

Research on logistics clusters: a systematic literature review

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The growing need for freight deliveries, the concern on sustainable development and urbanization are creating tensions for logistics activities and push researchers to question themselves about the "clustering" of logistics operations. Along with the relatively recent fast development of logistics as a key function of the manufacturing and business industries, the interest of academicians in the spatial problems of logistics and in the logistics clusters studies is growing fast. Despite the fact that there is empirical evidence on the interaction between logistics and territory, and a significant increase of research on urban logistics cluster and land use planning, however, there is little work on the spatial dimension of logistics (Masson & Petiot, 2013). The literature on logistics clusters seems to be in its infancy and there is a lack of comprehension of this theme (Riveira et al., 2016a, Abushaika, 2018). There is a "scarce body of literature" on the subject (Rivera et al., 2016, p. 243), and "logistics clusters are poorly understood academically compared with other cluster types" (Hylton and Ross, 2018, p.353).

Meanwhile, compared to the booming research of industrial cluster since 1990s, the studies of logistics cluster are "postponed" by the lack of availability and reliability of statistical data on the geography of logistics institutions. Unlike transportation infrastructure for public purpose, the different types of logistics platforms are established more in line with private business strategies. The cluster, as a system of spatial and temporal interactions, has important spatial implications (Masson and Petiot, 2013). Considering all these reasons, the objective of this paper is to clarify the notion of logistics cluster, understand the development of logistics cluster through a systematic review of the literature (SRL).

This paper is the first SRL study of logistics cluster (LC). Out of 342 identified papers identified in three main academic databases, we select 58 to form our database. This systematic method allows us to collect enough relevant scientific studies, have an overview of the link between theory and practices, propose a panel of definitions on LC, and identify research perspectives on this subject.

Keywords: Logistics cluster, territory, systematic literature review

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Full Paper

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1. INTRODUCTION

While Porter has raised the concept of cluster since 1990, the clustering of logistics activities has emerged in the last decade, and logistics clusters have recently become an important topic. With the increased concern on efficiency and sustainability, many governments and private economic actors have invested important resources on logistics activities and transport infrastructure. The logistics operation requires collaboration between different actors, illustrated by, for example, the distributor's consolidation center, the urban consolidation centers and logistics hubs around transportation terminals. At the same time, some problems need further investigation when the agglomeration of logistics resources in urban or territorial projects is increasing (Capo and Chanut, 2015).

Evidence in different countries and industrial clusters literature have already demonstrated the benefits for an enterprise to participate into a cluster. This Anglo-Saxon concept of cluster has incubated many industrial networks and generates benefits over the long run, especially during the economic and social crisis period (Chabault 2009). The logistics clusters could create advantages in land use planning and reduce costs for companies sharing the same resources. The success of logistics cluster could find explanation in the clustering of heterogeneous actors (enterprises and institutions) in the same territory, and the synergy created by different activities in a specific sector, including logistics and other activities. For example, in France, many logistics clusters have been created and certified in the 2000's with an objective of grouping logistics actors in the same territory to share knowledge and competencies around common subjects, for example, PACA Logistics Cluster, Occitanie Logistics Cluster, Euralogistics, Seine-Normandie Logistics, Rhône-Alpes Intelligence logistics Cluster ("pole" in French), etc. Besides, many types of logistics clustering are developed in French cities such as Urban logistics Zone, Urban logistics Space.

The concept of cluster, in particular "economic" industrial clusters, is not a new phenomenon. Porter (1990) initiated this concept in his work "The Competitive Advantage of Nations", inspiring himself from Alfred Marshall (1890), which has analyzed the effects of agglomeration and positive externalities, and indicated that grouping companies in clusters constitutes economic intelligence (Suire and Vicente, 2008). Porter (2000) defines the cluster as a group of companies and institutions that are geographically close and linked to each other by complementarities or similarities in a specific field. The geographic extent of activities grouping in a cluster may vary from local, regional, and national levels, or may even constitute a set of neighboring countries. According to Porter, clusters are organizational models, which

aim to facilitate the coexistence of competition and cooperation, which exist between different actors and on different dimensions. Clusters are innovative models of organizations situated between market and the hierarchy and are models of vertical integration (Porter, 1990).

According to this dimension of economic/industrial cluster, the grouping of companies in the same agglomeration could strengthen their potential of growth; help them to obtain positive knowledge externalities and to benefit from “best practices” learned from others. Porter anticipated the positive effects of a spatial grouping of companies, not only for themselves but also for the territory in which they are anchored. A world-class example, Silicon Valley in the United States, could be cited as a cluster model.

