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Supply Chain Risk Management: A Content Analysis Approach

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Abstract

Although Supply Chain Risk Management (SCRM) has become more popular over the last decade, attempts to synthesize research within this field have seldom been conducted. Aiming to fulfill part of this gap, this paper presents a systematic review of the literature on SCRM using a content analysis approach contemplating three well known electronic data bases (Elsevier, Emerald, and Taylor & Francis Group). Sixty papers published between 2003 and 2012 in 22 peer reviewed international journals have been retrieved. Interest in the subject is growing, as evidenced by the number of papers recently published on different aspects of SCRM. The paper provides a discussion of main definitions available.Although there is no universal definition of the concept, the authors agree that the main issue is the identification and management of risk events that impact supply chains. The collected papers are classified in the theoretical, empirical and theoretical empirical dimensions and in a SCRM conceptual framework based on three different phases: risk identification; risk assessment; and instruments for SCRM. These classifications allowed a reasonable comprehensive assessment of research approaches taken in the current body of literature on the subject. The results highlight the high number of definitions for SCRM, the main topics in the SCRM field and research applications, identify the key issues addressed in these researches, and emphasise remaining gaps that deserve special attention in future research.

Keywords: *conceptual framework; literature review*, *supply chain; risk management.*

1. INTRODUCTION

Systematic literature reviews are a means of providing an objective theoretical evaluation of a particular topic [1]. A systematic literature review facilitates the identification, evaluation, and interpretation of studies in a given area by examining existing concepts, practices, and theories and ultimately summarising the state of the reproducible research in a specific area[2, 3]. Thus, the use of literature reviews is necessary for those seeking to better understand the issues associated with a topic of research [4]and to provide direction for future studies that can address existing knowledge gaps.

Several concepts and themes related to industrial engineering have been analysed by means of systemic reviews. However, despite the importance of supply chain risk management (SCRM) and the large number of published studies on this subject, the academic literature lacks a systematic review of SCRM research.

Supply Chain Risk Management (SCRM) has become a popular topic over the last decade [5, 6, 7],and it can be defined as 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 [8].

Although the SCRM growing popularity, attempts to synthesize research within this field have seldom been conducted. Aiming to fulfill part of this gap, this paper presents a systematic review of the literature on SCRM using a content analysis approach. The research is restricted to papers published in academic journals within the last 10 years (between 2003 and 2012).

This paper is divided into six main sections, the first of which this introduction. Section 2 describes the research method used. Sections 3, 4 and 5presentthe analysis of results segregating respectively in each section: the study identification and SCRM definitions; the key issues addressed; and the risk identification, risk assessment, and instruments for SCRM grouped

into a SCRM conceptual framework. Finally, the last section offers the conclusions of the study.

2. RESEARCH METHOD

The present research uses the content analysis approach to develop the literature review. This approach allows researchers to select, filter, and summarise large volumes of data, thereby facilitating data analysis [9], being a systematic technique that is replicable by other researchers because it is based on explicit rules [10].

A process was adopted to select and retrieve papers: (i) computerised database selection, (ii) identification of keywords for search, (iii) manual review of selected abstracts, and (iv) full text review of selected papers.

The review examines publications found in the Elsevier, Emerald and Taylor & Francis Group electronic databases, technique that facilitates objective and systematic inference [11] that were published between 2003 and 2012. The data gathered for this review was exclusively from scientific journals, as academics and professionals generally use such journals to acquire knowledge and disseminate new results [12, 13, 14].

In accordance with recommendations for initial research synthesis found in the literature [15], the keywords selected were sufficiently broad to avoid artificially limiting results and still provided limitations to avoid undesirable results. In pseudo code, the following phrase was adapted to the search engines in each database: “Supply Chain Risk Management”, using as reference the title, abstracts and keywords of the papers. As there are manydifferent definitions for“risk”, being this term an elusive construct with a variety of meanings, measurements, and interpretations depending on the field of research [16], the authors of this paper associated the term “supply chain management” to it to form the phrase used for the search engines towards clarifying its application to the field of this research, excluding as a result academic contributions that embrace other fields as accounting, finance, economics and marketing. The use of “Supply Chain Risk Management” is widely accepted and used in the academic literature, what also supports its choice. Even though, the use of this Boolean expression in the selection process, of just three electronic databases and scientific journals may have caused the researchers to omit studies that address this theme using other words or terms or that are available in other databases or dissimilation source (e.g. theses, dissertations and conference papers), however it is believed that the articles reviewed comprise a reasonably representative and comprehensive body of the research work being accomplished in this area. It is not the intention of this paper to be exhaustive.

