

# Supply Chain Management:

## A Systematic Literature Review

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**Abstract**—The study aims to conduct a comprehensive literature review on supply chain management frameworks by determining research sources; determine the keyword pattern for the search process; using inclusion and exclusion criteria; data extraction; and finally analyzing findings to answer research questions. The results are a variable component of SCM mapping, and lastly have important implications for theory and practice.

**Keywords**—*information technology, supply chain management, e-SCM*

### I. INTRODUCTION

The coronavirus pandemic has sparked online commerce and ordering, forcing retailers to adapt to digital adoption to ensure the safety of employees and customers. This includes the use of apps and online orders for contactless purchases. The more retailers that adapt this form of technology, and then will make the consumer more comfortable, which in turn will encourage e-commerce and delivery to the end user. In order to maintain an overview, all companies in the supply chain must use this data to plan and optimize their business operations effectively.

According Fernandez *"The last three months of social distance have also shown us how dependent we have become*

*on e-commerce to acquire the goods we need and the remaining challenges, such as the visibility of the supply chain that is still present"* [1,2]. *"To fully excel in delivering accurate deliveries to buyers, retailers have strengthened their partnerships with business partners and focused on the quality of product information they make available to consumers"*. He added. With the need for more consumable and comprehensive data, brands and retailers have worked to transform inefficient, lengthy and often manual data management processes and automate traditional operations to better anticipate what consumers want [3].

There is more work to be done, especially as social distance will continue to impact the growth of e-commerce. However, retailers may run the risk of running into expensive returns if consumers do not value the delivered product at all like the online display: using a standards-based data framework remains essential [4].

Consumer issues and problems caused by COVID-19 can encourage companies to reserve part of their activities [4]. As with online trading, visibility is likely to increase alongside the technology behind these portals.

Supply-Chain-Management can be defined as a strategies that optimize the flow of materials or services in order to make

the product or service available to the end user. The aim is to perform this task in an integrated and cost-effective way [5].

Today's supply chain is part of every leading industry. The general categories that underpin industry-standard supply chain management include demand planning, procurement, manufacturing, inventory management, or warehousing and logistics [6].

The context of Supply Chain Management in its application for small and medium businesses (MSME) is the timely and efficient delivery of goods or services to consumers [7,8].

MSME operates SCM digitally to achieve this goal. Therefore, this research literature tries to define "what are the components of a digital SCM and the attributes required for MSMEs in their ideal application". The concept of SCM digitally refers to the use of the internet as a medium for implementing supply chain management [9], or called e-supply chain.

## II. METHODS

This research study includes a comprehensive literature review of the supply chain management framework that is implemented digitally to the electronic supply chain (e-supply chain). The implementation consists of several work steps, namely by determining the source of research; determine the pattern of keywords for the search process; use inclusion and exclusion criteria; data extraction; and finally analyze findings to answer research questions.

### A. The Search Process

The first step in research is to define literature sources to find suitable journals and articles. The selected literary sources for the systematic study of this literature are as follows:

- ACM-Digital-Library (<http://dl.acm.org>)
- IEEE Digital-Library ([ieeexplore.ieee.org](http://ieeexplore.ieee.org))
- Science-Direct (<http://www.sciencedirect.com>)
- Emerald-Insight([emeraldinsight.com](http://emeraldinsight.com))
- Springer-Link (<http://springer.com>)
- Taylor-Francis([taylorandfrancis.com/](http://taylorandfrancis.com/))

The focus of this research, is to study the use of supply chain management patterns in business to achieve more effective and efficient service to customers. Keyword search is combined with some terminology for implementing SCM digitally, or e-SCM.

The keyword pattern used in searching related research articles to answer research questions is organized using Boolean operators to select and filter data. This is determined so that you can determine the priorities for finding data based on the symbols used. Boolean symbols and operators that we use in this document, such as .AND., .OR. The keyword combinations are as follows:

- Supply Chain. OR. Supply Chain Management. OR. (e-Supply Chain).AND. Optimizing .AND. Electronic Commerce .OR. E-Commerce.
- (Electronic. OR. Digital).AND. Supply Chain .AND. Optimizing .AND. Electronic Commerce.
- (E-Supply Chain. OR. Supply Chain Management) .AND. (Optimization .OR. (Effective .AND. Efficient)) .AND. Electronic Commerce.

The search mechanism inclusion criteria consist of three filter processes. The *first* is the "Study-Found" process. All papers that found from source publications related to specified keywords will be saved as Study-Found. Then, the next step is to filter the paper according to the title and abstract. If the title and abstract are relevant and suitable to determine the research question, then this paper will be saved as a "Candidate-Study". Then the last part to filter this paper is that all candidate-papers will be read thoroughly to answer the research-questions. If the paper is suitable for answering research-questions, the paper will be defined as "Selected-Study".

Meanwhile for clarifying the validity of the literature, search-exclusion-criteria are defined in several procedures, which include:

- Papers based on their publication-date before 2000.
- The complete paper structure, which means all identities (journals/conferences, author-identities, etc.) are mentioned in the paper.
- Duplicate-papers from the same study are excluded in the SLR.

