39-56.

70 Johnston et al., 'Effects of Supplier Trust on Performance of Cooperative Supplier Relationships', Journal of Operations Management, Vol. 22, No. 1, 2004, p. 23–38.

71 Anderson, 'Relationships in business markets', p. 346-350.

72 Robert E. Spekman, John W. Kamauff Jr. and Niklas Myhr, 'An Empirical Investigation into Supply Chain Management: A Perspective on Partnerships', Supply Chain Management: An International Journal, Vol. 3, No. 2, 1998, p. 53-67.

73 Santosh K. Mahapatra, Ram Narasimhan and Paolo Barbieri, 'Strategic Interdependence, Governance Effectiveness and Supplier Performance: A Dyadic Case Study Investigation and Theory Development', Journal of Operations Management, Vol. 28, No. 6, 2010, p. 537-552.

74 Zach G Zacharia, Nancy W. Nix, and Robert F. Lusch, 'Capabilities that Enhance Outcomes of an Episodic Supply Chain Collaboration', Journal of Operations Management, Vol. 29, No. 6, 2011, p. 591-603.

75 R.M. Morgan and S.D. Hunt, 'The Commitment-Trust Theory of Relationship Marketing', Journal of Marketing, Vol. 58, 1994, p. 20-38.

levels of the SCMM Model which is shaped by four of the management processes (plan - P, source - S, make - M, deliver - D) of the SCOR model. We include the fifth management process of the SCOR Model, "return - R", in SCMC Model while defining the levels.

The main idea of the model is to highlight the stepwise progress on the capability of supply chains on risk management, performance metrics and best practice implementations according to different supply chain orientation levels. This is illustrated in Figure 3 by the two darkening arrows on both sides, representing the improvement in capability. The model shows that, the improvement in capabilities is achieved by the progress made on the antecedents of supply chain management and by the effective management of five distinct processes (namely; plan, source, make, deliver, return). The model also shows that the information flow is better managed as the level of supply chain orientation increases. This is because, the antecedents of supply chain management affect, and are affected by the level of information sharing[76] between supply chain members. This idea is reflected in the model through two-sided arrows which are inserted horizontally to the levels. As it can clearly be seen in the model, these horizontal arrows become thicker by the progress made through the levels. This change in the arrows represents the increased information sharing between the supply chain members. The higher levels of information sharing require removal of borders between supply chain members which bring transparency[77] [78] [79] and strong integration[80] [81] [82] [83] in supply chains. Accordingly, the progress in supply chain orientation levels is supported. This improvement in integration through the supply chain members is depicted in the Figure 3 in dashed lines.

76 Hau L. Lee, Kut C. So and Christopher S. Tang, 'The Value of Information Sharing in a Two-Level Supply Chain', Management science, Vol. 46, No. 5, 2000, p. 626-643.

77 Van der Vorst et al., 'E-business Initiatives in Food Supply Chains; Definition and Typology of Electronic Business Models', International Journal of Logistics: Research and Applications, Vol. 5, No. 2, 2002, p. 119-138.

78 Damien Power and Prakash Singh, 'The E-Integration Dilemma: The Linkages Between Internet Technology Application, Trading Partner Relationships and Structural Change', Journal of Operations Management, Vol. 25, No. 6, 2007, p. 1292-1310.

79 Lorentz et al., 'Supply Chain Development Priorities of Manufacturing Firms: Empirical Findings from a Finnish National Survey', International Journal of Logistics Research and Applications, Vol. 14, No. 5, 2011, p. 351-365.

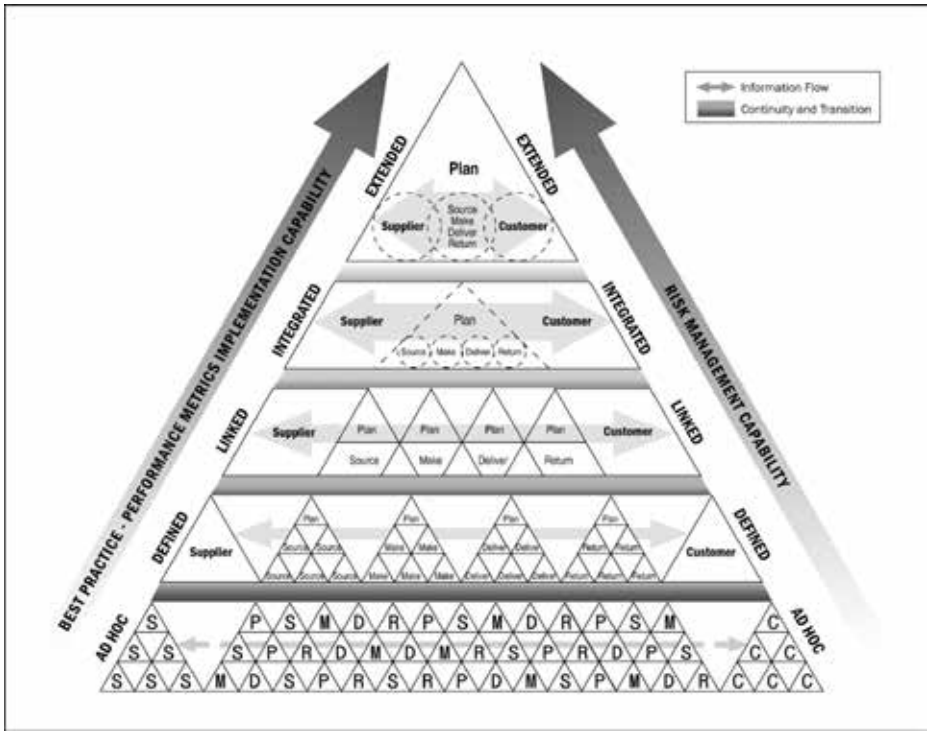
80 Ellram and Cooper, 'Supply Chain Management, Partnerships, and the Shipper- Third Party Relationship', p. 1-10.

