feedback to the supply chain. Which would generate a much more intelligent and complete system [9].

Considering that each time Big Data for the management of Supply Chains is generated at a higher speed, seeking quality information and usefulness. All this so that the "knowledge" or information generated can add value, for example, in the company's forecasts considering adjusted and real demand histories [10].

An example would be how the Supply Chain of agri-food sector has been digitalized. Which currently has good digitization initiatives, but the real challenge is to make it provide positive results [11].

Today, the Supply Chain is defined as a series of interconnected activities, which will seek new approaches, in order to create competitive value. These transformations consider the scanning of barcodes, services offered by location, which can be performed thanks to these smart technologies that are working together with the Supply Chain[12].

In [2, 3, 5, 6, 8–25].

3. Research methodology

In this section, it is described how the process was carried out for the literature search, in order to select the most appropriate for the article. Considering that the main objective is to map and evaluate existing literature to identify new or future fields of study. As well as an analysis was carried out on the reviewed articles, with the main objective of looking for trends on the topic studied.

3.1. Search methodology

Editorial websites such as Science Direct (https://www.sciencedirect.com/) and Springer (https://link.springer.com/) were used primarily. It is important to consider that publications from 2010 to date are considered.

The search cycle was performed to conclude with a total of 114 articles obtained from Science Direct and 166 articles obtained from Springer. Table 1 and Table 3 detail the different selections, considering publications by year. While tables 2 and table 4 consider the category of the publications.

3.2. Methodology implementation

Therefore, to map the existing literature, it was necessary to define the key words that would allow the most relevant literature to be compiled on the topic of this article. To carry out the search, the following topics were defined "Digital Supply Chain", "Digitized Supply Chain", "Digitization of the Supply Chain", "Industry 4.0", "Blockchain and Supply Chain", "IoT and Supply Chain", "Smart Supply Chain", see fig 1.

Table 1. Publications per year in sciencedirect

Year	Publications
2010	1
2011	2
2012	0
2013	1
2014	1
2015	2
2016	2
2017	9
2018	15
2019	50
2020	30

Table 2. Publications per year in springer

Article Type	Publications
Review Articles	10
Research Articles	86
Encyclopedia	1
Book Chapters	9
Correspondance	1
Editorials	2
Other	5

Table 3. Publications per year in sciencedirect

Year	Publications
2010	11
2011	0
2012	6
2013	2
2014	6
2015	3
2016	8
2017	6
2018	22
2019	59
2020	43

Table 4. Publications per year in springer

Article Type	Publications
Article	38
Conference Paper	40
Book Chapters	125
Reference Work Entry	3

4. Data visualization analysis of literature

The analyzed publications are divided into books, articles, books chapters, editorials, proceedings, among others.

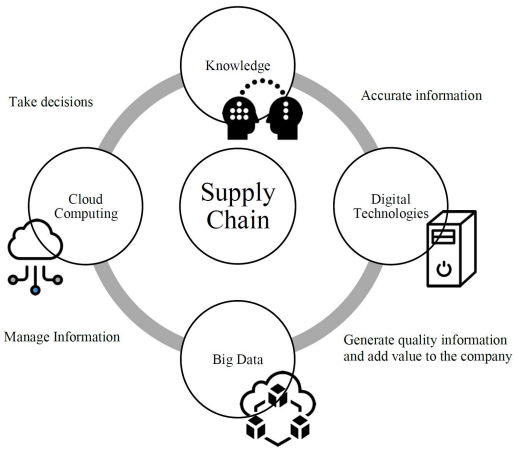

Figure 1. Conceptual Digital Supply Chain.

As you can see in the figs 2 and 3, from the year 2018 to date the works have increased exponentially. The graphs above correspond to what was found in sciencedirect and springer respectively. This confirms the current trend to digitize the supply chain. The development of new technologies, data analytics and cloud computing have been facilitators for the evolution of the traditional supply chain.

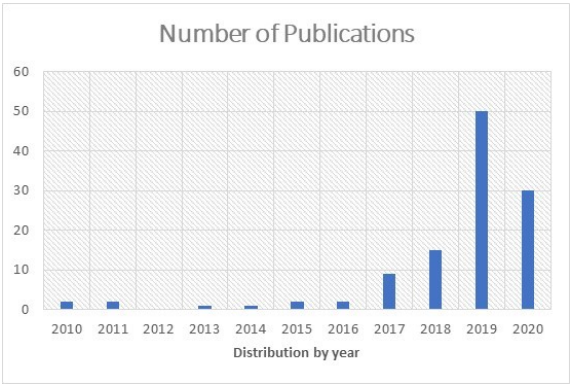

Figure 2. Publications in sciencedirect.