However, despite the wide research enthusiasm on a territory in the studies of economic/industrial clusters since the 1990s, the recent research, especially the conceptualization on logistics clusters is fragmented and dispersed, which limit understanding of its development. Quinn (2012) points out that while the concept of economic clusters is not new, but the emergence of logistics clusters is a new concept. Moreover, “*although there is a notable industrial clusters literature, the research on logistics clusters is still in its infancy*” (Rivera et al., 2016a, p. 242). Therefore, this article aims to identify and analyze the existing literature, present a state of art of logistics clusters studies, clarify the definitions, and follow the evolution of logistics clustering practices by a comprehensive and structured revision on studies of logistics clusters. This study could help to characterize logistics clusters and see whether initiatives of actors gathering around logistics are indeed the deployment of logistics clusters.

We reviewed 58 articles using a systematic literature review (SLR) method guided by two research questions:

QR1: How is the logistics cluster defined in academic literature?

How does this definition evolve over time?

QR2: What are the theoretical basis of the logistics cluster?

Is Porter's cluster theory the foundation?

In order to answer the two research questions, our research is organised as follows:

To present and justify the relevance of the systematic literature review for our research, we first detail the methodology. The steps of the systematic literature review are described one by one and justified.

Second, through a descriptive analysis, we will present the results and findings and try to answer our research questions.

Third, through a thematic analysis, we will discuss how logistics clusters are defined and present the research gaps we have noticed in the literature review.

At last, we will end by discussing our results and by formulating research propositions before presenting the limits and perspectives of this research.

2. RESEARCH METHODOLOGY

The SLR method is selected to obtain an overall understanding of diversified dimensions of the selected topic: knowledge, academic thinking, existing evidence (Friday et al., 2018), and consolidate emerging topics (Lagorio et al., 2016). The method provides rigorous and transparent means to examine ideas from relevant literature in a way that allows replication and overcoming generalization limitations associated with single studies (Friday et al., 2018) and detecting existing research gaps in the scientific area.

A five-stage SLR process is adopted in this study, following Tranfield et al., (2003), Denyer and Tranfield (2009):

- Research question formulation
- The selection of database, identify references
- Remove the duplicate and irrelevant references
- Select the most relevant references
- Full text analysis and reporting

The research process is as follow:

Stage 1: Research question formulation

This paper aims to explore the following two research questions:

QR1: How is the logistics cluster defined in academic literature? How does this definition evolve over time?

QR2: What are the theoretical basis of the logistics cluster? Is Porter's cluster theory the foundation?

These two research questions provide foundation for operationalizing a SLR. By Tranfield et al., (2003), multiple researchers have been involved in reducing subjective bias. In this paper,

two authors have collected references and repeat collection in independent ways and compared the results.

Stage 2: The choice of Databases and keyword search

Authors selected major publishers' databases in logistics research fields, such as Science Direct, EBSCO-Business Source Complete (Emerald and Wiley) based on the library services of Aix-Marseille University in France. The search term "cluster" "cluster AND logistics" was used. We have encountered two challenges. Firstly, the term "cluster"¹ is widely used in all fields of scientific research to describe a group of similar things, such as cells, data, etc. Secondly, the "cluster analysis" is an important statistic method used by a significant number of scientific papers, but this method is not used in logistics cluster papers. Therefore, the results of a general search with "cluster" in the entire text of paper do not match our objective of research of logistics clusters.

We made another choice in this stage: do not specifically seek papers with "supply chain cluster". We agree that "logistics" is considered part of Supply Chain Management (Larson and Halldorsson, 2004), but stays as a part. This paper has specific interest on the clusters of logistics activities and resources, an important part in an entire supply chain. If an article treats only supply chain clusters but not logistics activities, it does not match our research purpose. Therefore, we finally selected journal papers with "logistics cluster" in the title, keywords, and abstract. Additional words as logistics park, logistics hub, logistics zone, were also searched in these databases. The language of articles is limited to English and French. We did not set a specific time range with the purpose of observing the evolution of the phenomena of logistics cluster. 482 relevant journal papers are identified.

Two authors have used the same method to verify and refine the results. To further validate and complete the results, we used the same method in the database Web of Science to make a comparison: 8425 papers in all disciplines. After the filtration of journals in management, transportation, operation management, economics, and business, and comparison with first results, 342 relevant references were identified.

Stage 3: Removal of duplicate and irrelevant articles

¹ Cluster is defined as a group of similar things that are close together, sometimes surrounding something in Cambridge dictionary

Two authors have read the abstract of all papers identified in the previous stage. The duplicated and irrelevant studies were removed. At the end of this stage, 123 scientific peer-reviewed papers were selected.