81 Lee, 'Creating Value Through Supply Chain Integration', p. 30-36.

82 Lambert, 'Supply Chain Management'

83 Boute, Van Dierdonck, and Vereecke, 'Organising for Supply Chain Management', p. 297-315.

Figure 3: *Supply Chain Management Capability Model-Version 1*



Furthermore, the progress in each level (from Ad Hoc to Extended) requires a proper identification and management of five distinct management processes which is shown in the Figure 3 in triangles. As it is shown, the ill-defined management processes at Ad Hoc level are composed at Defined level. However, still at Defined level, the management processes are duplicated and do not coincide with each other, which means are not integrated well. Correspondingly, at Linked level, the management processes are simplified and intersect with each other, which represent a positive progress towards integration. At Integrated level, the change in the Figure 3 from straight lines to dashed lines implies the improved integration through supply chain members. Furthermore, at Extended level, the triangles are removed and replaced by dashed lined circles, which represents superior integration through supply chain members.

Moreover, regarding the progress made through the levels, it is also a challenging task for supply chain members to not to move down the levels. Therefore, Continuity and Transition conditions are explained in details for each level of SCMC Model in Section 3.1. Continuity and Transition stage is also illustrated in Figure 3 through the gray lines between the levels; lightening lines representing the changing conditions at each level.

Considering this framework, SCMC Model highlights that the capabilities of supply chains differ for risk management, best practices, and performance metrics implementations depending on the levels of supply chain orientation obtained through the key antecedents. This is also closely interrelated with the effective management of the information flow and of how well management processes are defined by the supply chain members. In order to develop a full understanding on the SCMC Model, it is necessary to review the levels in terms of each key antecedent.

3.1. The Levels of the Model

In order to explain SCMC model, it is important to reveal what each level implies in terms of the degree of trust, inter-functional coordination, cooperation, collaboration, commitment, power, risk & reward sharing, integration of key processes, long term relationship and interdependence within and among supply chain partners. Besides, it is also necessary to outline which challenges are inherent at each level and how progress can be made through the upper levels.

3.1.1. Ad hoc level

At Ad Hoc level, as the key antecedents for effective supply chain management cannot be satisfied well, the supply chain orientation level of the members is very low. Therefore, the capabilities of supply chains on implementing industry best practices are limited to regular activities only. Besides, the performance metrics and risk management capability is remarkably poor.

Horizontally positioned two-sided arrow, representing the level of information flow, is very slight at this level. Key management processes within and among the supply chain are poorly defined and not integrated, which is represented by the irregular positioned letters (P, S, M, D, R). Thus, business goals are not clearly and realistically defined. The interdependence, commitment and trust between the supply chain members are at lowest levels. The relationships through the supply chain are short-term and at individual transactions only. That is, the inter-functional coordination, collaboration and cooperation among all supply chain members are relatively low. In this stage, uncertainty in supply chain environment is not managed. Thus, the risks faced at this level have destructive effects on supply chain members. Despite, risks as well as rewards are not shared and individually owned. This uncommitted structure reduces the power of the supply chain.

3.1.2. Defined level

At Defined level, only a few of the key antecedents for effective supply chain management become apparent. This progress improves the supply chain orientation of the members. The capabilities of supply chains on implementing industry best

practices are improved to implementing non-complex industry best practices. Besides, a part of improvement occurs in the performance metrics and risk management capabilities.

The information flow arrow becomes thicker, representing an improvement in information sharing through supply chain members. Key management processes within and among the supply chain are defined but still unsystematic and not integrated. Business goals are more realistically defined, but not at the desired level. Interdependence, commitment and trust between the supply chain members start to proceed. The relationships through the supply chain are still short-term, but this time beyond transactional medium. Thus, inter-functional coordination, collaboration and cooperation among all supply chain members start to be formed. Accordingly, uncertainty in supply chain environment is still not well managed. The risks are still challenging. Risk and reward sharing is not an issue of concern for supply chain members yet. Thus, supply chain is still not powerful enough for effective and efficient management.