Likewise, figs 4, 5 represent the classification of the works found in the analyzed databases.

5. Conceptual drivers of Digital Supply Chain

After analyzing the existing literature, see fig. 6, some common elements that any DSC should have are:

1. Agility.
2. Integration of supply chain stakeholders.
3. Real-time performance and visibility.
4. Global web-based connectivity.

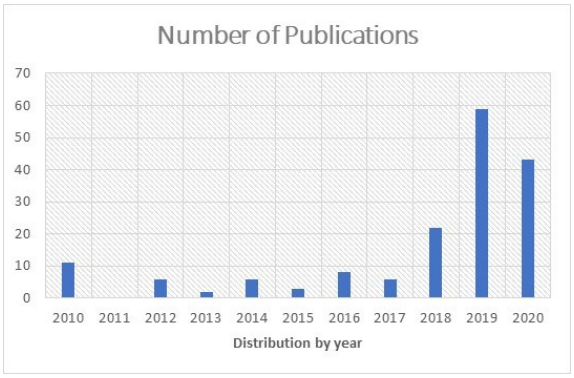

Figure 3. Publications in springer.

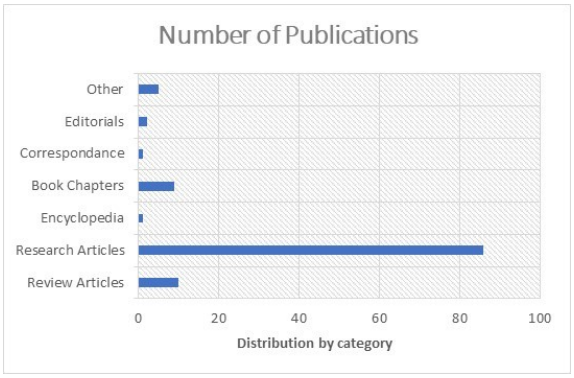

Figure 4. Type of publications in sciencedirect.

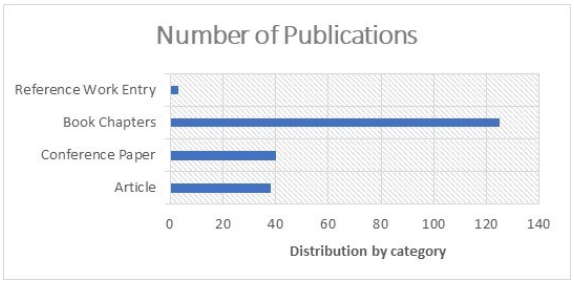

Figure 5. Type of publications in springer.

5. Scalability and flexibility.
6. Open flow of information.
7. Smart processes.

5.1. Agility

The ability to easily respond to opportunities and problems facing the operational side of the business. Implying that the supply chain can predict and respond to demand, especially when it is not planned. So the supply chain needs to provide a profitable engine for growth made up of a strong infrastructure

Figure 6. Drivers of Digital Supply Chain.

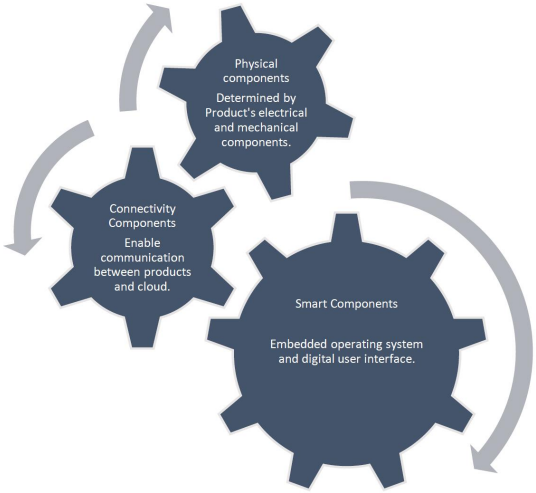

Figure 7. Towards smart processes.

of partnerships and technology platforms with the ultimate goal of continually improving asset utilization.