Stage 4: Quality of articles and the selection of articles for SLR

In this stage, two authors have read the content of all 123 papers in the previous stage, 45 were selected. To identify missing relevant work which may be neglected in a systematic search, the references of 45 articles were checked, resulting in a further 13 articles. At the end, the final database for SLR contains 58 articles.

Stage 5: Full text analysis

The general descriptive and thematic analysis were executed based on 58 articles.

This process of 5 stages (Figure 1) allows us to identify the most relevant articles in the peer-reviewed logistics and SCM journals in internationally recognized databases.

Stage 1 : Research Question formulation
 Research Question :
 QR1: How is the logistics cluster defined in academic literature? How does this definition evolve over time?
 QR2: What are the theoretical basis of the logistics cluster? Is Porter's cluster theory the foundation?



Stage 2: Keyword search in Databases	
Criteria	reason
Keyword: logistics cluster	Focus on cluster of logistics activities, not the cluster in general, nor the supply chain in general
ScienceDirect, EBSCO-Business Source Complete (Emerald and Wiley), Web of Science Databases	These databases are typically used in literature reviews for the best coverage of logistics studies
Peer-reviewed academic journals	High-quality scientific studies Exclude books, chapters, conference proceedings, dissertations and working papers
Time range: not specified	To observe the evolution of the phenomena of logistics cluster



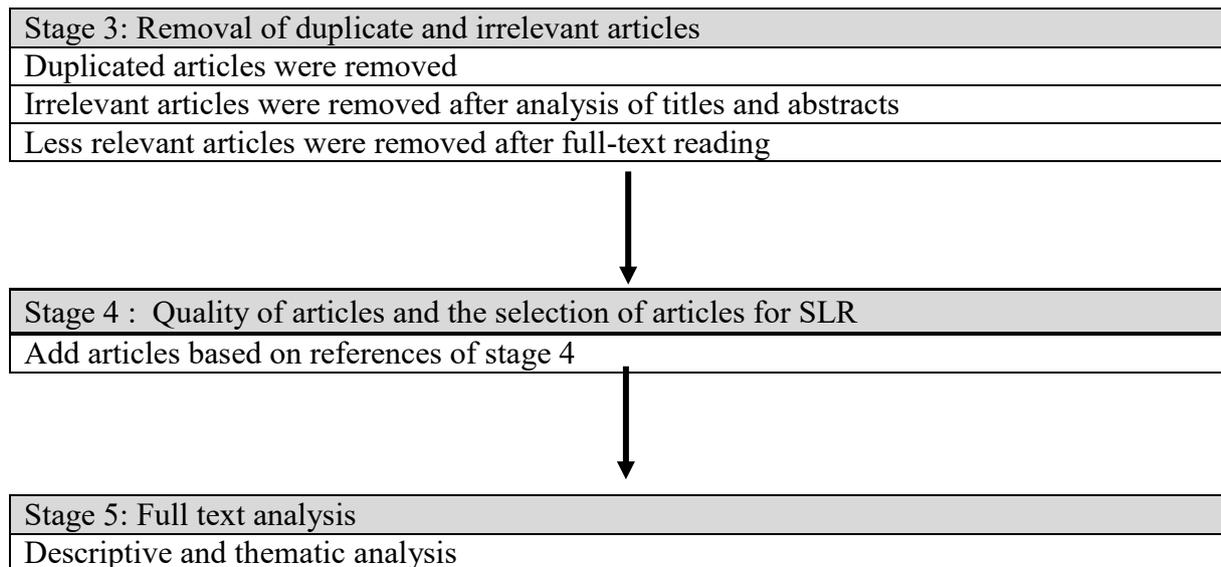


Figure 1: Process

Source: adapted from Fan and Stevenson (2017), Tranfield (2003)

3. FINDINGS

The systematic literature review carried out allows us to grasp the phenomenon of logistics clusters (CL) in its definition, its form, characteristics as well as the trends of research around this concept.

3.1. General observation

A first observation lies in the fact that the term "cluster" used by the various authors in the field of logistics and supply chain management, does not necessarily correspond to the definition and form of clusters known in the management literature in general. On this subject, Bounie and Blanquard (2017) illustrate this phenomenon by indicating that there is a difference between a site, a zone and a logistics cluster. The difference would lie in the boundaries that delimit the cluster. According to them, the logistics cluster would seem to resemble the logistics zone, close to the typology of « *lieux logistiques* » developed by Fabbe-Costes (1994).

The purpose of LCs is therefore to bring together logistics stakeholders in the same geographical area. A LC, as defined by Sheffi (2012), is an area within which large volumes of logistics activities take place. It is also a geographical concentration of companies such as logistics service providers, carriers, warehouses, etc.; that performs logistics activities (Rivera et al. 2014).

