

# Riki Riki

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18	Internet	www.ros.hw.ac.uk	<1%
19	Publication	"Industrial Engineering and Applications", IOS Press, 2023	<1%
20	Publication	A.R. van Goor, M.J. Ploos van Amstel, W. Ploos van Amstel. "European distribution ...	<1%
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# Bibliometrix Analysis: Management Inventory and Supply Management

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**Abstract**  
Inventory and Supply Management is an important aspect of efficient business operations. Both are interrelated and have an impact on achieving competitive advantage and customer satisfaction. Bibliometrix analysis is used to evaluate the performance of inventory and supply management of companies. The results show that effective inventory and supply management can improve operational efficiency and customer satisfaction. Bibliometrics is an analytical method used to map and analyze scientific literature in a particular field. In the context of inventory management and distribution control, bibliometrics can provide valuable insight into the development and focus of study in a particular field. The purpose of this study is to analyze and summarize scientific literature related to inventory management and distribution control using bibliometric methods. The method used is descriptive analysis using analysis tools such as three-field plots and tables of main information. The results show that scientific literature related to inventory management and distribution control has experienced a decline in annual growth in the period 2018-2023. However, the average citation per document shows that this literature is still very relevant and important in the context of inventory management and distribution control. This research provides valuable insights for researchers and practitioners in the field of inventory management and distribution control.

*Keywords:*  
Bibliometric analysis  
Efficiency  
Inventory  
Literature Relevance  
Management Effectiveness

## I. INTRODUCTION

Inventory management and supply management are two important aspects of efficient business operations. In today's competitive business environment, companies must have the right approach in managing stock of goods and managing the flow of goods, services, and information in the supply chain. Stock management involves managing the inventory of goods and resources used in the company's production and operational activities. The ultimate goal is to strike a balance between customer needs and inventory costs. By using effective inventory control methods, companies can optimize inventory levels, avoid excess, or understock, and reduce costs associated with inventory. On the other hand, supply management focuses on managing the flow of goods, services, and information from suppliers to end customers. The goal is to ensure the availability of the right goods at the right time, efficient delivery, and adequate quality. Good supply management involves close collaboration with suppliers, the use of information technology to increase visibility and efficiency in the supply chain, as well as regular appraisals of supplier performance. These two disciplines are interrelated and influence each other. Efficient stock management can help in smooth supply management, while good supply management also contributes to stock optimization of goods. In the context of globalization and fierce competition, companies that are able to manage stocks well and maintain efficient supply flow have a significant competitive advantage.

In this paper, we will go in-depth on the principles, strategies, and tools used in stock management and supply management. We will explore concepts such as inventory control, demand forecasting, ABC analysis, just-in-time ordering, collaboration with suppliers, use of information technology, and more. With a good understanding of these two aspects, companies can achieve high operational efficiency, reduce costs, improve customer satisfaction, and gain a competitive advantage in a competitive market.

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## Inventory Management and Supply Management

Supply management and inventory management can be divided into 2, namely: where supply management focuses on managing the flow of goods, information, and services in the supply chain, while stock management is concerned with controlling the inventory of goods and company resources. The common goal of these two areas is to achieve operational efficiency, customer satisfaction, and competitive advantage. [1] explains that stock management involves "the management of the inventory of goods and resources necessary to meet the production and operational needs of the company, with the aim of achieving operational efficiency, cost control, and good customer service." [2] defines stock management as "control and supervision over the flow of goods into and out of a company's inventory system, with the aim of maintaining adequate inventory availability, avoiding overstock, and minimizing inventory costs." [3] describe supply management as "the management of the flow of goods, information, and services from suppliers to end customers with the goal of achieving customer satisfaction, operational efficiency, and competitive advantage." [4] Lawson suggest that supply management involves "selecting the right suppliers, establishing strong relationships with suppliers, and managing the flow of goods and information in the supply chain with the goal of improving quality, speed, flexibility, and responsiveness." according to [5] bibliometrics includes study methods that are descriptive in nature and seen from the pattern of authorship used to determine the gender of the author, type of work, level of collaboration, productivity of the institution where he works, and as the subject of the article. According to [6] Inventories are goods that are stored for later use or sold at certain times depending on existing demand or will be sold in future periods. [7] that inventory is an asset that includes goods belonging to the company with the aim of being sold within a certain period or inventories of goods that are still in progress/production process, or inventories of raw materials awaiting use in something.

### Prepare data for analysis

This accounting sheet design upholds programming prerequisites by bringing in information from Aspects in .csv design. This is finished through an inquiry channel that chooses reports in view of rules. According to [8] inventory is a very important company asset since it straightforwardly influences the organization's capacity to get conclusions. Thusly, stock up should be overseen and recorded appropriately so the organization can sell its items and acquire pay so the organization's objectives are accomplished. Many exploration papers utilize the words "stock management" and "supplier" interchangeably when brainstorming keywords for search. Keyword searches are used to gather information about stock management and its impact on the company.

This study used the [Bibliometrix R-package](#), a tool developed in R language [9] This package includes advanced analysis and visualization— no limitations because of business programming licenses. Most scholastic bibliometric examines are not open to conventional clients because of the requirement for broad preparation and information in utilizing the product. Bibliometrics is an open source programming bundle made for logical planning investigation. It coordinates well with other R bundles for constant improvement and mix. It is extremely famous among clients and assists individuals with understanding bibliometric investigation through clear and organization examination. This examination utilizes [Biblioshiny](#), an electronic application remembered for the Bibliometrix bundle. It's not difficult to utilize and requires no coding information, going with it an extraordinary decision for non-coder clients. It plays out a science planning investigation utilizing center highlights connected with the computerized work process of the Bibliometrix bundle.

