



A Bibliometric Analysis on Digital Asset Management Research Using VOSviewer

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Abstract

DAM streamlines storage, organization, and distribution of digital assets like images and videos, optimizing workflows for organizations with extensive digital content. This manuscript explores the evolution of Digital Asset Management through an in-depth bibliometric analysis, shedding light on the emerging trends in this field. It commences by emphasizing the importance of Digital Asset Management for companies. In terms of methodology, VOSviewer software was employed for the analysis, and data collection from Google Scholar publications spanning 2019–2023 was executed using the Publish or Perish application. The outcomes of this research aim to provide valuable insights for future researchers to discern areas warranting further exploration. The findings reveal a surge in studies from 2019 to 2021, peaking at 12 publications in 2022. However, subsequent year witnessed a decline, with only 2 studies in 2023. This report serves as an essential roadmap for academics and researchers, spotlighting areas that demand additional research.

Keywords: Bibliometric Analysis, digital asset management, VOSviewer, Publish or Perish.

1. INTRODUCTION

In the ever-evolving digital landscape, organizations confront a multitude of digital assets, encompassing images, videos, documents, and creative content. Efficient management of these assets is essential for streamlined workflows, brand consistency, and maximizing their value. Enter Digital Asset Management (DAM), a centralized and systematic approach to store, organize, retrieve, and distribute digital assets (Haberly et al., 2019). DAM serves as a cohesive solution, addressing the challenge of managing expanding repositories of multimedia content in the face of growing volume and diversity. Modern DAM systems offer features like metadata tagging, version control, and collaborative tools to meet evolving needs (Chimakurthi, 2020).

In an alternate perspective, DAM can be seen as a strategic business approach facilitating the storage, organization, retrieval, and management of rich media, overseeing digital rights and permissions. Rich media assets include photos, music, podcasts, animations, and more. This strategic approach enhances revenues and streamlines workflow and process cycle times, holding significant relevance across sectors (Naga & Surendra, 2020).

As businesses increasingly value visual content and diverse digital resources, DAM has become indispensable for marketing teams, creative departments, and enterprises overall (Hou et al., 2023).

While there has been limited research on Digital Asset Management (DAM) on a global scale from 2019 to 2023, bibliometric analyses using VOSviewer software are notably lacking. This study aims to address this gap by conducting a comprehensive bibliometric analysis of the DAM field, examining its development, quantity, and topical trends. By doing so, this research will provide insights for future researchers to identify areas that warrant further attention. Moreover, it serves as a valuable resource for researchers selecting topics within the realm of Digital Asset Management.

2. Methods

This research employed bibliometric and descriptive quantitative methodologies. Information was gathered from journals indexed by Google Scholar, a readily accessible source. A literature study using the Publish or Perish software aided in identifying bibliometric data relevant to our research topic. The data from Publish or Perish were stored in files for use in the VOSviewer software. Publish or Perish 8 and VOSviewer 1.6.19 were the chosen software tools for data collection. Material relevant to digital asset management was selectively filtered for inclusion in the study. A search on Google Scholar using the keyword "digital asset management" in Publish or Perish yielded 769 data points on digital asset management research, refined to 42 related journals after filtering. The publications considered spanned the years 2019 to 2023 and were stored in Ris format. VOSviewer software was then employed to visualize and analyze trends through bibliometric maps, categorized as network, overlay, and density visualizations. Terms included in the VOSviewer mapping visualization were further refined through filtering.

3. Result and Discussion

Figure 1 illustrates the evolution of research in the DAM field from 2019 to 2023. Based on the depicted figure, there is a significant increase in the period from 2019 to 2022, with a focus on research related to digital asset management. In 2019, there were 7 conducted studies, and this number noticeably increased to 11 studies in 2020. In 2021, there was a slight increase to 12 studies. The trend remained unchanged in 2022, with the number of studies still at 12. However, there was a significant decline in the number of studies in 2023, dropping to 2 studies.