3.1.3. Linked level

Relatively the key antecedents for effective supply chain management amend at Linked level. Therefore, the supply chain orientation of the members continues to improve. However, the improvement level is still not as desired for achieving effective supply chain management. The capabilities of supply chains on implementing industry best practices progress through implementing moderately complicated industry best practices. Besides, the performance metrics and risk management capabilities improve.

The thickness in information flow arrow induces a progress in information sharing through supply chain members. At this level, key management processes within and among the supply chain are better defined and overlapping processes eliminated. Business goals are clearly defined, realistic and interrelated. Interdependence, commitment and trust between the supply chain members are formed at this level. Supply chain members set mid-term relationships. Thus, inter-functional coordination, collaboration and cooperation among all supply chain members improve. This rapprochement enhances the management of uncertainty in the supply chain environment and, thus risks are controllable. Supply chain members start sharing risks and rewards. These lead to increased power of the supply chain.

3.1.4. Integrated level

At Integrated level, most of the key antecedents for effective supply chain management are satisfied. Therefore, the supply chain orientation of the members is improved well. The capabilities of supply chains on implementing industry best practices are improved to be able to implement complicated industry best prac-

tices. Besides, the performance metrics and risk management capabilities of the supply chain members are high.

At this level, the information flow arrow is remarkably thick, representing the high level of information sharing through supply chain members. At this level, key management processes within and among the supply chain are clearly defined. Business goals are clear and collaboratively defined by the supply chain members. Interdependence, commitment and trust between the supply chain members are improved at this level. Long term relationships between supply chain members are established. Thus, inter-functional coordination, collaboration and cooperation among all supply chain members evolved. The uncertainty in supply chain environment is better managed. Risks are both controllable and manageable at this level. Supply chain members are integrated to share risks and rewards. Thus, the supply chain is more powerful in the competitive environment.

3.1.5. Extended level

At Extended level, almost all of the key antecedents for effective supply chain management are satisfied perfectly. Therefore, the supply chain orientation of the members is highly improved. The capabilities of supply chains on implementing industry best practices are improved to be able to implement challenging industry best practices. Besides, the performance metrics and risk management capabilities of the supply chain members are very high.

At this level, the information flow arrow is at thickest level, representing the uppermost level of information sharing through supply chain members. At this level, key management processes within and among the supply chain are systematically defined. Business goals are integrated through the supply chain members. Interdependence, commitment and trust between the supply chain members are at advanced levels. Solid relationships between supply chain members are established. Thus, inter-functional coordination, collaboration and cooperation among all supply chain members are highly ingenerated. The uncertainty in the supply chain environment is comprehensively managed. Risks are controllable and manageable. Supply chain members jointly share risks and rewards. Thus, the supply chain is at advanced level and is powerful enough to better compete.

3.1.6. Continuity and Transition

Efforts need to be spent on continuous improvement activities to satisfy the key antecedents for progress in levels. Besides, the clear definition of key management processes and identification of business goals are necessary. These are the main requirements for improving the capabilities of supply chains on risk management, performance metrics and best practices implementations.

4. METHODOLOGY

In this study, a conceptual model is proposed based on the literature review. In order to validate the conceptual model, focus group study is carried out. This method is selected to observe participants' tacit reactions. Focus group method is a qualitative method. It explores the opinions, previous experience and future expectations of the participants[84]. It is advantageous for this study, since it provides an opportunity to verify and test the proposed model by consulting with sector representatives. In depth understanding of feelings, thoughts and perceptions of sector representatives on the model are provided by this method[85] [86].

Main aim of the focus group method in this study is to reveal the understanding of supply chain management and supply chain capability concepts by the participating firm executives and find evidence for Supply Chain Management Capability Model. The focus group study is designed to encourage discussions and opinion sharing about supply chain management, supply chain maturity levels, the alteration of supply chain antecedents in accordance with the levels and the impact of integration among the chain members.

Before the focus group study, a list of questions is prepared in order to find evidence for the proposed model. Questions are given in Appendix 1. Instead of asking questions directly, the moderator addressed the main themes and concepts of the model in order to encourage the participants to share their opinions. The moderator checked the list of questions during meeting to maintain the flow of the discussion.

4.1. Participants and Logistics of the Focus Group

Focus group study was carried out in December 2013, in Izmir, Turkey. Izmir was selected as the location to conduct the study while both the researchers and the appropriate contacts regarding the scope of the study live in Izmir. Selection was made from international manufacturing and service companies operating in the Aegean Free Zone. Out of 14 different contacted companies, 8 returned to our request. Selected companies have similar characteristics. They are located in the Aegean Free Zone, have foreign trade experience and are medium or large scale businesses. From each company, one executive attended to the meeting. Participants are managers of similar departments including; department of logistics management, supply chain management and purchasing.

84 Rodrigues et al., 'Assessing the Application of Focus Groups as a Method for Collecting Data in Logistics', International Journal of Logistics: Research and Applications, Vol. 13, No. 1, 2010, p. 75-94.

85 Danielle M. Carlock and Anali Maughan Perry, 'Exploring Faculty Experiences With E-Books: A Focus Group', Library Hi Tech, Vol. 26, No. 2, 2008, p. 244 – 254.