### Search Strategy

Database : Dimensions  
 Keywords : "Inventory Management " AND "Supply Management."  
 Time Range : 2018 OR 2019 OR 2020 OR 2021 OR 2022 OR 2023  
 Publication Type : Article OR Proceeding  
 Document Type : All Open Access  
 Language : English

**Table 1. Title and Abstract Search Strategy on Database Dimension**

Keywords	Query Description	The Abundance of Document
"Inventory Management"	Keyword selection based on title, abstract keyword search criteria	44.316 Publication
("Inventory Management" and "supply Management")		7.655 Publication
("Inventory Management" OR "Supply Management") AND ("Inventory" OR "Inventor Control").		2.945 Publication
("Inventory Management" OR "Supply Management") AND ("Inventory" OR "Inventory Control"). Refined by: PUBLICATION YEAR: (2023 OR 2022, 2021 OR 2020, OR 2019 )	Time range selection. With the core objective of detecting trends and perspectives in supply management concerning stock management, the data includes all publications from 2019 to 2023.	1.096 Publication
("management stock" OR "Management supply") AND ("Management inventory" OR "Management supplier"). Refined by: PUBLICATION YEAR: (2023 OR 2022, 2021 OR 2020, OR 2018) AND PUBLICATION TYPE: (Article, proceeding)	Publication type selection Articles AND proceeding were used for further analysis.	920 Publication
("management stock" OR "Management supply") AND ("Management inventory" OR "Management supplier"). Refined by: PUBLICATION YEAR: (2023 OR 2022, 2021 OR 2020, OR 2018) AND PUBLICATION TYPE: (Article, proceeding) AND OPEN ACCESS: (All OA)	Selection of document type in the form of open access	592 Publication
("management stock" OR "Management supply") AND ("Management inventory" OR "Management supplier"). Refined by: PUBLICATION YEAR: (2023 OR 2022, 2021 OR 2020, OR 2018) AND PUBLICATION TYPE: (Article, proceeding) AND OPEN ACCESS: (All OA) AND LANGUAGE: (ENGLISH) AND DUPLICATE	Delete the same paper, so there are no duplicate	92 Publication

"Inventory Management": Selection of keywords based on title, abstract, and other keyword search criteria. The result was 44,316 publications. ("Inventory Management" and "Inventory Management"): Search for keywords using the AND logic between "Inventory Management" and "Inventory Management". The number of publications found was 7,655. ("Inventory Management" OR "Supply Management") AND ("Inventory" OR "Inventory Control"): Keyword search uses the OR logic between "Inventory Management" and "Supply Management", and the OR logic between "Inventory" and "Inventory Control". The number of publications found was 2,945. ("Inventory Management" OR "Supply Management") AND ("Inventory" OR "Inventory Control"). Refined by: PUBLICATION YEAR: (2019-2023): Selection of publication time range from 2019 to 2023 to detect trends and perspectives in inventory and supply management. The number of publications found was 1,096. ("Stock management" OR "Supply management") AND ("Inventory management" OR "Supplier management"). Refined by: PUBLICATION YEAR: (2018-2023) AND PUBLICATION TYPE: (Article, proceedings): Selection of publication types that are only articles or proceedings, with publication periods from 2018 to 2023. The number of publications found is 920. ("Stock management" OR "Supply management") AND ("Inventory management" OR "Supplier management"). Refined by: PUBLICATION YEAR: (2018-2023) AND PUBLICATION TYPE: (Article, proceedings) AND OPEN ACCESS: (All OA): Selection of document types in open access form. The number of publications found was 592. ("Stock management" OR "Supply management") AND ("Inventory management" OR

"Supplier management"). Refined by: PUBLICATION YEAR: (2018-2023) AND PUBLICATION TYPE: (Article, proceedings) AND OPEN ACCESS: (All OA) AND LANGUAGE: (ENGLISH) AND DUPLICATES: Remove duplicate articles so there are no duplicates. The number of publications found is 92.

### Question Study

- Which diaries and creators are the most powerful in the field of data frameworks in stock administration?
- What is the scholarly construction of the exploration local area?
- What are the participation networks in the field of stock administration data frameworks?
- How is the concept of stock management information system and what are the most talked about issues in the latest work?

The above research questions convert into the accompanying examination goals until further notice

- To figure out patterns or examples of information advancement in stock administration process data frameworks.
- To investigate the construction of information and get information amalgamation.

The motivation behind this bibliometric research is to exchange process data at the executives stock review case PT.Berkahjaya Teknik Sentosa to assess and figure out patterns, concentration, and effect connected with the subject of logical distributions.

## II. METHODS

The search strategy needed to be identified before data could be gathered for this study (Figure 1). The database needs to be accessed next.