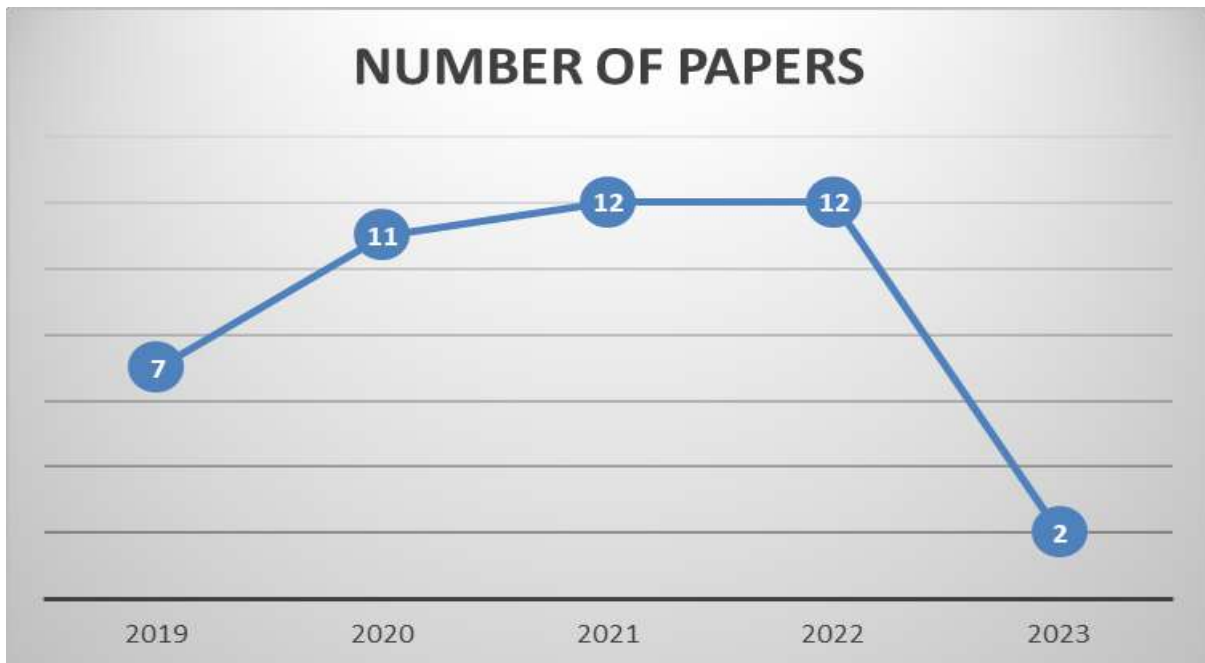


Figure 1. Levels of development of research on Digital asset management.

In addition to the search results conducted on Publish or Perish, we obtained 769 articles, which were filtered to select 42 studies that align with the research topic. From this dataset, we further filtered down to 10 articles with the highest citation counts from 10 different journals (refer to Table 1). Table 1 presents data from these 10 articles, indicating the highest citation at 25 and the lowest at 4. The table shows that in the year 2021 is the highest cited article.

Table 1. Article Data in the Field of Digital asset management.

Title	Cites	Authors	Year
Gemini principles-based digital twin maturity model for asset management	25	L Chen, X Xie, Q Lu, A K Parlikad, M Pitt, J Yang	2021
BIM and GIS integration for infrastructure asset management: a bibliometric analysis	24	M Garramone, N Moretti, M Scaioni, ...	2020
Digital Asset Management: New Opportunities from High Dimensional Data—A New Zealand Perspective	20	M Cherrington, Z Lu, Q Xu, F Thabtah, ...	2020
The role of digital technologies on growth of mutual funds industry: An empirical study	15	K K Das, S Ali	2020