Our literature review confirms the different forms that logistics clusters can take but show that they have one thing in common: the existence of varied and intensive logistics activities. The

term "logistics cluster" seems to be a "black box" insofar as its theoretical contours seem unclear and poor.

3.2. Descriptive analysis

Most LC papers are empirical studies carried out by authors from all over the world. The origin of data are collected from different countries in three Zones (Asia and Australia, Europe, America) (Table 1). There are 11 articles did not precise a geographic area for study.

Country	No of papers	Country	No of papers	Country	No of papers
Asia and Australia		Europe		America	
China	7	France	6	US	8
South Korea	2	Italy	3	Brazil	1
Turkey	2	EU in general	3	Mexico	1
Iran	1	Germany	2		
Jordan	1	Spain	2		
Australia	1	Netherland	2		
Asia in general	1	Greece	1		
		Lituanie	1		
		Norway	1		
		Sweden	1		
	Total		Total		Total
	15		22		10

Table 1: the distribution of paper based on the origin of data collection

Source : authors

Papers published after 2013 holds a significant increase, which demonstrates the growing interest of researchers on this topic.

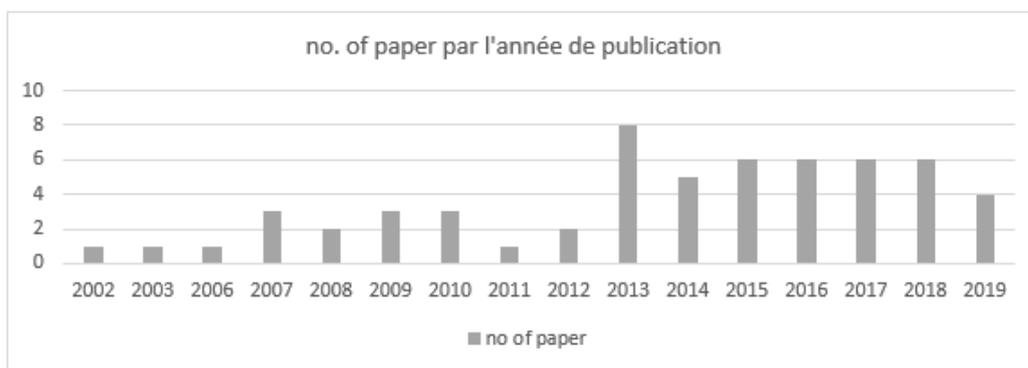


Figure 2: Number of publication in chronological order

Source: authors

There is not an important concentration of papers in specific journals. In contrary, the papers of LC are published in a large variety of journals: 58 papers are published in 42 journals. Among the 58 papers, 27 are published in the journals of Transportation, Logistics, Supply Chain Management and Economy (Table 2). 29 articles are published in other journals in regional or social study, such as « Annals of Regional Science », « Regional Studies », « Procedia - Social and Behavioral Sciences » etc.