86 R.A. Krueger and M.C. Casey, Focus Groups: A Practical Guide for Applied Research, (4th ed. Thousand Oaks, CA: Sage, 1990).

The meeting took place in the Aegean Free Zone Convention Center. The study lasted approximately 75 minutes and each participant contributed during the session. The costs incurred by the recording and arrangements for the participants were covered by the researchers.

5. DATA ANALYSIS AND RESULTS

Focus group discussion was tape recorded and transcribed. Notes taken by the researcher were used to assist the transcription of group data. The full text of the transcript was analysed in accordance with the spoken words of the focus group participants by considering the antecedents of supply chain management and the dimensions of the model[87].

The Supply Chain Management Capability Model is built on relationship marketing framework in line with the supply chain antecedents that are trust, inter-functional coordination, cooperation, collaboration, commitment, power, risk and reward sharing, integration of key processes, long term relationship and interdependence within and among supply chain partners. With regard to focus group meeting results, these antecedents existence in the model is validated. In the theme of trust, the main aim was to understand the perceptions of executives on how trust can impact the supply chain management capability levels. In the focus group, trust among supply chain partners was considered as necessary to upgrade in the levels. Additionally, it was agreed that transparency results in trust in supply chain relationships. As another antecedent, inter-functional coordination was revealed to be significant to provide integration between related members and increase the level of data sharing. Moreover, coordination, collaboration and commitment were mentioned to improve relationship not only among departments but also among supply chain members. Especially, commitment was understood as "keeping promise". The participants believed that commitment improved in the long term when the number of transactions increases. Furthermore, it was interesting to note the antecedent power was dedicated always to the customer; and the customer was considered to be the most important member in the supply chain. The participants did not interpret power as an antecedent belonging to their company, rather they thought power was a dynamic that determines the working mechanism of supply chain and was initiated by the focal member in the supply chain, which is customer. Furthermore, risk and reward sharing was mentioned as "win-win" deal. One participant mentioned risk and reward sharing as the approval of any transaction both by the supplier and the company for any type of change. It was mentioned that risk and reward sharing take place in supply chain management and risk management capability increases from Ad Hoc to Extended level. Besides, the observations showed that assessing the integration of key processes was crucial for the simplification and efficiency of pro-

87 A. M. Huberman and M. B. Miles, Handbook of Qualitative Research- Data Management and Analysis Methods, (edited by N. K. Denzin and Y. S. Lincoln, Thousand Oaks, London, New Delhi: Sage Publications, 1994), p. 428–444.

cesses. The participants discussed that the success of the supply chain members was dependent to the integration of key processes and how they were managed. Additionally, interdependence was accepted as a key antecedent of supply chain management by all participants while it was believed that supply chain was comprised of members that are connected each other. The term interdependence was also referred as compliance and synchronisation among supply chain members.

During the focus group discussions, different levels of the model were mentioned by the participants. Moreover, the stepwise progress in capability of supply chains on risk management, performance metrics and best practice implementations according to different levels of supply chain orientation, is validated. Furthermore, information sharing was interpreted as transparency among departments and supply chain members. As referred in the model, best practices implementation capability was evaluated as similar to project management. The observations during focus group discussions revealed that effective project management resulted in the increase of best practices implementation capability, which enhances the progress from Ad Hoc to Extended level. On the other hand, performance metrics implementation capability was understood as management by the key performance indicators that are used in the departments and integrated with supply chain members. Performance metrics implementation capability increases as the management of antecedents of supply chain management improves. Based on all of these, it was agreed by the participants that performance metrics implementation capability and risk management capability increase from Ad Hoc to Extended level.

On the other hand, new issues also emerged during the focus group study. One highlight is the improvement of compliance/synchronisation among chain members as supply chain management capability increases. Another emphasis was on experience, referring to long term relationship, as being an important driver for integration of key processes. Moreover, it was mentioned that working with experienced supply chain members also enhances experience. Besides, opportunity for alternative suppliers was considered as an important factor for risk management capability. Furthermore, the role of advanced technology for supply chain management activities was emphasized. The role of defined job descriptions and responsibilities were highlighted by the participants for achieving streamlined processes. Besides, standardization and its positive impact on supplier evaluation and performance management were revealed as an important factor for risk management capability. Herein, the majority of the participants mentioned about the quality management certificates. Also, agreements and penalties were understood as a key issue to increase collaboration, coordination, commitment and integration of business processes. One important highlight was the participants' consensus on the idea that the Supply Chain Management Capability Model and its dynamics could change according to different industries and structures.