Digital twin enabled fault detection and diagnosis process for building HVAC systems	15	X Xie, J Merino, N Moretti, P Pauwels, J Y Chang, ...	2023
Towards resilient and sustainable rail and road networks: A systematic literature review on Digital Twins	13	J Vieira, J Poças Martins, N Marques de Almeida, ...	2022
Digital Construction Strategies and BIM in Railway Tunnelling Engineering	12	G Kapogiannis, A Mlilo	2019
Exploring the role of digital infrastructure asset management tools for resilient linear infrastructure outcomes in cities and towns: a systematic literature review	8	S Caldera, S Mostafa, C Desha, S Mohamed	2021
AI Factory--A Framework for Digital Asset Management	5	R Karim, P Dersin, D Galar, U Kumar, ...	2021
The digital asset management microcosm: a high-dimensional New Zealand view.	4	M Cherrington, J Lu, Q Xu, ...	2021

Digital asset management Topic Visualization using VOSviewer

Accordingly, two terms need to be employed to establish the minimum number of relationships when visualizing the data in the VOSviewer program (Lahkimi et al., 2020). Consequently, 42 elements totalling five clusters comprise the results that were collected. Based on visualization mapping analysis, research on Digital asset management is categorized into five clusters, which are as follows: Cluster 1 as shown in figure 2, It consists of 12 items: Assets management, benefit, case study, computerisation, current research, digital, digitalisation, dts, implementation, maintenance, operation, and standard. Cluster 2 in figure 3 has 9 items: digital asset management, case, development, asset, environment, infrastructure asset management, innovation, process, and technology. Cluster 3 as shown in figure 4 has 9 items, there are: approach, asset management, asset management system, asset manager, digital technology, digitalisation, role, systematic literature review, and study. Cluster 4 as shown in figure 5, there are 8 items, these are: application, asset owner, challenge, digital twin, infrastructure, management, resource, and strategy. And the In Cluster 5 as shown in figure 6, it has only 3 items, this includes: building, construction, and industry.

See Figures, where Cluster 1 is indicated in red, Cluster 2 in green, Cluster 3 in dark blue, Cluster 4 in yellow, and Cluster 5 in purple.