Sixty papers have been retrieved. All the selected articles were computer managed. For the purposes of this study, a Microsoft Excel database was designed containing the key issues addressed in each paper. A special effort was given to the SCRM definitions to identify a possible lack of a single consistent definition of the concept or a universal accepted definition. The collected papers have been classified in the theoretical and empirical dimension (see scheme developed by Olsen and Ellram [18], Croom et al. [19] and Luo et al. [20], allowing a reasonable comprehensive assessment of research approaches taken in the current body of literature on the subject by highlighting both the basic methodology used and the aim or focus of studies. Theoretical papers primarily develop models, concepts or conceptual frameworks, while empirical ones generally that report practice by means of surveys, case studies, interviews or anecdotal information. Some papers can be classified both theoretical and empirical: these works typically develop a number of hypotheses and test them empirically.

The next sections presents and analyses the results obtained from the systematic review on SCRM.

3. STUDY IDENTIFICATION AND SCRM DEFINITIONS

Figure 1 presents the 60papers retrieved for the systematic review analysis. Interest in the subject is growing, as evidenced by the number of papers recently published with a peak in 2011. The year of 2012 is just partly included as it was the period this research was conducted.

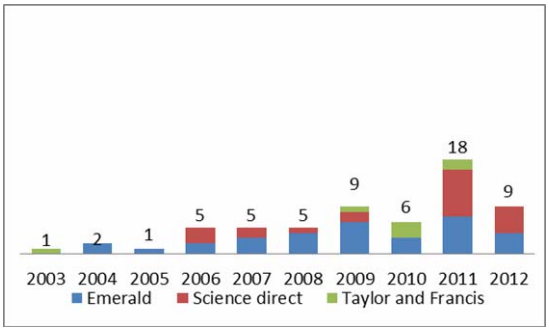

Figure 1. Number of publications on SCRM by year

Main SCRM definitions are depicted in Table 1. The first column displays the considered references, while the second presents the definitionsthemselves and the third provides the other papers that have adopted the mentioned definition in their work.

As seen in Table 1, the definition proposed in Jüttner et al. [8] is widely mentioned and adopted in many academic papers; however the literature offers other definitions.

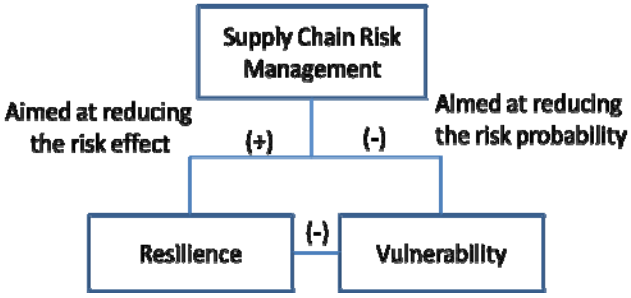

Figure 2. The relation between SCRM, resilience and vulnerability[25].

Many of them embrace the concepts of vulnerability and resilience, where the first is understood as the susceptibility of the supply chain to the likelihood and consequences of disruptions [44] and the second as the adaptive capability of the supply chain to prepare for unexpected events, respond to disruptions, and recover from them. Figure 2 highlights the relation between resilience and vulnerability.

Another important fact that appears in most of the definitions is the collaborative and coordinated participation among the chains' members, emphasizing the idea that competition occurs based on chains and not on individual companies level, i.e. the risk management along the chain is dependent on the relationship and integration among its members.

Based on Table 1, the concept of SCRM can be defined as the identification and management of risks for the supply chain through a coordinated approach amongst supply chain members to reduce supply chain vulnerability as a whole [8, 21-29, 33-35, 41, 42, 44, 45], to increase resilience [30, 31, 36]. SCRM aims to minimize, monitor, and control the probability and impact of uncertain disruptive events [36, 38] and to ensure performance [39, 41, 42, 45], profitability and continuity [33, 41, 42, 44].