There were also other issues which were mentioned as alternative drivers for the progress in the Supply Chain Management Capability Model. One is the role

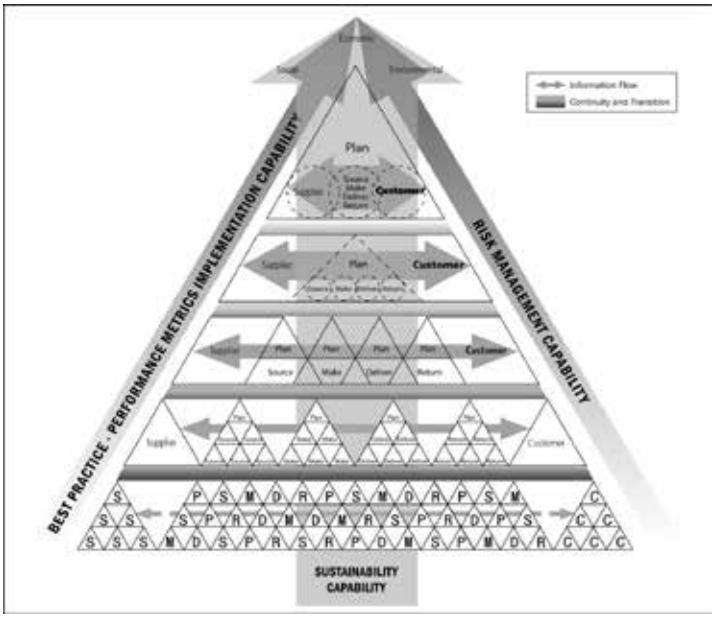
of cash flow management for cost control issues. Other is the selection of the right suppliers to support performance metrics capability. Besides, participants considered human resources as another factor to provide sustainable competitive advantage. They have also highlighted that with the progress in the supply chain management capability (from Ad Hoc to Extended) will also reduce conflict whereas improve productivity, and efficiency.

On the other hand, two issues, customer satisfaction and sustainability capability, were recommended to be explicitly shown in the model as main dimensions, improving from the Ad Hoc level towards Extended. Participants considered customer satisfaction as being the main dynamic for the survival of the supply chain. This progress through the levels represents a better level of relationship management among supply chain members, which also enhance customer satisfaction levels along the chain and contributes to competitive advantage. They repeatedly mentioned that, in case where customer satisfaction was not provided, the supply chain members would possibly fail in business. Besides, the term sustainability was also discussed by the participants with all its three pillars to be directly related with the levels of the SCMC Model. As it is stated by the participants, three pillars of sustainability are mentioned in the literature as economic, social and environmental aspects[88]. The observations during the focus study revealed that the participants agree on the idea that sustainability is enhanced by the progress achieved through the supply chain management capability levels (from Ad Hoc to Extended).

Based on the results and findings of the emprical analysis, SCMC Model illustrated in Figure 3 is redesigned. The final version of the model is shown in Figure 4. Therefore, although the result of the focus group still support the framework of the SCOR and SCMM models in general, it further extends the discussions towards a more comprehensive process perspective, which considers the stepwise progress on the capability of supply chains on risk management, performance metrics, best practice implementations, customer satisfaction and sustainability practices according to different supply chain orientation levels.

88 John Elkington, Cannibals with Forks: The Triple Bottom Line of 21stCentury, (Gabriola Island: NewSociety Publishers, 1998).

Figure 4: *Supply Chain Management Capability Model-Final Version*



6. CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

As discussed in the previous sections, proposed model in this study combines supply chain risk management with industry best practices-performance metrics implementation capabilities of the supply chain members. It also considers the required supply chain risk management and sustainability capabilities of companies for different supply chain orientation levels.

Implementing best practices and performance metrics provide a medium for continuous progress for the entire supply chain members. However, to be capable of managing risks and implementing best practices and performance metrics effectively, a higher level of supply chain orientation is needed. This requires the existence of key antecedents of supply chain orientation. SCMC Model is built based on this framework. The model also illustrates that the improvement on supply chain orientation will leverage the supply chain members through the levels of SCMC Model (namely from Ad Hoc to Extended). This comprehensive framework provides a roadmap to supply chain members in improving their supply chain risk management capability as well as other capabilities provided by an improved level of supply chain orientation.

The model developed through the literature was reflecting the capability idea on the strategic implementations of risk management, performance management and best practices. However, the focus group discussions strongly showed that the two other dimensions of customer satisfaction and sustainability are inevitable outcomes of the progress through the SCMC Model and they need to be explicitly

included as foundations to the capability progress idea. Since customer satisfaction is necessary for establishing, developing and maintaining successful relationship management,, supply chain members are likely to have increased customer retention and loyalty.

This study also reveals several practical implications. As it is validated in the focus group study, SCMC Model can be used as a framework for companies to better manage supply chain risk. Also, the model offers a guide for the managers to determine their supply chain orientation level. Managers can determine the dynamics of their supply chain relationships with their supply chain members, based on key antecedents of supply chain management and dimensions given in the model. In order to make a progress through the upper levels of the model, managers are likely to find out the potential improvement areas both in their companies and their supply chains. Continuity and Transition part of the SCMC Model can be a tool to be used for this purpose. Also, companies can concentrate on their capabilities to increase the effectiveness of information flow within and between the supply chain members. Similarly, the managers can examine the best practices and performance metrics which are appropriate for their current supply chain levels in the model and search for the improvement opportunities to progress to upper levels.