5.2. Integration of supply chain stakeholders

In its simplest form, a supply chain is made up of a company, suppliers and customers of that company. This being the basic group of participants that creates a simple supply chain, while extended supply chains contain more suppliers, customers or companies, see fig 7.

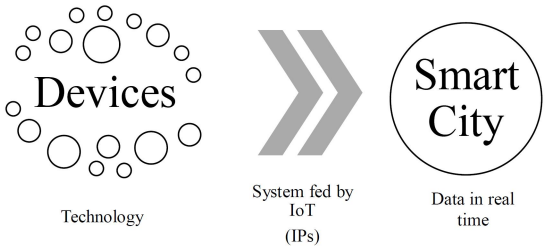

Figure 8. Towards smart cities.

5.3. Real-time performance and visibility

Visibility and real-time performance in the supply chain means you can access the information you need when you need it, and you can quickly integrate that information across the organization to drive the decision-making process. Whether you need to know how much inventory is in stock, or current shipping, you need to be able to take advantage of the right tools to find out the exact status of your products.

5.4. Global web-based connectivity

The Internet has brought new opportunities to use in the field of supply chain. Making companies adapt their supply chain to the Internet and connect through web technologies with their business partners to create supply chain networks. The combination of the concepts of SCM (Supply Chain Management) and the Internet resulted in a web-based application called e-SCM aiming to satisfy customer requirements in the best possible way and in real time, see fig 8.

5.5. Scalability and flexibility

Supply chain flexibility and scalability enables chain responsiveness to achieve a higher level of service, delivery, and faster product customization. Without these 2 characteristics, supply chains would lag behind their competition. Because they allow them to adapt to the rapid changes that customers demand every day.

5.6. Open flow of information

Allowing the flow of information results in the analysis of activities within the supply chain and illustrates the importance of the relationship between the movement of goods and the exchange of information. The information must be present at any time, either before making a sale, and during the post-sale, concluding that the ability to respond to customer demand and satisfaction cannot be achieved without the exchange and flow of information.

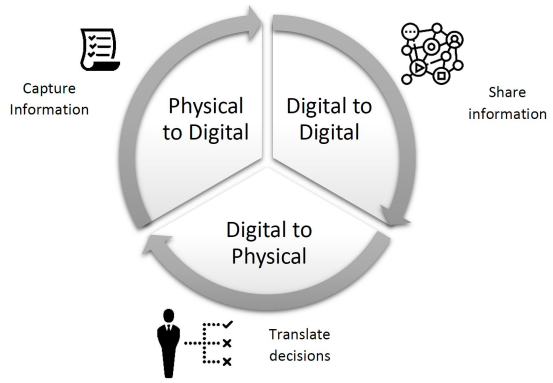

Figure 9. Digital Supply Chain Cycle.

5.7. Smart processes

Enabling the supply chain to have much smarter processes presents unprecedented opportunities to achieve cost reduction and improve efficiency improvement. Whereas now the supply chain has more objects integrated with sensors and better communication, see fig 9.

6. Conclusions

DSCs integrate information from various sources and locations to drive the physical process of production and distribution. The result is a virtual environment, which reflects and informs the physical environment. By leveraging information gained from classic processes and new processes, such as sensor-based data sets (unstructured data), DSCs enable a comprehensive view of the supply network, as well as fast and efficient responses to risky situations and changing. Transitioning from a traditional supply chain to a DSC enables companies to change their strategies, competing at different links in the supply chain simultaneously, rather than simply focusing on one area. However, once organizations have determined how they want to win, they should consider how to effectively configure their DSCs to successfully execute their plan. One of the main benefits of DSC is its agility. This allows for rapid response to variations from what was originally planned. The shift to real-time data access and analytical intelligence is known to have benefited supply chain operations. Once organizations make the decision to adopt a DSC, they should consider how to develop, connect, and use the various technologies powered by Industry 4.0. Before developing a DSC, the process of creating information, analysis and action should be considered as a cycle. Physical to Digital - Capture information from the physical world and create a digital record from physical data Digital to digital: share information and discover meaningful insights using advanced analytics, scenario analysis and artificial intelligence Digital to physical: Apply algorithms to translate decisions from the digital world into effective data, to optimize processes and changes in the physical world.

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