Table 1. Main SCRM definitions

Reference	Definition of SCRM	Papers that adopted the definition
Jütttner et al. [8]	SCRM is defined as 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.	[6, 21, 221, 23, 24, 25, 26, 27, 28, 29]
Norrman and Lindroth [32]	SCRM applies [with collaboration] with partners in a supply chain risk management process tools to deal with risks and uncertainties caused by, or impacting on, logistics related activities or resources.	[30, 31]
Tang[33]	SCRM is defined as The management of supply chain risk through coordination or collaboration among the supply chain partners so as to ensure profitability and continuity"	[34, 35]
Norrman and Jansson [30]	The focus of SC risk management is to understand, and try to avoid, the devastating effects that disasters or even minor business disruptions can have in a SC. The aim of SC risk management is to reduce the probability of risk events occurring and to increase resilience, that is, the capability to recover from a disruption.	[36]
Giunipero and Eltantawy[37]	SCRM is a formal process that involves identifying potential losses, understanding the likelihood of potential losses, and assigning significance to these losses	[38]
Supply chain Council [39]	SCRM is the systematic identification, assessment and mitigation of potential disruptions in logistics networks with the objective to reduce their negative impact on the logistics network's performance	[40]
Manuj and Mentzer[40]	Global SCRM is the identification and evaluation of risks and consequent losses in the global supply chain, and implementation of appropriate strategies through a coordinated approach among supply chain members with the objective of reducing one or more of the following – losses, probability, speed of event, speed of losses, the time for detection of the events, frequency, or exposure – for supply chain outcomes that in turn lead to close matching of actual cost savings and profitability with those desired.	[42]
Brindley [43]	SCRM is defined as the management of supply chain risks through coordination or collaboration among the supply chain partners so as to ensure profitability and continuity.	[44]
Goh et al. [45]	SCRM is defined as the identification and management of risks within the supply network and externally through a co-ordinated approach amongst supply chain members to reduce supply chain vulnerability as a whole.	
Lavastre et al. [28]	SCRM refers to risks that can modify or prevent part of the movement and efficient flow of information, materials and products between the actors of a supply chain within an organization, or among actors in a global supply chain (from the supplier's supplier to the customer's customer). SCRM can be seen as the capacity to be agile.	
Tummala and Schoenherr [46]	SCRM process is a tool to provide management with useful and strategic information concerning the SC risk profiles associated with a given situation. This is in contrast to the traditional approach based on single point estimates. The SCRMP ensures SC managers adopt strategic thinking and strategic decision making in evaluating options to improve supply chain performance.	

4. KEY ISSUES ADDRESSED

The sixty papers address different aspects of SCRM, the next subsections presents the main aspects that should be highlighted. Within this presentation, the papers are classified in theoretical, empirical and theoretical-empirical studies and are presented chronologically, as done in Leão et al., [47].

The result analysis indicates that most of the papers retrieved are theoretical (53% of the total). The remaining articles are purely empirical (29%) or both empirical and theoretical (19%). Empirical studies are predominantly focused on two manufacturing sectors (automotive and electronic) and one service sector (logistic service providers). This further emphasises the

need for more empirical studies on other industry sectors exposed to risk in their supply chains (i.e. oil & gas).

4.1 Theoretical studies

The focus of the main theoretical studies is presented in this section.