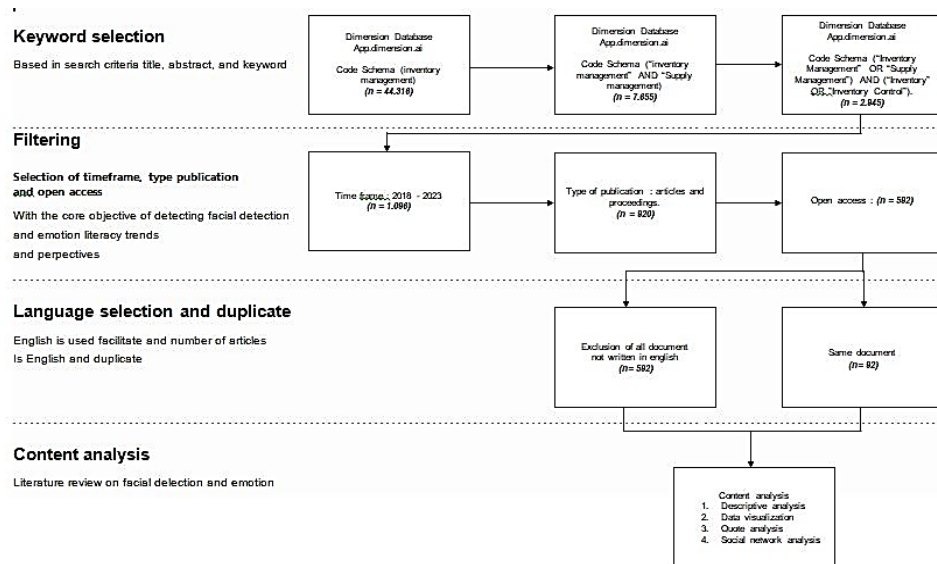
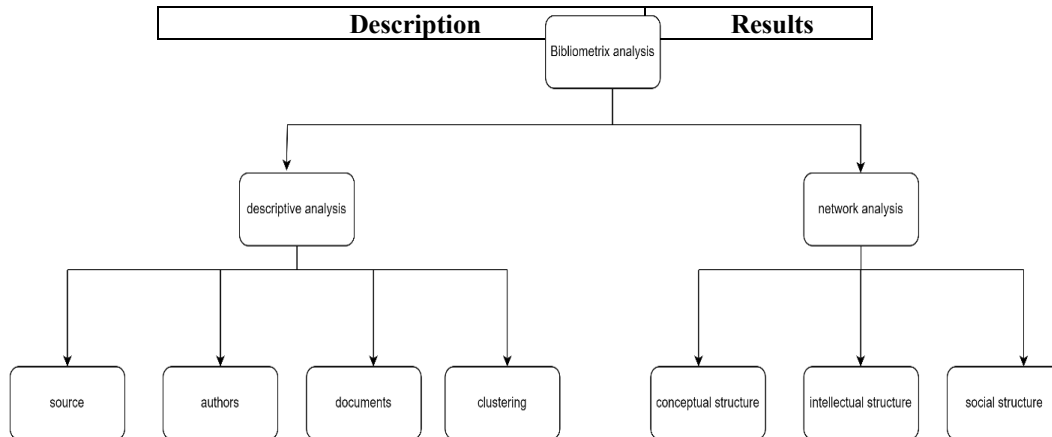


Figure 1. Selection Process

Steps or processes undertaken in using the Dimensions database to conduct a literature review on inventory management and supply management review. Here is a brief explanation of each step:

- Keyword Determination:** In this step, a choice of watchwords is completed to look for important examinations. The catchphrases utilized connect with face discovery, looks, and feelings.
- Filtering:** This step includes applying channels to query items to restrict distribution time, distribution type, and open access. The objective is to zero in the hunt on applicable and modern examinations.
- Language Choice and Copy Evacuation:** Concentrates on that are not written in English and copies are taken out from query items. English language choice is finished to work with information investigation and planning.
- Content Investigation:** This step includes content investigation of the chose record. Content examination can incorporate engaging investigation, information representation, reference examination, and interpersonal organization investigation. The objective is to grasp patterns and viewpoints in the writing on face and feeling identification.
- Through these means, scientists can utilize Aspects to distinguish pertinent investigations, apply channels to

limit the extent of searches, and perform content examination to acquire knowledge into the subjects contemplated.



**Figure 2. Bibliometrics Levels of Analysis**

Portrays the two methodologies utilized in examination bibliometric. These methodologies are:

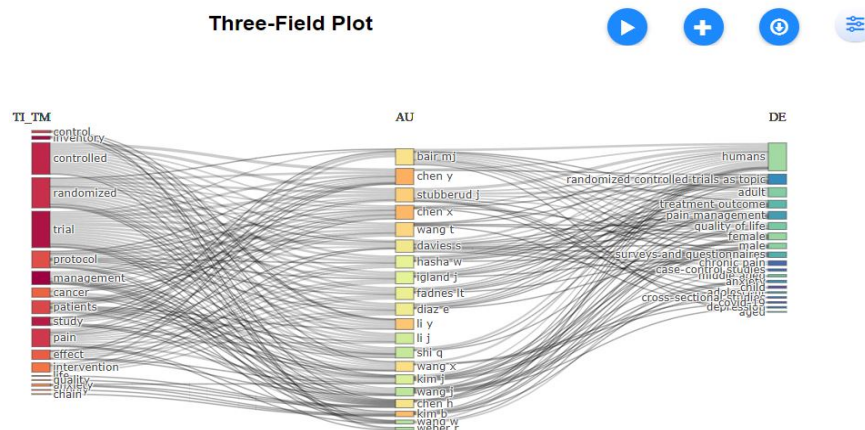
- a) **Descriptive Investigation:** This approach includes examination elucidating to give depiction general about bibliographic informational collection dissected. Examination This enlightening incorporates data base, for example, complete distributions found in data set, count distribution each year, dispersion type archive (e.g. article diaries, books, gatherings, and so on.) evaluations creators, diaries, or foundations creator related distributions, and data others give portrayal general about the bibliographic information examined.
- b) **Analysis organization :** Examination organization or organization investigation in Bibliometrics depicts connection or connection between substance in bibliographical informational index. Examination network on Bibliometrix can create various sorts of charts, including : outlines that portray association between essayist distributions, A realistic that shows the most successive watchwords or subjects shows up in the post spot graph delineating association between common distributions allude each other Examination network in Bibliometrix can likewise assist client with recognizing example or pattern in distributions, too distinguish author unmistakable, establishment or point, and field skill.