Besides, SCMC Model invokes to extend the SCOR model. SCMC Model proposes an extension to the SCOR model in terms of risk management, best practices and performance metrics. SCMC Model argues that, the implementations of risk management, best practices and performance metrics given in the SCOR Model can be extricated distinctly for different levels of capabilities in SCMC Model. To be precise; it is a necessary condition to provide the requirements for key antecedents of supply chain management for improvement in supply chain orientation, and thus supply chain capabilities. Therefore, based on the level of progress in these issues, the risk management, best practice or performance metrics implementation can be very challenging for a company operating at the initial level (Ad Hoc) whereas it can be easier to apply at a higher level (Integrated Stage). This proposed extention to the SCOR model will serve better to SCOR model's purpose of improving the management and effectiveness of supply chains and will provide a more valuable guide to the industry. Moreover, this framework considers supply chain antecedents which are also emphasized in relationship marketing perspective for the evaluation of supply chain orientation levels. As the relationship management between supply chain members evolves, it is more likely for supply chains to sustain their competitive advantage.

In this study, empirical evidence to support the propositions of the SCMC Model is provided by focus group study. However, in order to generalize and verify the findings of the model, further research can be conducted in different geographical regions through research methods like case studies and in-depth interviews. Also, determining the best practices and performance metrics which are appropriate for each level of the model is recommended as future studies. Additionally, longitudinal research is recommended to better observe the changes in the levels.

REFERENCES

Akintoye, Akintola, McIntosh, George, and Fitzgerald, Eamon, 'A survey of supply chain collaboration and management in the UK construction industry', *European Journal of Purchasing & Supply Management*, Vol. 6, No. 3, 2000, p. 159-168.

Anderson, James C., 'Relationships in business markets: exchange episodes, value creation, and their empirical assessment', *Journal of the Academy of Marketing Science*, Vol. 23, No.4, 1995, p. 346-350.

Arnulf, Jan K., Dreyer Heidi C., and Grenness, Carl Erik, 'Trust and knowledge creation: how the dynamics of trust and absorptive capacity may affect supply chain management development projects', *International Journal of Logistics: Research and Applications*, Vol. 8, No. 3, 2005, p. 225-236.

Bahinipati, Bikram K., Kanda, Arun, and Deshmukh, S. G., 'Coordinated supply management: review, insights, and limitations', *International Journal of Logistics: Research and Applications*, Vol. 12, No. 6, 2009, p. 407-422.

Blos et al., 'Supply Chain Risk Management SCRM: A Case Study on the Automotive and Electronic Industries in Brazil', *Supply Chain Management-An International Journal*, Vol. 14, No. 4, 2009, p. 247-252.

Boute, Robert, Dierdonck, Roland Van, and Vereecke, Ann, 'Organising for supply chain management', *International Journal of Logistics: Research and Applications*, Vol. 14, No. 5, 2011, p. 297-315.

Carlock, Danielle M., and Perry, Anali Maughan, 'Exploring Faculty Experiences With E-Books: A Focus Group', *Library Hi Tech*, Vol. 26, No. 2, 2008, p. 244 – 254.

Christopher, Martin, and Lee, Hau, 'Mitigating Supply Chain Risk through Improved Confidence', *International Journal of Physical Distribution & Logistics Management*, Vol. 34, No. 5, 2004, p. 388-396.

Christopher, Martin, and Peck, Helen, 'Building the Resilient Supply Chain', *International Journal of Logistics Management*, Vol. 15, No. 2, 2004, p. 1-14.

Christopher, Martin, and Juttner, Uta, 'Supply Chain Relationships: Making the Transition to Closer Integration', *International Journal of Logistics: Research and Applications*, Vol. 3, No. 1, 2000, p. 5-23.

Corsten, Daniel, Gruen, Thomas, and Peyinghaus, Marion, 'The effects of supplier-to-buyer identification on operational performance—An empirical investigation of inter-organizational identification in automotive relationships', *Journal of Operations Management*, Vol. 29, No. 6, 2011, p. 549-560.

Elkington, John, *Cannibals with Forks: The Triple Bottom Line of 21stCentury*, (Gabriola Island: NewSociety Publishers, 1998).

Ellram, Lisa M., and Cooper, Martha C., 'Supply Chain Management, Partnerships, and the Shipper- Third Party Relationship', *Journal of Logistics Management*, Vol. 1, No. 2, 1990, p. 1-10.

Finch, Peter, 'Supply chain risk management', *Supply Chain Management: An International Journal*, Vol. 9, No. 2, 2004, p. 183-196.

Giannoccaro, Ilaria, and Pontrandolfo, Pierpaolo, 'The organizational perspective in supply chain management: an empirical analysis in Southern Italy', *International Journal of Logistics: Research and Applications*, Vol. 6, No. 3, 2003, p. 107-123.

Hensher, D. A., and Puckett, S. M., 'Power, Concession and Agreement in Freight Distribution Chains: Subject to Distance-Based User Charges' *International Journal of Logistics: Research and Applications*, Vol. 11, No. 2, 2008, p. 81-100.