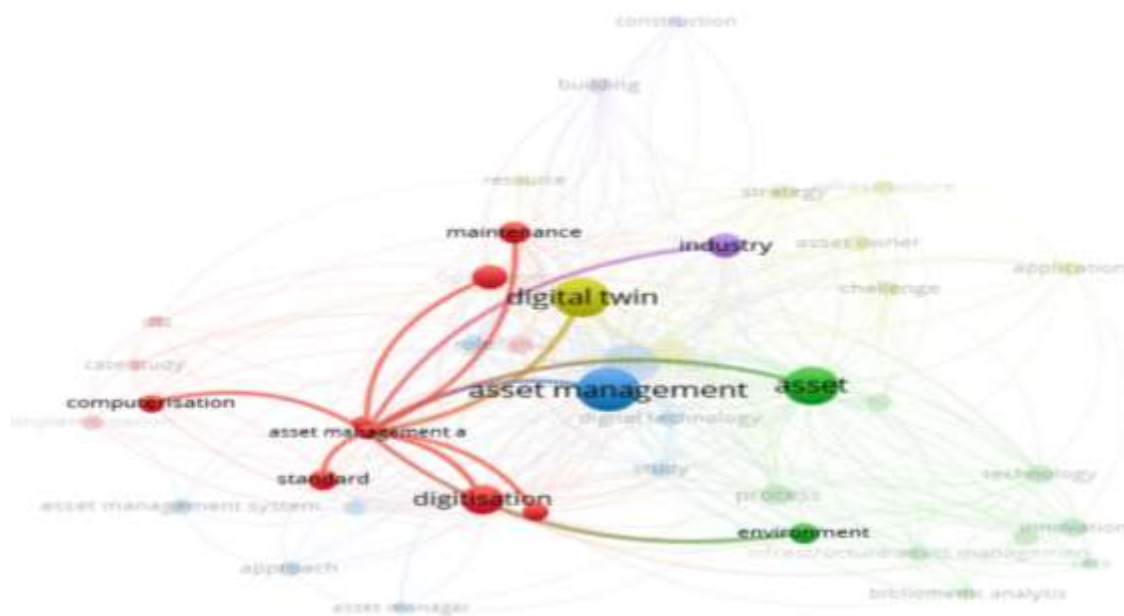


Figure 2. Cluster 1 Network visualization of Digital assets management

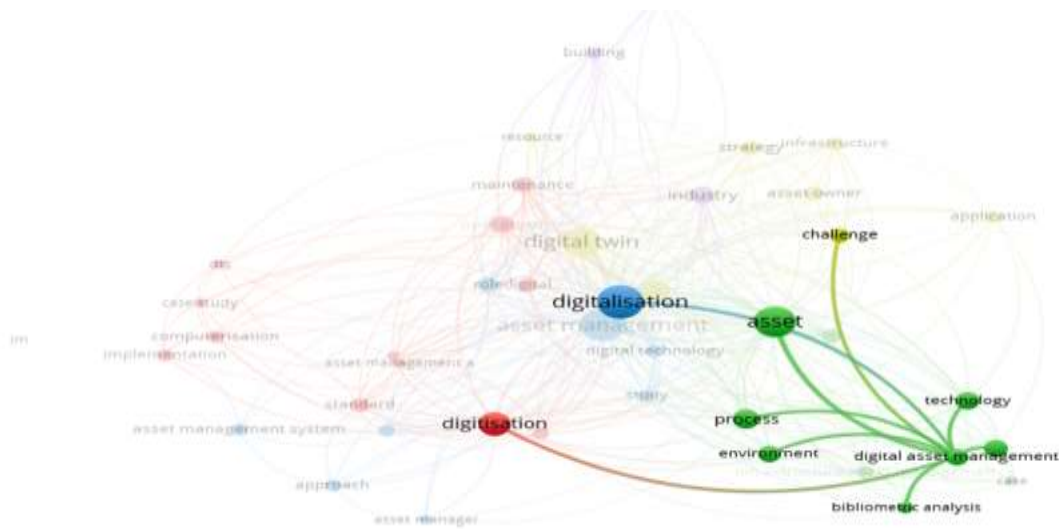


Figure 3. Cluster 2 Network visualization of Digital assets management

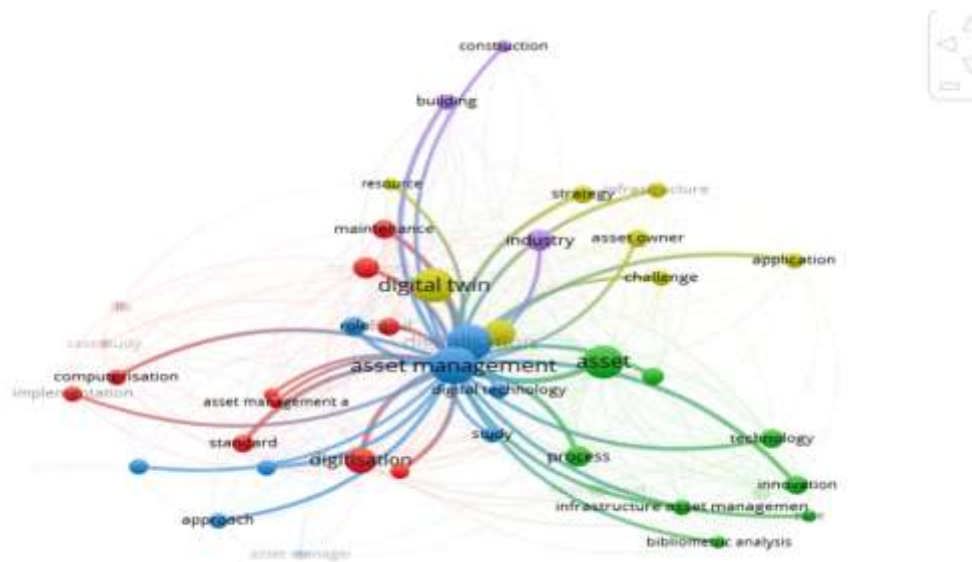


Figure 4. Cluster 3 Network visualization of Digital assets management

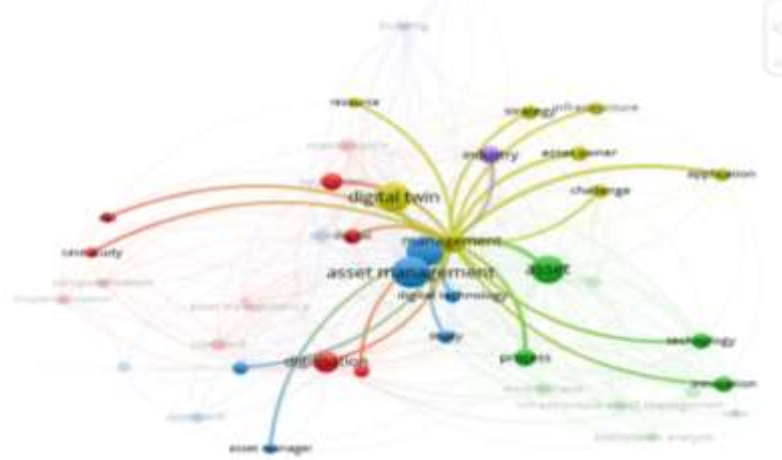


Figure 5. Cluster 4 Network visualization of Digital assets management

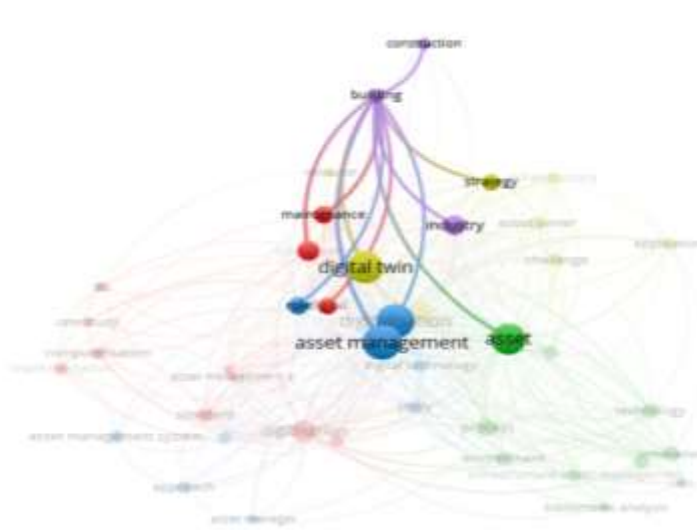


Figure 6. Cluster 5 Network visualization of Digital assets management

Digital asset management Network Visualization using VOSviewer

In the VOSviewer application, the representation of each term is categorized into three types, with one being Network Visualization. This type of visualization elucidates the connections between terms on a map, illustrating these relationships through networks or lines linking one term to another. Figure 7 exemplifies the Network Visualization of the term 'Digital asset management' sourced from the VOSviewer application. The figure provides a visual representation of each cluster within the explored topic areas. Notably, in Figure 7, digital asset management is situated in cluster 2, boasting a total strength of 11 and an occurrence of 4. Furthermore, digital asset management exhibits connections with cluster 1, encompassing the term 'digitalisation,' and cluster 4, involving terms like 'challenge.'