By utilizing second this methodology, examination bibliometric can give important knowledge about improvement and center concentrate in field certain, similar to investigation and plan framework exchange process data at the board stock review case PT.Berkahjaya Teknik Sentosa, as portrayed in message.

### III. RESULTS

#### Descriptive analysis

Descriptive analysis explores various dimensions using analytical tools.



**Figure 3. Three-Field Plot**

**Tabel 2. Main Information**

MAIN INFORMATION	
Timespan	20180:2023
Source ( Journal, Books, etc.)	389
Document	500
Annual Growth Rate %	-10.67
Document Average Age	2.49
Average citation per doc	8.754
References	1
DOCUMENT CONTENT	
Keywords Plus (ID)	661
Author's Keyword (DE)	661
AUTHORS	
Authors	2690
Author of single-authored docs	37
AUTHORS COLLABORATIONS	
Single-authored docs	38
Co-authors per docs	5.71
International co-authorships %	16.6
DOCUMENT TYPE	
Article	492
proceedings	8

This image provides information about data collected from various sources in the time span of 2018 to 2023. Here's an explanation for each column in the image:

*Description:* This is the part of the table title that provides an overview of the information presented in the table.

*Results:* These are the columns that contain the values or results associated with each category described below.

*Timespan:* A time range in year format that indicates the period from 2018 to 2023. This indicates that the data collected covers the last five years.

*Sources (Journals, Books, etc.):* The number of sources used in data collection, including journals, books, etc. In this case, there are 389 sources used. *Documents:* The total number of documents collected in the study. In this case, there are 500 documents. *Annual Growth Rate %:* The percentage of annual growth. A negative number (-10.67) indicates that there was a decrease in the number of documents from year to year in the given time span.

*Document Average Age:* The average age of a document in years. 2.49 indicates that the documents collected had an average age of about 2.49 years. *Average citations per doc:* Average citations per document. 8,754 shows that each document is cited 8,754 times on average. *References:* The number of references associated with the documents collected. In this case, there is 1 reference.

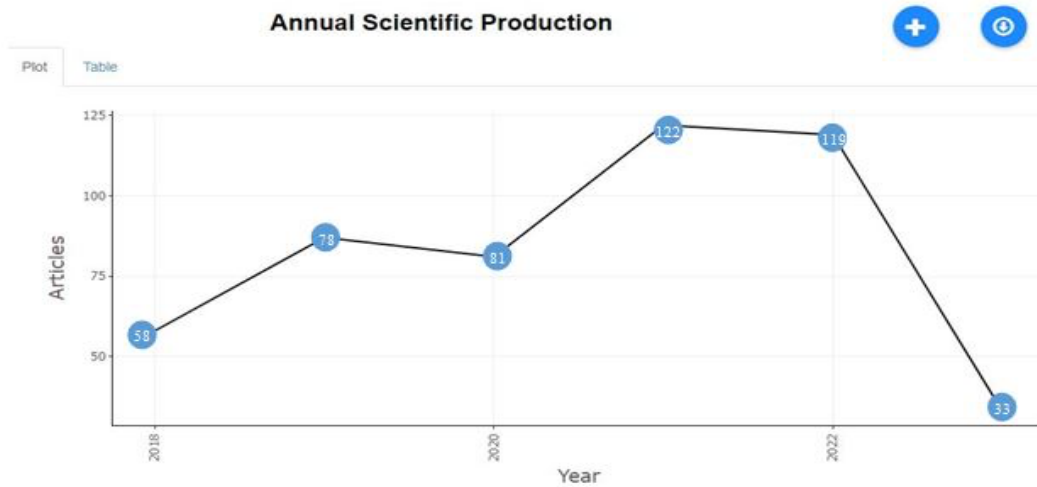
*Keywords Plus (ID):* The total number of additional keywords associated with the documents. There are 661 additional keywords. *Author's Keywords (DE):* The total number of keywords added by authors related to documents. The number is also as many as 661 keywords. *Authors:* The total number of authors involved in writing the documents. In this case, there are 2690 authors. *Authors of single-authored docs:* The number of authors who wrote the document alone in the absence of other authors. There are 37 documents written by one author.

*Single-authored docs:* The number of documents written by one author in the absence of other authors. In this case, there are 38 such documents. *Co-Authors per Doc:* The average number of authors collaborating on each document. The number 5.71 indicates that each document has an average of 5.71 collaborating authors.