Holweg, Matthias, and Pil, Frits K., 'Theoretical perspectives on the coordination of supply chains' *Journal of Operations Management*, Vol. 26, No. 3, 2008, p. 389-406.

Huberman, A. M., and Miles, M. B., *Handbook of Qualitative Research- Data Management and Analysis Methods*, (edited by N. K. Denzin and Y. S. Lincoln, Thousand Oaks, London, New Delhi: Sage Publications, 1994), p. 428–444.

Hung et al., 'Sharing Information Strategically in a Supply Chain: Antecedents, Content and Impact', *International Journal of Logistics: Research and Applications*, Vol. 14, No. 2, 2011, p. 111-133.

Izushi, Hiro, and Morgan, Kevin, 'Management of Supplier Associations: Observations from Wales', *International Journal of Logistics: Research and Applications*, Vol. 1, No. 1, 1998, p. 75-91.

Jayaraman, Vaidyanathan, Ross, Anthony D., and Agarwal, Anurag, 'Role of information technology and collaboration in reverse logistics supply chains', *International Journal of Logistics: Research and Applications*, Vol. 11, No. 6, 2008, p. 409-425.

Johnston et al., 'Effects of Supplier Trust on Performance of Cooperative Supplier Relationships', *Journal of Operations Management*, Vol. 22, No. 1, 2004, p. 23–38.

Juttner, Uta, 'Supply Chain Risk Management, Understanding The Business Requirements From a Practitioner Perspective', *International Journal of Logistics Management*, Vol. 16, No. 1, 2005, p. 120-141.

Juttner, Uta, Peck, Helen, and Christopher, Martin, 'Supply Chain Risk Management: Outlining an Agenda for Future Research', *International Journal of Logistics: Research and Applications*, Vol. 6, No. 4, 2003, p. 197-210.

Ketchen, David J., Hult, G. Tomas M., and Slater, Stanley F., 'Toward greater understanding of market orientation and the resource‐based view', *Strategic Management Journal*, Vol. 28, No. 9, 2007, p. 961-964.

Khan, Omera, and Burnes, Bernard, 'Risk and supply chain management: creating a research agenda', *International Journal of Logistics Management*, Vol. 18, No. 2, 2007, p. 197-216.

Krueger, R.A., and Casey, M.C., *Focus Groups: A Practical Guide for Applied Research*, (4th ed. Thousand Oaks, CA: Sage, 1990).

Kwon, Ik‐Whan G., and Suh, Taewon, 'Factors affecting the level of trust and commitment in supply chain relationships', *Journal of Supply Chain Management*, Vol. 40, No. 1, 2004, p. 4-14.

Lee, Hau L., and Billington, Corey, 'Managing Supply Chain Inventory: Pittfalls and Opportunities', *Sloan Management Review*, 1992, Vol. 33, No. 3i, p. 65-73.

Lee, Hau L., So, Kut C., and Tang, Christopher S., 'The value of information sharing in a two-level supply chain', *Management science*, Vol. 46, No. 5, 2000, p. 626-643.

Lambert, Douglas M., '*Supply Chain Management*', Chap. 1 in, *Supply Chain Management- Processes, Partnerships , Performance*, (edited by Douglas M. Lambert, 1-23. Florida: Supply Chain Management Institute, 2008).

Lee, Hau L., 'Creating Value Through Supply Chain Integration', *Supply Chain Management Review*, Vol. 4, No. 4, 2000, p. 30-36.

Lockamy III et al., 'The Impact of Process Maturity and Uncertainty on Supply Chain Performance: An Empirical Study', *International Journal of Manufacturing Technology and Management*, Vol. 15, No. 1, 2008, p. 12-27.

Lockamy III, Archie, and McCormack, Kevin, 'The development of a supply chain management process maturity model using the concepts of business process orientation', *Supply Chain Management: An International Journal*, Vol. 9, No. 4, 2004, p. 272-278.

Lorentz et al., 'Supply Chain Development Priorities of Manufacturing Firms: Empirical Findings from a Finnish National Survey', *International Journal of Logistics: Research and Applications*, Vol. 14, No. 5, 2011, p. 351-365.

Mahapatra, Santosh K., Narasimhan, Ram, and Barbieri, Paolo, 'Strategic interdependence, governance effectiveness and supplier performance: A dyadic case study investiga-

tion and theory development', *Journal of Operations Management*, Vol. 28, No. 6, 2010, p. 537-552.

Makukha, Konstantin and Gray, Richard, 'Logistics partnerships between shippers and logistics service providers: the relevance of strategy', *International Journal of Logistics: Research and Applications*, Vol. 7, No. 4, 2004, p. 361-377.

Manuj, Ila, and Mentzer, John T., 'Global supply chain risk management strategies', *International Journal of Physical Distribution & Logistics Management*, Vol. 38, No. 3, 2008, p. 192-223.

McCormack et al., 'Managing Risk in Your Organization with the SCOR Methodology', The Supply Chain Council Risk Research Team, *Supply Chain Council*, 2008.