Faisal et al.[31]present an approach to effective supply chain risk mitigation by understanding the dynamics between various enablers that help to mitigate risk in a supply chain. Cucchiella and Gataldi[48]individualize a framework for the management of uncertainty in supply chain finalized to reduce the firm risks. Tang [33]reviews various quantitative models for managing supply chain risks and develops a unified framework for classifying SCRM articles. Wu et al. [49]reinforce inbound supply chain risk management by proposing an integrated methodology to classify, manage and assess inbound supply risks. Gohet al. [45] present a stochastic model of the multi-stage global supply chain network problem, incorporating a set of related risks, namely, supply, demand, exchange, and disruption. Ritchie and Brindley [50] purpose to examine the constructs underpinning risk management and explores its application in the supply chain context through the development of a framework. Khan and Burnes [51] develop a research agenda for risk and supply chain management. These authors show that there are a number of key debates in the general literature on risk, especially in terms of qualitative versus quantitative approaches, which need to be recognized by those seeking to apply risk theory and risk management approaches to supply chains. In addition, they show that the application of risk theory to supply chain management is still in its early stages andthat the models of supply chain risk which have been proposed need to be tested empirically. Li and Chandra [52] investigate and develop a generic knowledge integration framework that can handle the challenges posed in complex network management. Williams et al. [22] develop and present a categorization of supply chain security based on existing research. Wu and Olson [53] propose a supply chain model and use simulated data with representative distributions. The results show that the proposed approach allows decision makers to perform trade-off analysis among uncertainties. They also provide alternative tools to evaluate and improve supplier selection decisions in an uncertain supply chain environment. Rao and Goldsby [54] review the growing literature examining SCRM and to develop a typology of risks in the supply chain. Sodhi and Tang [17]survey various modelling and solution choices developed in the asset–liability management (ALM) literature and discuss their applicability to supply-chain planning. This survey can be a basis for making modelling/solution choices in research and in practice to manage the risks pertaining to unmet demand, excess inventory, and cash liquidity when demand is uncertain. Trkman and McComack [74] propose an approach to the identification and prediction of supply risk. Olson and Wu [55] review published approaches to supply chain risk management, to include identification and classification of types of risks, cases, and models. Manuj et al. [56] develop a framework based on some of the most rigorous studies published in leading journals and illustrate the simulation model development process using a supply-chain risk management study. Yang and Yang [57] explore the role of postponement in supply chain risk management from a complexity perspective. Jia and Rutherford [24] add a cultural-relational dimension SCRM literature. Inter-firm learning and cultural adaptation literatures are reviewed, missing themes identified and a conceptual model proposed. Christopher et al. [42] propose to understand how managers assess global sourcing risks across the entire supply chain and what actions they take to mitigate those risks. Tummala and Schoenherr [46] propose a comprehensive and coherent approach for managing risks in supply chains. The authors develop a structured and ready-to-use approach for managers to assess and manage risks in supply chains. Olson and Wu [58] compare tools to aid supply chain organizations in measuring, evaluating, and assessing risk in this environment. Tseet al. [59] explore the issues of quality and safety problems in global supply networks, and introduce a supply chain risk management (SCRM) framework to reduce the quality risk. Sawik [60]. The problem of allocation of orders for parts among part suppliers in a customer driven supply chain with operational risk is formulated as a stochastic single- or bi-objective mixed integer program. Given a set of customer orders for products, the decision maker needs to decide from which supplier to purchase parts required for each customer order to minimize total cost and to mitigate the impact of delay risk. The selection of suppliers and the allocation of orders are based on price and quality of purchased parts and reliability of on time delivery. To control the risk of delayed supplies, the two popular percentile measures of risk are applied: value-at-risk and conditional value-at-risk. The proposed approach is capable of optimizing the supply portfolio by calculating value-at-risk of cost per part and minimizing mean worst-case cost per part simultaneously. Numerical examples are presented and some computational results are reported.Tang and Musa [7] investigate the research development in supply chain risk management (SCRM), which has shown an increasing global attention in recent years. Giannakis and Louis [61] develop a framework for the design of a multi-agent based decision support system for the management disruptions and mitigation of risks in manufacturing supply chains. Tang et al. [62] investigate newsvendor problem with random demand and random yields, in which the price decision will be postponed and determined upon recognition of random yield and prior to realizing demand uncertainties. Lavastre et al. [28] based their paper on an empirical study to demonstrate that for organizations to be effective, SCRM must be a management function that is inter-organizational in nature and closely related to strategic and operational realities of the activity in question. Schmitt and Snyder [34] consider one case

where a firm's only sourcing option is an unreliable supplier subject to disruptions and yield uncertainty, and a second case where a second, reliable (but more expensive) supplier is available. The authors develop models for both cases to determine the optimal order and reserve quantities. Lockamy and McCormack [38] present a methodology for modelling andevaluating risk profiles in supply chains via Bayesian networks. Colicchia and Strozzi [29] present a focused literature review, investigating the process of knowledge creation, transfer and development from a dynamic perspective within the context of SCRM. Finally, Sun et al. [35] present a solution model to help suppliers find out the optimal due-date that minimizes the total cost. The authors also clarify the relations among various risks by analysing proposed model. We find that a longer due-time should be set when either the sampling interval is longer or a high quality is demanded.