*International co-authorships %:* Percentage of author collaborations between countries. The figure 16.6 shows that about 16.6% of author collaborations involve authors from different countries. *Document Types:* The types of documents collected in this study. There are 492 articles and 8 proceedings.

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- 4
- 12
- 1
- 16
- 1
- 4
- 12
- 4

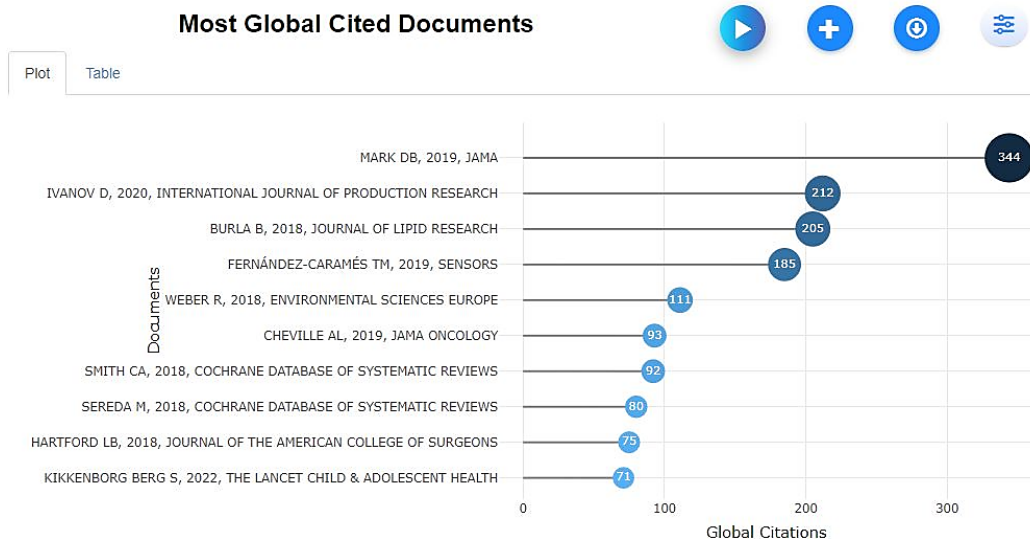
13 **Annual Scientific Production**



**Figure 4. Annual Scientific Production**

This figure gives an idea of the number of articles collected in each year, which can provide information about trends and patterns of development of those articles from year to year. In 2018, (58 articles), 2019 (87 articles), 2020 (81 articles), 2021(122 articles), 2022(119 articles), 2023(33 articles).

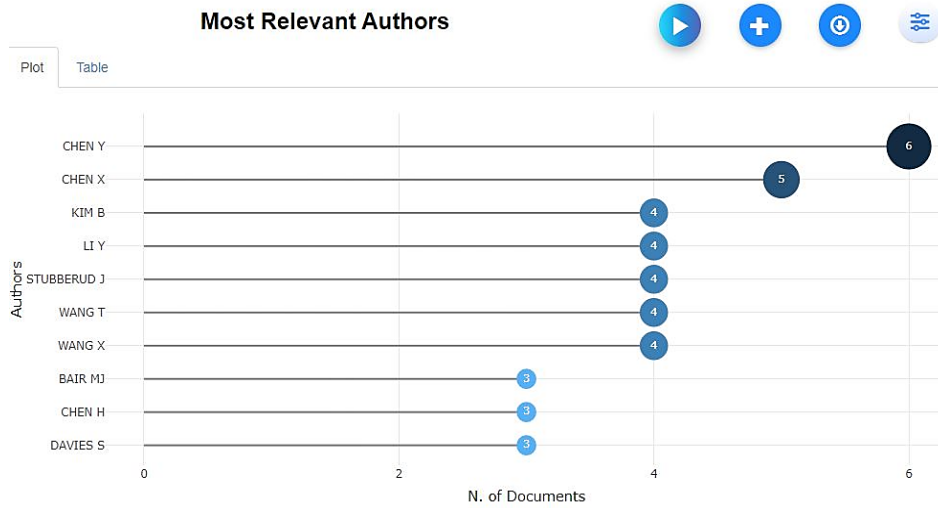
13 **Most Global Cited Documents**



**Figure 5. Most Global Cited Document**

Provides information about several papers (articles) related to particular research. Here is an explanation for each column in the figure [10]: This article was published in JAMA in 2019 This article has received a total of 344 citations and has a normalized average of 68.80 citations per year. (Ivanov et al. 2020) International Journal of Production Research in 2020 This article has received a total of 212 citations and has an average of 53.00 citations per year normalized. [12], in Journal of Lipid Research in 2018 This article has received a total of 205 citations and has an average of 34.17 citations per year normalized. [13], in Sensors in 2019 This article has received a total of 185 citations and has a normalized average of 37.00 citations per year.

1 **Most Relevant Authors**



**Figure 6. Most Relevant Authors**

The information in the figure provides an idea of the author's contribution to the writing of those articles and can provide insight into how active and influential the author is in the related field of research. [14] This author has written 6 articles and has a fraction of 0.54, which shows that this author is relatively responsible for about 54% of each article written. This author has written 5 articles and has a fraction of 0.64, which shows that this author is relatively responsible for about 64% of each article written. [15] This author has written 4 articles and has a fraction of 0.85, which shows that this author is relatively responsible for about 85% of each article written. [16] This author has written 4 articles and has a fraction of 1.38, which indicates that this author is relatively responsible for more than one article in each article written. This may be due to collaboration with other authors or other factors. [17] This author has written 4 articles and has a fraction of 0.52, which shows that this author is relatively responsible for about 52% of each article written. [18] This author has written 4 articles and has a fraction of 0.36, which shows that this author is relatively responsible for about 36% of each article written. The information in the table provides an idea of the author's contribution to the writing of those articles and can provide insight into how active and influential the author is in the related field of research.