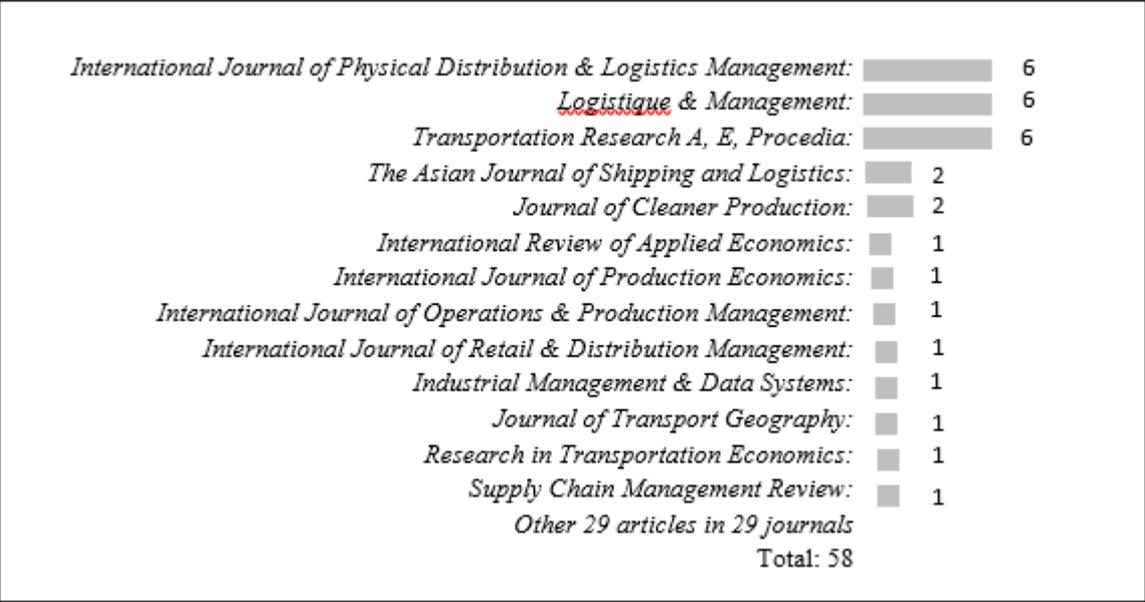


Table 2: the number of papers by journal

Source: authors

3.3. The research method used in the selected papers

Table 3 illustrates the summary of research methodology. In selected papers, we have identified few conceptual papers on the subject. Most articles are empirical: 48% empirical papers including 18 case studies, 36% analytical papers including 11 papers that use longitudinal studies. The papers often deal with logistics maritime harbors and logistics parks (zones) in a national and regional context. Many papers used these methods to explain competitive advantage in logistics clusters.

Research method	No of papers	% /total
Conceptual	9	15.5%
Entirely conceptual	4	
Conceptual with case study	5	
Empirical	28	48%
Case study	18	
Survey/ questionnaires	4	
Interviews	4	

<i>Grounded theory</i> (interviews)	2	
Analytical papers	21	36%
Longitudinal studies with location coefficient	11	
Mathematics and algorithmics	10	

Table 3 : summary of research methods

Source: authors

3.4. Thematic analysis: definitions and theories of logistics cluster

In this section, we will present the results of our thematic analysis. The literature review of the selected articles helps us notice that:

- Many researchers define the logistics cluster by its function
- Other researchers define the logistics cluster as a spatial hub
- A lack of theoretical background analysis on the phenomena of logistics cluster

3.4.1. The logistics clusters defined by the function

Among the references, we observed at the beginning, the industrial standards influenced the investigation of logistics cluster that researchers adopted directly the industrial norms into the definition. For example, Chung (2009) proposes a definition of logistics cluster based on its principal function, the “port cluster”, which is “*the set of interdependent firms engaged in port related activities, located within the same port region and possibly with similar strategies leading to competitive advantage and characterized by a joint competitive position vis-a-vis the environment external to the cluster*”. Jahre and Jensen (2010) studied humanitarian logistics and defined the cluster “*functionally in terms of areas of activity – for example, water and sanitation, health, shelter and nutrition – which typically reflects the important and somewhat separate areas of relief work, often referred to as sectors* (Inter-agency Standing Committee (IASC), 2006”. Sheffi (2010, 2013) used the standards of UNESCAP (*US, United Nations Economic and Social Commission for Asia and the Pacific*). Kumar et al. (2017) classified the logistics cluster into three dimensions: transportation modes, size, and the function.

For Sheffi (2010), the logistics clusters are considered as a specific type of industrial clusters, are defined as the geographical concentration of : (i) firms offering logistics services(ii) the logistics functions of manufacturers and retailers, and (iii) companies with logistics intensive operations (such as automobile manufactures or bulk commodities distributors) for whom

logistics is a large part of the cost. This definition is widely cited by other authors (Quinn 2012, Rivera et al., 2016a, Rivera et al., 2016b, Chung 2016, Bounie and Blanquard, 2017 etc.).

- *By modal orientation: air logistics parks, port logistics parks, rail logistics parks and trucking logistics parks;*
- *Scope-based: international, regional and urban logistics parks;*
- *Functional classification: Free Trade Zones, bonded logistics parks, export processing zones, single commodity logistics parks and special services logistics parks.*

Sheffi 2010

Another definition of LC of Sheffi (2012) has also caught attention by other authors (Chhrettri et al. 2014, Rivera, 2016a), which refers the LC to “*the nodes that tie together the complex web of international trade routes or domestic supply chain networks*”. From this definition, we could observe the LC is not only limited to the local concentration of logistics activities, but also seen as a node in a national or an international supply chain network. In 2013, Sheffi proposed another new definition of LC which is more “completed”: *a logistics intensive cluster could be an agglomeration of diverse logistics-related companies, third-party logistics (3PL) providers, transporters, carriers, distributors, warehousing, truck and rail terminals, ports and airports, logistics-related institutions, allied manufacturing, specialized IT (information technology), high- and low-skilled workforce, and other support services*. Rivera (2014) has enriched this definition by including the support activities to logistics and transportation, for example the packaging manufacturers and transportation maintenance depots. The evolution of three definitions of LC made by Sheffi (2010, 2012, 2013) demonstrates an increasing complexity and variety of activities from logistics functions to its role in a supply chain (Figure 3).