4.2 Empirical studies

The focus of the main empirical studies is presented in this section.

Finch [63] presents a secondary analysis of the literature, supplemented by case studies to determine if large companies increase their exposure to risk by having small- and medium-size enterprises as partners in business critical positions in the supply chain, and to make recommendations concerning best practice. Norrman and Jansson [30] describe how Ericsson, after a fire at a sub-supplier has implemented a new organization, new processes and tools for SCRM. Jüttner [21] seeks to understand business requirements for supply chain risk management from a practitioner perspective. Khan et al.[64] address the increasingly important issue of the impact of product design on supply chain risk management in an era of global supply arrangements. The authors provide a framework for design-led supply chain risk management and thus present a case for recognizing design as more than a creative function but as a platform to manage risk in supply chains. Bloset al. [44] identify the supply chain risks in the automotive and electronic industries in Brazil, and to highlight the urgency of supply chain risk management (SCRM) implementation. Colicchia et al. [23] focuses on inbound supply risk in a global sourcing context, where increased distances between sources of supply and final markets add uncertainty to supply continuity through longer and more variable lead times. Elangovan et al. [65] investigate the various forms of expected loss producing events due to major time delays in supply chain activities of manufacturing organizations and justify the necessity and more attention needed for SCRM strategies for better, systematic and dynamic executions using risk mitigation with appropriate strategies. The authors also emphasize the need for more dynamic models for achieving loss reduction with a future scope of risk. Lin and Zhou [66] address the impact of product design changes on supply chain risk, and to identify the supply chain risk dimensions in the Chinese special-purpose vehicle (SPV) industry in the context of product design change. Colicchia et al. [27] study the impact that specific risk-reduction strategies could have on supply lead time and on the related logistics cost and to offer a tool to support companies in the implementation of these strategies. Blome and Schoenherr [67] develop a set of propositions about how companies manage supply risks in financial crises, highlight how their risk management approaches have shifted, and illustrate how they are related to Enterprise Risk Management. Jüttner and Maklan [25] conceptualize supply chain resilience and to identify and explore empirically its relationship with the related concepts of supply chain vulnerability and supply chain risk management. Vilko and Hallikas [26] present preliminary research concepts and findings concerning the identification and analysis of risks in multimodal supply chains and finally, Thun and Hoening [6] analyze the status quo of supply chain risk management in Germany based on a study conducted in the automotive industry. The authors investigate the relevance of different risks in terms of their probability of occurrence and their potential impact on the supply chain. Khan et al. [68] investigate the alignment between product design and the supply chain and to identify how this alignment impacts on a firm's supply chain responsiveness and resilience.

4.3 Theoretical-empirical studies

The focus of the main theoretical-empirical studies is presented in this section.

Jüttner et al. [8]seek to identify an agenda for future research and to that end the authors go on to clarify the concept of supply chain risk management and to provide a working definition. The existing literature on supply chain vulnerability and risk management is reviewed and compared with findings from exploratory interviews undertaken to discover practitioners' perceptions of supply chain risk and current supply chain risk management strategies. Manujand Mentzer[41]explore the phenomenon of risk management and risk management strategies in global supply chains. Oehmen et al. [69] propose two approaches to risk management in global supply chains. The authors test the approaches empirically in three companies to show the feasibility of the approach. Pujawan and Geraldin [36] provide a framework to proactively manage supply chain risks. The framework will enable the company to select a set of risk agents to be treated and then to prioritize the proactive actions, in order to reduce the aggregate impacts of the risk events induced by those risk agents. Dani and Deep [70] propose a conceptual model for risk mitigation from a reactionary standpoint in a food supply chain which is retrospectively validated using selected case studies. MeiDan et al. [71] present a model of risk control in equipment manufacturing supply chain. They provide a new solution methodology to measure risk in electronic manufacturing supply chain, the model combines the unascertained theory with fuzzy method. Kern et al. [72] develop a model for upstream supply chain risk management linking risk identification, risk assessment and risk mitigation to risk performance and validate the