**WordCloud**



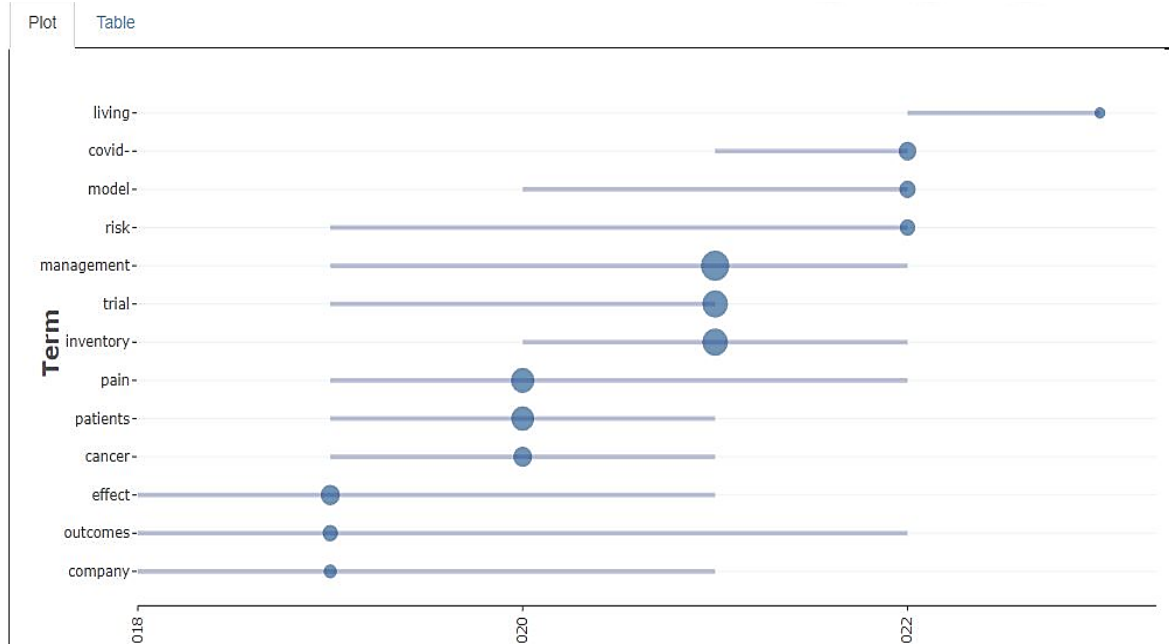
**Figure 7. WordCloud**

It provides information about terms that frequently appear in that context or domain, and the frequency with which each term appears can provide an idea of the focus, topic, or issue that is important in that domain.

**Management** appears 117 times in the context or domain under discussion. This term refers to the practice or process of managing or organizing something, such as business management, resource management, or project management.

**Inventory** appears 84 times in that context or domain. **The term is generally used to refer to a list or collection of goods or materials available in a system, such as inventory in a business or warehouse.** *Trial* appears 84 times in that context or domain. The term is often used in the context of research or trials to refer to studies that involve administering certain treatments or interventions to test their effectiveness or effects.

### Trend Topics



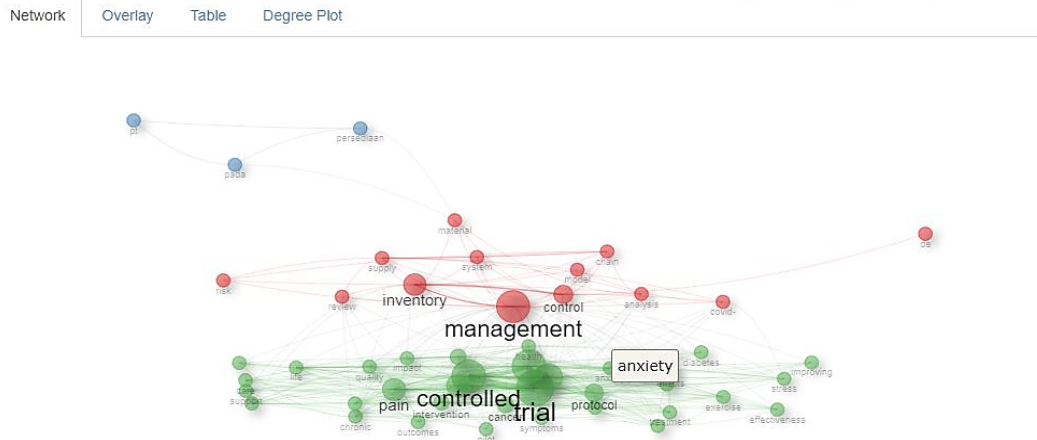
**Figure 8. Trend Topics**

Provides information about the frequency with which some important terms appear in that context or domain and also shows the trend of occurrence of those terms from year to year.

*Management:* The term "management" appears 117 times in that context or domain. This term first appeared in 2019, the peak of its appearance was in 2021, and continues to appear until 2022.