### B. The Data Extraction

The study-literature examined 392 articles from all-sources and criteria. Of the 392 papers examined, 70 are papers that are *candidate-studies* based on the corresponding-title and the summary of the research-question. After further-studies, only 31 papers can be used for these studies (see Table 1).

TABLE I. DATA-EXTRACTION IN INCLUSION-CRITERIA

Source	Found	Candidate	Selected
Google Scholars	106	20	12
ACM-Digital Library	15	4	2
IEEEXplorer	47	7	3
Science direct	81	14	5
Wiley Online	76	12	4
Emerald	23	5	2
Springer	44	8	3
Total	392	70	31

## III. RESULTS AND DISCUSSION

This literature-study aims to investigate the components of supply-chain-management for a company's business. The use of digital supply-chain-management in corporate businesses

has raised new opportunities and challenges to improve the performance of functions in their companies. Based on that, this research will identify the general components of electronic-supply-chain-management (e-Supply Chain). In this section, this paper presents the demographic characteristics and trends of the "Selected- Studies" literature, such as publication-sources, year-of publication, classification-of-variable components, and mapping of (Supply-Chain-Management and Electronic Supply Chain) components of the study literature. In Table 2, shows the journal.id, title, year, type, and name of the journal /conference.

TABLE II. PUBLICATION (SOURCE, YEAR, TYPE)

No	Title	Year	Type
1	A Review.....[10]	2019	J
2	Requirements.....[11]	2009	J
3	The impact.....[12]	2020	J
4	Assessing.....[3]	2020	J
5	Supply.....[13]	2018	J
6	Method.....[14]	2020	J
7	Using.....[15]	2017	C
8	Supply.....[16]	2016	C
9	Warehouse.....[17]	2017	C
10	Mathematical.....[18]	2013	J
11	Research.....[19]	2018	C
12	User.....[20]	2017	C
13	A Strategy.....[21]	2013	J
14	E-procurement.....[22]	2014	C
15	A hierarchical.....[23]	2007	J
16	Using ICT.....[24]	2015	C
17	Information.....[25]	2019	J
18	The research.....[26]	2011	C
19	Big Data.....[27]	2019	C
20	e-Commerce.....[28]	2002	J
21	Supply.....[29]	2006	J
22	E-Commerce..... [30]	2016	C
23	An analysis.....[31]	2007	J
24	The Impact.....[7]	2018	J
25	The Effect.....[32]	2014	C
26	Supply chain.....[33]	2020	J
27	Strategic.....[34]	2013	J
28	Influence.....[35]	2020	J
29	A collaborative.....[36]	2014	J
30	SMEs.....[37]	2009	J
31	Process.....[38]	2020	J
Note:	J-Journal, C-Conference		

From the articles processed, most of the writer's discipline expertise comes from computer science (47%), as can be seen in Table 3. It can be concluded that the topic of supply-chain-management or e-SCM is a multidisciplinary concept between computer-science, business-management, information-systems, and engineering. The developing technology, especially in electronic-commerce, encourages this research to find a component framework for e-SCM that supports convergence between institutions. According to the study literature, there are 31 components of the e-SCM framework.

TABLE III. AUTHOR-DISCIPLINE OF EXPERTISE

No	Discipline	#	%
<b>Management</b>		20	29%
1	Economics and Business Administration	7	1%
2	Management	2	2%
3	Marketing	10	1%
4	Media Science	1	1%
<b>Computer Science</b>		32	47%
5	Computer and Mathematical Sciences	8	8%
6	Computer Science	13	14%
7	Information Technology	4	4%
8	Sciences and Technologies	3	3%
9	Software Engineering	4	4%
<b>Information Systems</b>		7	10%
10	Information Center	1	1%
11	Information Management	4	1%
12	Information Systems	2	2%
<b>Engineering</b>		9	13%
13	Engineering	6	4%
14	Geography	1	1%
15	Architecture	2	2%
Total		68	

IV. IMPLICATION AND CONCLUSION

This study has two important implications for theory and practice. First, these results can be used to determine which key components in supply chain management and E-SCM support the most effective operations in the company. Increasing e-commerce technology, it is necessary to identify the components of the technology that can increase the effectiveness of a supply chain management as a result of the application of the technology (e-SCM) The right identification of technology components can maximize the integration of e-commerce applications in the supply chain management. The classification of variable can be seen in Table 4.

TABLE IV. THE CLASSIFICATION OF VARIABLE

Variables	Component	Indicator
Functionality	Customer Offering Order Processing Inventory Management Warehousing Transportation	strategic level tactical level operational level
Stakeholder	Producer Supplier Distributor Consumer	Decision made Controllorship Task force
Impact	Implication of technology Trust Governance Ownership	Cost Quality Service Speed Reliability
Key Factor	Relatively new Several discipline Predominantly Conceptual framing	Effectiveness Efficiency Customer Loyalty Market Development

## V. LIMITATION AND FUTURE RESEARCH

Based on the component of model is identified, there are many areas to be considered for future research. The result components only a conceptual component for business and corporate and there are many aspects of component e-SCM framework to be refined. It has been a challenge to organize the component, while there are many theories to support it.

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