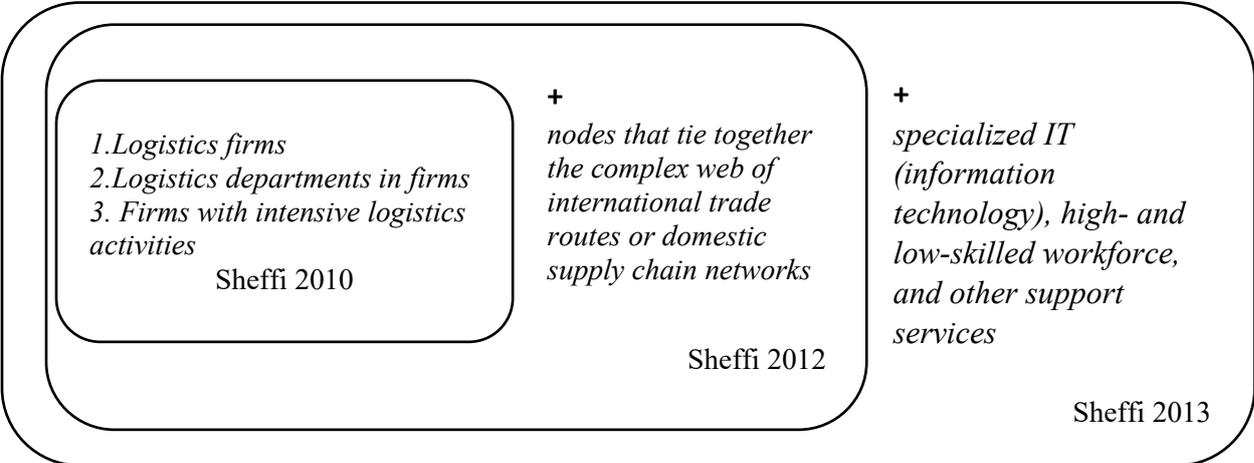


Figure 3: evolution of Sheffi’s definition of logistics cluster (2010, 2012, 2013)

3.4.2. The logistics cluster defined as a spatial hub

The theory of industrial clusters and the effect of spatial agglomeration has naturally inspired many public facilities planners and researchers of the creation and development of the logistics cluster in a specific geographic area (Elsner 2010, Baranowski et al. 2015, Hylton et Ross, 2018, Abushaika, 2018). These authors stress more on the “spatial” dimension in their definitions of LC, or “regional”, “territory”, “geographic proximity” etc. For instance, in 2010, Elsner has defined the LC as “*regionally concentrated groups of firms which are ‘functionally’ interconnected both ‘vertically’ and ‘horizontally’, but are statistically represented in different industries and branches, including manufacturing and services*” (Elsner 2010, p3). It is interesting to see a distinction made by Elsner (2010) between the cluster and the network of clusters at two different stages: (stage 1) the trust emerged spontaneously in a cluster from a cumulative history of constant interaction and reciprocation between members in the cluster; (stage 2) networks are formed from the functional relations emerged between clusters which is a more formal and deliberate strategic system, and organized by multilateral cooperation based on the project. Logistics network is “*a subset of the logistics cluster, a group of productive units in a cluster that have agreed upon a multilateral and project-based cooperation for some limited time*” (Elsner, 2010). In this perspective, a cluster located in one territory belongs to several logistics networks.

Baranowski et al (2015) also developed a definition of LC which includes all stakeholders in a territory: “*the logistics cluster is an especially organized integrated logistics system consisting of a group of related organizations (companies, corporations, universities, banks and so on.) Concentrated on some territory, complementary to each other and reinforcing the competitive advantages of individual companies and the group as a whole, aimed at the organizational and structural, organizational and analytical improvement (optimization) of flow processes and streaming functions of any content (logistics activity) in the reproductive cycle.*” The LC is considered as a fundamental infrastructure part of economic cluster in the economic literature because of the dynamic intersection of material flows and logistics facilities (Evtodieva, 2011ab, in Baranowski et al 2015).

Similarly, Abushaika, (2018) proposed the LC as “*a concentration of logistics firms—and/or firms in which logistics play a large role—and related institutions in a particular geographic area.*” Authors also describe the LC as a “*Local Productive Arrangements*” strategy that

generate opportunities for MSMEs (Micro Small and Medium Enterprises) and highlight the geographical concentration of interrelated enterprises (Pinheiro et al. 2019).

The following table summarizes the papers that proposed a definition of LC (Table 4). However, few authors of LC propose their own definition among all references. In the majority of papers, authors directly used the definition of Sheffi (2010, 2012, 2013) or just use the notion « logistics cluster » without definition or explication.