model empirically. Finally, Reniersa et al. [40] demonstrate how system resilience can be improved by focusingon a supply chain network as a whole. The authors analyse inventory placement and back-up methodologies in a multi-echelon network and view their effect on reducing supply chain risk. They present analysis and insights for multi-echelon networks, using as base a simulation model, and show how network utilization and proactive planning enable reductions in supplychaindisruption impact.

5. SCRM CONCEPTUAL FRAMEWORK

This subsection organizes the key contributions on SCRM based on Jüttner et al. [8], Jüttner [21], Ritchie and Brindley [50] Oehmen et al. [69], Tse et al. [59], and Kern et al. [72]. These works discuss and analyse SCRM based on main pillars that can be grouped into three different phases that contemplate: Risk identification; Risk Assessment; and Instruments for SCRM, as presented next in details.

5.1 Phase 1: Risk Identification

This phase has as main goal the characterization of the risks, seeking to understand theirs consequences and triggers. Its constructs are risk drivers, risk sources, and risk consequences.

Based on Jüttner et al. [8]risk drivers can be viewed as how certain trends on contemporary SCM that are responses to competitive pressures might increase or decrease the vulnerability of the supplychain, i.e. drivers are recognizes as competitive pressures with risk implications. The SCRM literature deals with many different drivers, such as: Globalization [8, 6, 21, 30, 33]; Product [6]; Outsourcing [6, 8, 21, 30, 51]; Reduction of the Supplier base / supplier [6, 8, 21, 30]; Focus on efficiency[6, 21, 29, 32]; Partnerships and other close relationship [8];Centralized Distribution [6, 8, 21]; Centralized Production[6, 21]. Supply chain risk sources are any variables which cannot be predicted with certainty and from which disruptions can emerge [21],affecting the supply chain outcomevariables [8, 31]. Based on Jüttner et al. [8], Ritchie and Brindley [50], and Rao and Goldsby[54]risk sources can be categorised in: Organization (firm) risk, network-related risk, industry risk, and environmental risk. Organizational (or firm) risk lies within the boundaries of the supply chain parties at the firm level [8, 54]. Network-related risk arises from interactions between organizations within the supply chain [8]. Industry risks are variables that include those that may not affect all sectors of the economy as a whole, but rather a specific industry segment [54]. Environmental risk uncertainties correspond to factors that affect the business context across industries [54], arising from the supply chain-environment interaction [8, 21].

Risk consequences are the focused supply chain outcome variables, i.e. the different forms in which the variance becomes manifest [8]. They have an effect on a corporation's ability to continue operations, get finished goods to market orprovide critical services to customers [21].

Asaresult, they affect the ability of the focal firm tomeet customer demand (in terms of both quantity and quality) within anticipated costs and time, or causes threats to customer life and safety [41].

Adverse risk consequences can become manifest in any outcome measure and the literature provides extensive lists as: Sales losses [8]; Cost increase [8, 34]; Financial losses [8]; Product quality reduction / losses [8]; Threats to customer life and safe [8, 41]; Negative corporate image or reputation damage [8]; Delays in customer deliveries [41].

5.2 Phase 2: Risk Assessment

Risk assessment takes into consideration a wide range of criteria such as the probability of occurrence of the event, the risk level and risk impact, and it prioritizes the risks according to the outcome of this process [61].

A general process for risk assessment can involve establishing loss potential, identifying potential losses, understanding the likelihood of potential losses, assigning significance of losses, and appraising overall risk. An overall risk assessment, along with other considerations, dictates the risk taker's behaviour [73] and provides general insights on mitigating risks [31].

5.3 Phase 3: Instruments for SCRM

The third phase contemplates the instruments of SCRM. These instruments are the responses to supply chain uncertainties and are composed by risk mitigation strategies. The literature offers many examples of these strategies that can be grouped into the following categories based from Jüttner et al. [8]; Avoidance [8, 53, 60]; Control [8, 34]; Cooperation [8, 31, 74]; Flexibility [6, 8].