Mentzer et al., 'Defining Supply Chain Management', *Journal of Business Logistics*, Vol. 22, No. 2, 2001, p. 1-25.

Min, S. and Mentzer, J. T. , 'Developing and measuring supply chain management concepts', *Journal of business logistics*, Vol. 25, No. 1, 2004, p. 63-99.

Morgan, R.M. and Hunt, S.D., 'The Commitment-Trust Theory of Relationship Marketing', *Journal of Marketing*, Vol. 58, 1994, p. 20-38.

Andreas Norrman and Ulf Jansson, 'Ericsson's Proactive Supply Chain Risk Management Approach after a Serious Sub-Supplier Accident.' I*nternational Journal of Physical Distribution & Logistics Management*, Vol. 34, No. 5, 2004, p. 434-456.

Pettit, Timothy J., Fiksel, Joseph, and Croxton, Keely L., 'Ensuring Supply Chain Resilience: Development of a Conceptual Framework', *Journal of Business Logistics*, Vol. 31, No. 1, 2010, p. 1- 21.

Ramanathan, Usha, and Gunasekaran, Angappa, 'Supply Chain Collaboration: Impact of Success in Long-term Partnerships', *International Journal of Production Economics*, Vol. 147, 2014, p. 252-259.

Power, Damien, and Singh, Prakash, 'The E-Integration Dilemma: The Linkages Between Internet Technology Application, Trading Partner Relationships and Structural Change', *Journal of Operations Management*, Vol. 25, No. 6, 2007, p. 1292-1310.

Rodrigues et al., 'Assessing the Application of Focus Groups as a Method for Collecting Data in Logistics', *International Journal of Logistics: Research and Applications*, Vol. 13, No. 1, 2010, p. 75-94.

Smart, Alan, and Harrison, Alan, 'Reverse auctions as a support mechanism in flexible supply chains', *International Journal of Logistics*, Vol. 5, No. 3, 2002, p. 275-284.

Spekman, Robert E., Kamauff Jr., John W., and Myhr, Niklas, 'An empirical investigation into supply chain management: a perspective on partnerships', *Supply Chain Management: An International Journal*, Vol. 3, No. 2, 1998, p. 53-67.

Stannack, Peter, 'Purchasing Power and Supply Chain Management Power—Two Different Paradigms? A response to Ramsay's 'Purchasing power' (1995)', *European Journal of Purchasing & Supply Management*, Vol. 2, No. 1, 1996, p. 47-56.

Supply Chain Operations Reference Model, Version 9. 2008. available at: http://archive.supplychain.org/galleries/publicgallery/SCOR%209.0%20Overview%20Booklet.pdf (accessed 01.06.2013).

Tang, Christopher S., 'Supplier Relationship Map', *International Journal of Logistics Research and Applications*, Vol. 2, No. 1, 1999, p. 39-56.

Tang, Christopher S., 'Perspectives in Supply Chain Risk Management', *International Journal of Production Economics*, Vol. 103, No. 2, 2006a, p. 451-488.

Tang, Christopher S., 'Robust Strategies for Mitigating Supply Chain Disruptions', *International Journal of Logistics: Research and Applications*, Vol. 9, No. 1, 2006b, p. 33-45.

Van Der Vorst, Jack Gaj, and Beulens, Adrie JM, 'A Research Model for the Redesign of Food Supply Chains', *International Journal of Logistics: Research and Applications*, Vol. 2, No. 2, 1999, p. 161-174.

Van der Vorst et al., 'E-business Initiatives in Food Supply Chains; Definition and Typology of Electronic Business Models', *International Journal of Logistics: Research and Applications*, Vol. 5, No. 2, 2002, p. 119-138.

Zacharia, Zach G., Nix, Nancy W., and Lusch, Robert F., 'Capabilities that enhance outcomes of an episodic supply chain collaboration', *Journal of Operations Management*, Vol. 29, No. 6, 2011, p. 591-603.

Zhao et al., 'The Impact of Power and Relationship Commitment on the Integration Between Manufacturers and Customers in a Supply Chain', *Journal of Operations Management*, Vol. 26, No. 3, 2008, p. 368–388.

APPENDIX 1: LIST OF THE QUESTIONS FOR FOCUS GROUP STUDY

1. What firstly comes to your mind when you hear the concepts of supply chain or supply chain management?
2. What are the factors that affect supply chain management?
3. How do you position the members of a supply chain?
4. What are the main factors affect the synchronization of supply chain members?
5. Do you think that there will be a change in today's supply chain members' integration level and in the future?
6. Can you explain your company's relationship management practices with other supply chain members?
7. What types of competences and attributes are achieved by the members of supply chain during the progress from Ad Hoc to Extended level?
8. Why trust is built up at Extended level? Are there any other factors effecting trust apart from transparency?
9. Would you prefer your company to move ahead the capability levels (from Ad Hoc to Extended)?
10. What are the negative effects of shifting up from Ad Hoc to Extended level?
11. How can you consider responsibilities and difficulties of supply chain members, while shifting up from Ad Hoc to Extended level?
12. Would you add any additional dimension to the model, why?