*Inventory:* The term "inventory" appears 84 times in that context or domain. This term first appeared in 2020, the peak of its appearance was in 2021, and continues to appear until 2022. *Company:* The term "company" appears 7 times in that context or domain. This term first appeared in 2018, the peak of its appearance was in 2019, and continued to appear until 2021.

### Co-occurrence Network

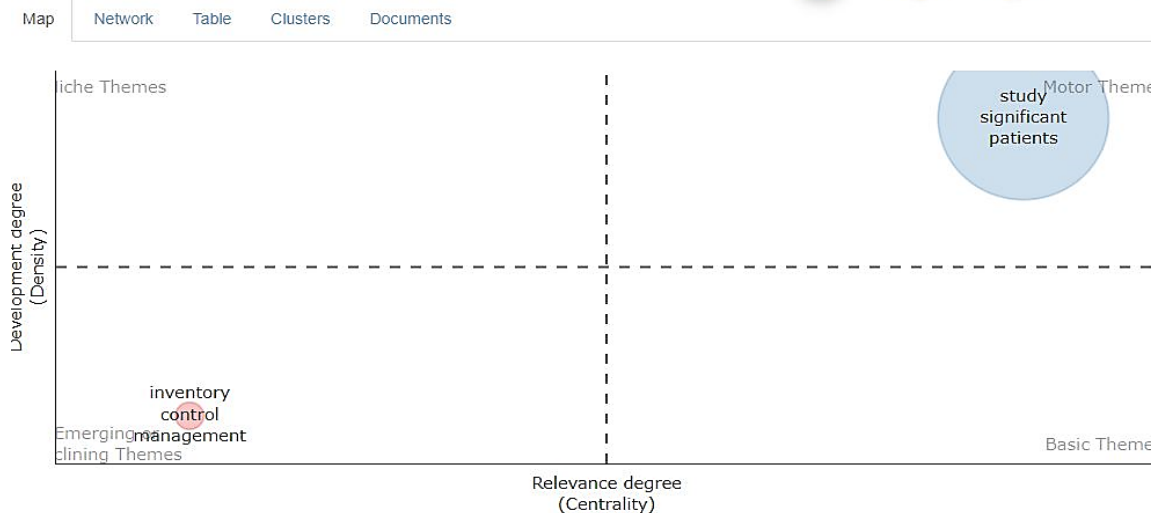


**Figure 9. Co-occurrence Network**

Represents a node in the network. Here, the nodes are "management", "inventory", "control", "supply", "analysis", "chain", "de", "covid", "system", and "model". Displays every node in a given cluster. In this case, all nodes belong to one cluster (Cluster 1). The betweenness value indicates how often a given node is on the shortest path between two other nodes in the network. If the betweenness value is high, the node plays an important role in connecting other parts of the network. The higher the betweenness value, the more important the role of the node in controlling the flow of information in the network. For example, the conclusion "management" has a betweenness. Proximity value indicates how fast information can propagate from a given node to all other nodes in the network. The higher the proximity value, the faster the node can interact with other nodes. Proximity value is measured as the inverse sum of the distance between a certain node and other nodes. This value is also represented in numerical form. For example, the conclusion "management" has a closeness.

The data provides information about each node in cluster 1, including betweenness and closeness values. These values help in understanding the importance and role of each node in connecting or influencing the interactions between nodes in the network.

### Thematic Map



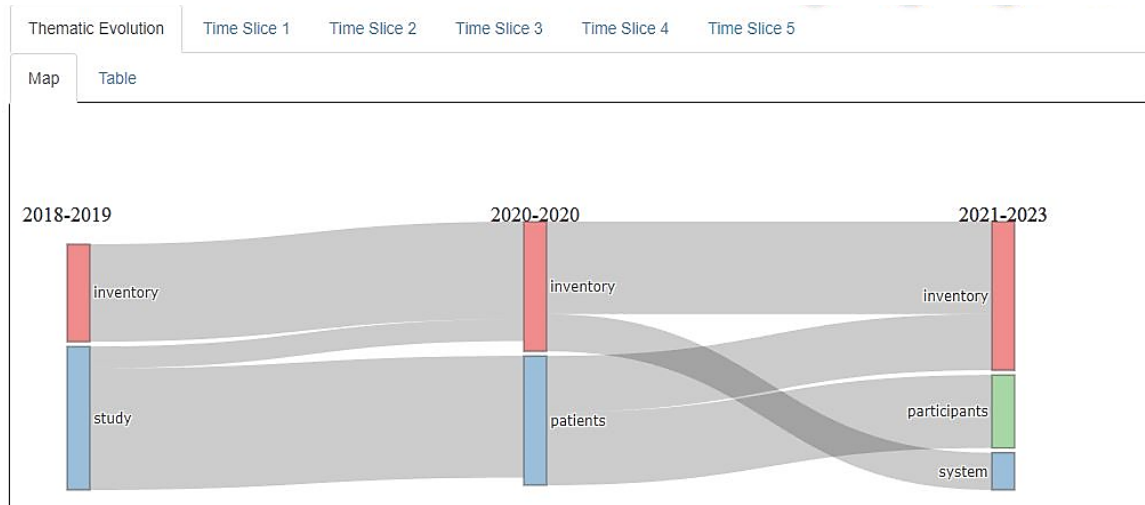
**Figure 10. Thematic Map**

This presents information about some of the keywords that appear in documents related to the "inventory control management" node Here is an explanation of the columns in the figure. Occurrences: The number of occurrences of a particular keyword in related documents. Words: Keywords that appear in related documents. Cluster: The cluster

19

number attributed to that keyword. Cluster Label: A cluster label that describes the type or topic associated with that keyword. With the information in this image, you can see the keywords that appear most often, the clusters in which they are located, and centrality metrics that give an idea of the position of keywords in the network.