References	Definition of logistic cluster
Elsner (2010, P4)	we define a regional logistics cluster as a set of productive units, allocated to different services and manufacturing industries within official statistics, that contain employees connected to the ‘logistics’ function. This set includes suppliers, assemblers, service firms, and others, the latter may include nonprofit, semi-public and public agents, which run logistics services adjunct to specific infrastructure, for example, ports.
Rivera et al. 2014	“A logistics cluster is defined as the geographical concentration of firms providing logistics services, such as third-party logistics (3PLs), transportation carriers, warehousing providers and forwarders. Naturally, logistics clusters also include suppliers for such activities, such as packaging manufacturers and transportation maintenance depots.”
Baranowski et al., 2015	“The logistics cluster is especially organized an integrated logistics system consisting of a group of related organizations (companies, corporations, universities, banks and so on.) Concentrated on some territory, complementary to each other and reinforcing the competitive advantages of individual companies and the group as a whole, aimed at the organizational and structural, organizational and analytical improvement (optimization) of flow processes and streaming functions of any content (logistics activity) in the reproductive cycle.”
Hylton and Ross (2018, p. 352)	“ Logistics clusters are groupings of logistics firms in close spatial proximity and oftentimes tight interaction.”
Abushaika, 2018	“ Logistics clustering can be defined as a concentration of logistics firms—and/or firms in which logistics play a large role—and related institutions in a particular geographic area. This typically includes logistics service providers, public and contract warehousing, distribution and packaging, as well as firms in which logistics operations contribute significantly to competitiveness.”
Gružauskas et al. 2019	“A logistics cluster is a formal collaboration, which focuses on sharing information, equipment or cargo to provide economies of scale abilities to the members of the cluster or other value.”

Table 4 : The definition of logistics clusters in chronologic order

Source: Authors

3.5. The missing theory exploration in current research of logistics cluster

A common theoretical perspective for examining a phenomenon is a sign of maturity within a field (Friday et al., 2018). The important geographic resources (especially the land) and

significant investment offered by local and national government, the dynamism level of firms, market and macroeconomic environment for LC explain its various developments in different countries. Most papers have adopted case study research method, which allow us to obtain a precise view of the LC in different countries. It is not very surprising to find that nearly all articles explore the challenges/benefits, investment incentives, and performance of LC and fail to refer to theory.

For De Witt et al., (2006), “*clusters can be seen as exhibiting three broad characteristics: physical proximity, core competencies, and relationships* » (De Witt et al, 2006. P.291). However, while the industrial cluster has been widely studied through the lens of different approaches such as positive externalities (Marshall, 1890), New Economic Geography (Krugman 1980), territory (Rallet et Torre, 2005), etc.; the authors of LC have rarely cited classic definitions in the cluster theory, for example Marshall, Beccatini and Porter. Recent papers as Rivera (2014), Rivera et al., (2016a), Rivera et al., (2016b), Desplebin and Houllier-Guibert (2017), Kumar et al (2017) cited briefly the agglomeration economies of Marshall, These authors and Subramanian et al., (2016), Kayvanfar et al., (2018), Pinheiro et al., (2019) cited the definition of a cluster of Porter. Other authors studied the LC but did not explore further theoretical investigation. Few authors cite the authors of cluster theory, without giving any definition, nor explanation, for example, we can cite Baydar et al., 2019; Bellandi et al., 2014; Hylton and Ross, 2018; Berechman, 1994).

This tacit agreement among all references on lack of theory backgrounds and industrial cluster theory caught the attention and interest of researchers of this paper. After the analysis of research fields, research topics, research methodologies of all papers on LC in the database of this paper, we propose a further discussion in the next section.

4. DISCUSSION

First, the SLR help us notice that few researchers in the literature of LC pay attention to the importance of definition of LC. Different authors use different term to describe and characterize LC without precise description of the function and objective of LC. However, one LC differs from another LC, in the perspective of form, organization, purpose, and operation, etc.

The SLR indicate that the term « cluster » is used to represent a hub or center, train station, harbor and airport area that concentrate logistics activities. These different terms are used to illustrate LC: *logistics cluster, logistics agglomeration, logistics zone, logistics park, logistics center, freight village*, etc. The cluster is often used to illustrate the clustering of logistics actors

(that are not always heterogeneous) in the same geographical agglomeration to ensure logistics activities. For example, logistics mutualisation operations before delivery, logistics hub and « village fret » (Chai and Colin, 2013). Other terms are also used in the literature, for example, Baydar et al. (2019) highlight the different terms that can refer to a LC, such as ‘distribution centers, Distripark, Distriport, Dryport, Logistics center, logistics platform, etc.