Risk mitigating strategies in supply chains have to be investigated in conjunction with the risk drivers. Together, they build on several supply chain trade-off as: the lowest bidder versus the known supplier; centralisation versus dispersion decisions in production and distribution; collaboration versus secrecy. A final, maybe paramount supply chain trade-off decision is between 'managing risk and delivering value'. This is the trade-off between the extra costs related to most of the mitigating strategies and the total costs of supply as a main principle of contemporary supply chain management [8].

6. CONCLUSION

This paper offers a systematic literature review on SCRM using the content analysis approach. Although this research is not exhaustive, the forty six selected papers constitute a significant and representative portion on the scientific research carried out on SCRM. It serves as a comprehensive base for an understanding of the main definitions, the main topics and research applications, and the key issues addressed in these researches.

The review highlights the lack of a unanimous definition for SCRM amongresearchers;however, they share a similar point of view about SCRM definition. Another point noticed was the need of conducting more empirical and theoretical-empirical studies. There are many industries that present many risk sources and events that are not yet covered in the literature, for instance, the oil and gas / petroleumindustry.

The results presented in this paper are relevant for both practitioners and researchers. Practitioners will be able to review a synthesis of different aspects of the SCRM process and have a better understanding of its role. There is at least partial evidence that risk management into supply chain can mitigate the negative effect of risk by different risk management strategies. Although this paper shows a preliminary conceptual framework to SCRM, it can help companies to manage the risk considering their supply chain.

Researchers may contribute further to the research on SCRM as a business process and for a better understanding of its effects on firm performance.

There is still a lack of well documented case studies describing SCRM process in different cultures and industries. Demonstrating how the findings obtained for specific industries and cultures can be generalised has yet to be achieved. Empirical data obtainable through surveys and in-depth interviews with managers and stakeholders in the supply chain are still lacking. Additional case studies and survey research are necessary to corroborate findings and to reveal new venues for research questions and hypothesis tests regarding the role of sales and operation planning in the supply chain.

The literature lacks an integrated and accepted framework for SCRM. Many models need to be tested in real supply chains. Further studies are need about the assessment stage in SCRM, with the conduction of more research on how risk can beanalysed and treated.

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Menadžment rizika lanca snabdevanja: prilaz analizom sadržaja

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Rezime

Iako je menadžment rizika lanca snabdevanja (SCRM) postao sve popularniji tokom poslednje decenije, pokušaji da se sintetizuju istraživanja na ovom polju su retki. Sa ciljem da popuni bar deo ove praznine, ovaj rad predstavlja sistematski pregled literature o SCRM koristeći pristup analize sadržaja uz pomoć tri poznate elektronske baze podataka (Elsevier, Emerald, i Taylor & Francis Group). Pronađeno je šezdeset radova objavljenih između 2003. i 2012. godine u 22 vodeća recenzirana međunarodna časopisa. Zainteresovanost za ovu temu raste, što dokazuje broj radova nedavno objavljenih koji govore o različitim aspektima SCRM. Rad pruža diskusiju o dostupnim definicijama. Iako ne postoji univerzalna definicija koncepta, autori se slažu da je glavni zadatak identifikacija i menadžment slučaja rizika koji utiču na lanac snabdevanja. Sakupljeni radovi su klasifikovani na teorijskim, empirijskim i teorijsko-empirijskim osnovama, a u SCRM konceptualnom okviru bazirani su na tri različlite faze: identifikacija rizika, procena rizika i instrumenti za SCRM. Ove klasifikacije omogućavaju razumnu i jasnu procenu pristupa istraživanju koje postoji u trenutnoj literaturi o ovoj temi. Rezultati ističu veliki broj definicija za SCRM, osnovne teme na polju SCRM i istraživačke aplikacije, identifikuju ključne osobine kojima se ova istraživanja bave, i naglašavaju preostale praznine koje zahtevaju posebnu pažnju u budućim istraživanjima.

Ključne reči: *konceptualni okvir; pregled literature*, *lanac snabdevanja; menadžment rizika*