### Thematic Evolution



**Figure 11. Thematic Evolution**

The data provided seems to contain about the relationship between two entities with various relevant attributes or keywords, as well as some metrics to measure the strength and relatedness of the relationship. Each row in the data represents a relationship between two specified entities with associated keywords and metrics. This data may be the result of analysis of relationships and interrelationships between various entities in a context. For example, The relationship between the Inventory--2018-2019 to Inventory--2020-2022: The relationship between the "inventory" node in the 2018-2019 period and the "inventory" node in the 2020-2022 period. Keywords related to this relationship include "control", "management", "data", "time", "analysis", "results", and others. Inventory--2018-2019 to Study--2020-2022: The relationship between the "inventory" node in the 2018-2019 period and the "study" node in the 2020-2022 period. Keywords related to this relationship include "improve", "support", "found", "period", "potential", and others. Study--2018-2019 to Inventory--2020-2022: The relationship between the "study" node in the 2018-2019 period and the "inventory" node in the 2020-2022 period. Keywords related to this relationship include "factors", "methods", "review", "reduce", "considered", and others. Study--2018-2019 to Study--2020-2022: The relationship between the "study" node in the 2018-2019 period and the "study" node in the 2020-2022 period. Keywords related to this relationship include "pain", "patients", "intervention", "care", "participants", and others. Inventory--2020-2022 to Data--2023-2023: The relationship between the "inventory" node in the 2020-2022 period and the "data" node in 2023. Keywords related to this relationship include "data", "research", "method", "based", "process", "information", and others. Study--2020-2022 to Clinical--2023-2023: The relationship between the "study" node in the 2020-2022 period and the "clinical" node in 2023. Keywords associated with this relationship include "pain", "patients", "intervention", "anxiety", "participants", and others.

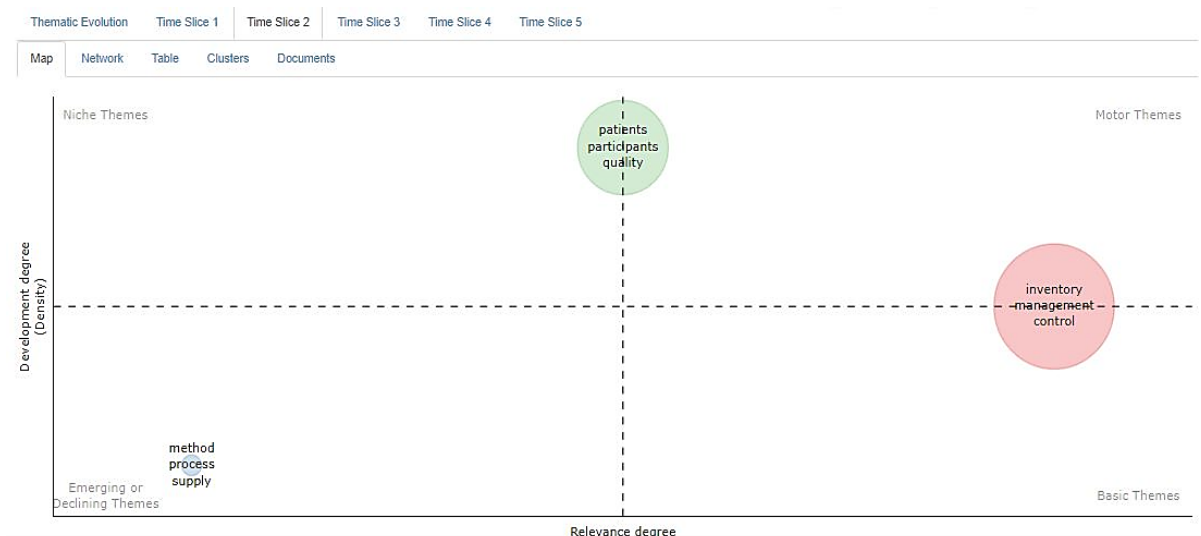
### Time slice 1



**Figure 12. Thematic Evolution Time Slice 1**

Provides information about some keywords that appear in documents related to the "inventory control management" node. With the information in this table, you can see the keywords that appear most often, the clusters in which they are located, and centrality metrics that give you an idea of where your keywords are positioned in the network. Centrify indicates the role of keywords in connecting nodes, centrality of proximity indicates how close a keyword is to other nodes, and centrality of PageRank describes the importance of keywords in the network as a whole.

### Time Slice 2



**Figure 13. Thematic Evolution Time Slice 2**

The provided data appears to represent various metrics for specific words in a cluster, including their occurrences, cluster assignment, color code, cluster label, cluster frequency, betweenness centrality, closeness centrality, and PageRank centrality. The data shows specific information about each word's occurrence, its belonging to Cluster 1 (labeled "inventory", "management", "control"), and various centrality metrics that provide insights into their importance and relationships within the cluster. The metrics can help in understanding which words play significant roles in the network of words and their relative importance to other words within the cluster.



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