Secondly, the SLR help us to identify a number of research themes of LC. For example, the choice of geographical location (Antun et al. 2010, Bosona and Gebresenbet 2011, Kayvanfar et al. 2018); competitive advantage of the LC (Chung 2016, Subramanian et al., 2016, Rivera et al., 2016a, Wang et al., 2017, Kumar et al., 2017, Sun et al., 2018, Baydar 2019); performance evaluation of LC (Bellandi et al., 2014, Desplebin 2014, Desplebin and Houllier-Guibert 2017, Bae and Park 2018), the link between LC and regional economics (Sheffi 2012, Van den Heuvel 2013, Dai and Yang, 2013, Chhetri et al 2014, Rivera et al., 2014, Rivera et al., 2016b, Juozapaitis and Palsaitis 2017, Hylton and Ross 2018), the link between LC and SCM (DeWitt et al. 2006); humanitarian logistics (Jahre and Jensen 2010), and urban logistics (Capo and Chanut 2015, Durand and Gonzalez-Feliu 2015, Font et al. 2016). Most recent studies focus on the importance and performance of LC, LC help enhance service quality and service exchange between firms (Hammervoll, 2014), LC help firms to innovate and be more flexible (Sun et al., 2018).

Some authors indicate that the main reason that push them to use the term LC is the agglomeration of logistics activities. In these papers, logistics actors assemble to facilitate collaboration among them. For instance, this enhances trust, facilitates exchanges and coordination among the actors (Jahre and Jensen, 2010). Spatial logistics activities have emerged to respond to industrial firms’ will to collaborate and to distribute and share their results (Sheffi, 2012). Porter (2000) considers that firm agglomeration will enhance their growth potential, obtain positive knowledge externalities and bring about best practices that bring advantages for firms. LC are different from industrial clusters, LC benefit from both knowledge and human resource sharing, as well as transport and warehouse sharing (Hylton and Ross2018). However, as LCs are different, the actors in LC could be collaborators and competitors. Porter (1990) highlights the importance of clusters as they are propitious for firms that are in competition. Cluster environment is propitious for competitiveness and bring about specialized assets and the help of institutions (Boufaden et al, 2009). But we have found few studies of LC on inter-organizational relations as collaboration / coopetition (Van den Heuvel et al. 2013), ambidetry among shareholders in the cluster, success and failure of LC. This neglecting

studies of inter-organizational relationship is related to the missing theoretical background of most literature, which we didn't observe the application of cluster theory of Porter or other theories like Resource-Based View, Proximity, Governance etc.

5. CONCLUSION

Through a SLR, the paper aims to clarify the understanding and the theoretical root of logistics clusters, to identify tendencies around this subject and think about research perspectives on the subject.

The definitions of LC have been studied and summarized. The results enable us to notice that, even though numerous work on LC has been achieved, only few authors define what LC is. LC holds a complex and important network structure, the actors in LC hold different nature and purpose, therefore, further detailed and precise definition of context is needed in the future.

This paper contributes to the theoretical study on LC by a global revision of the state of the art and can be useful to grasp research gaps and the perspectives. Another contribution reside in the fact that few articles that study LC focus on the « theoretical root » of industrial clusters (Porter). The main author who is cited in the studies on LC is Sheffi (2010, 2012, 2013) and not Porter (1990) and Marshall (1890).

For managers, this research offers a summary of LC studies in an international context, and advantages of LC for firms. In the LC researches realized in France, we notice an increasing interest on subjects such as logistics mutualisation practices, urban logistics, and sustainable development.

6. LIMITATIONS AND PERSPECTIVES

The first limitation of this paper is related to the selection of databases. We have chosen three databases in management science, which are well known for the rich peer-reviewed journals in logistics and SCM. However, it will be interesting if all publications could be included to provide a broader database of LC papers.

Secondly, the results of this paper is limited by the limited access to some full paper. Some papers could not be included in our analysis because we could not have access. As all authors of this paper are in France, we could only treat papers written in English and French, but not in other languages.

At the same time, this paper generates several perspectives. Firstly, it could be interesting to drive a further study on the comparison on industry and logistics cluster, for instance, the

governance mode was not treated in current literature of LC but has been widely studied in industrial cluster literature. A second perspective for future study refers to a comparative analysis among different regions in one country or among different countries. The current literature focuses mainly on single case study of one LC in one region and one country. Since the development of logistics and supply chain management is internationalized and is facing de-internationalization challenges in the post-Covid era, this comparative analysis could be valuable for policy makers, LC investors and logistics/Supply Chain managers.

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