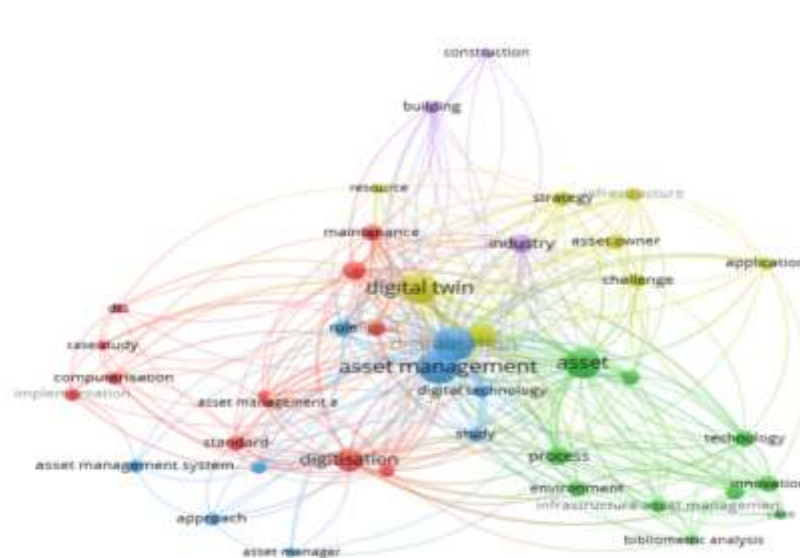


Figure 7. Cluster 6 Network visualization of Digital assets management

Digital Asset Management Overlay Visualization using VOSviewer

The functionality of the VOSviewer application extends beyond Network Visualization to include an overlay mapping representation. Overlay visualization mapping focuses on highlighting the uniqueness of a term within the study. Figure 8 exemplifies a term that is novel in the research context of Digital Asset Management. The Overlay Visualization mapping allows for the observation of a phrase's popularity over time. In this mapping approach, distinct colours are assigned to each term based on its occurrence within the specified time frame, spanning the years 2019–2023. As a keyword's colour tends toward dark violet, it indicates that the study associated with that term was started in 2019. Conversely, if a keyword's hue approaches yellow, it signifies that the investigation was completed in 2023.

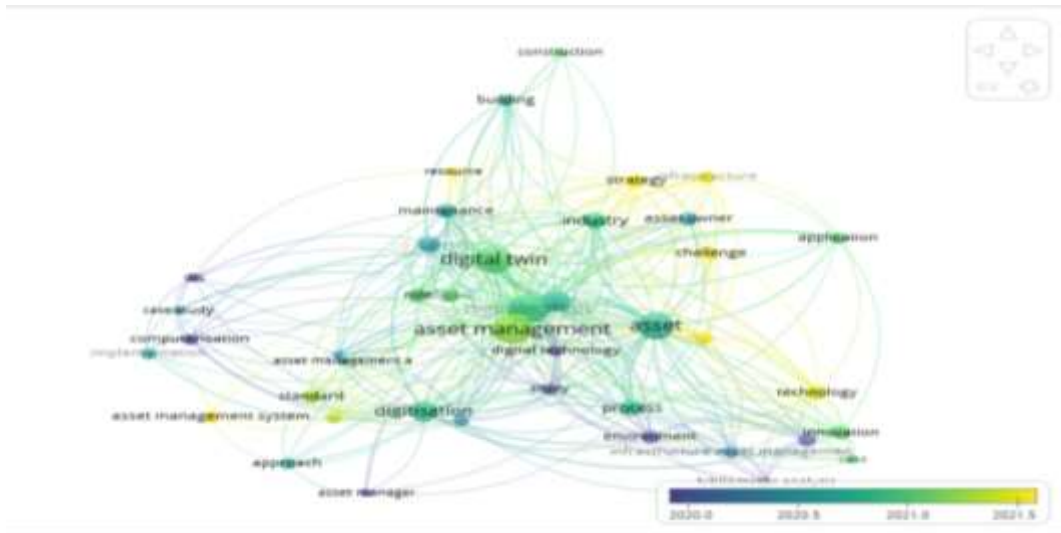


Figure 8. Cluster 7 Network visualization of Digital assets management

Figure 9 displays an overlay visualization emphasizing "asset management" as a prominently researched keyword, closely followed by other terms such as digitalisation, asset, and digital twin. In this representation, Digital Asset Management is connected to eight additional terms, including case, development, asset, environment, infrastructure asset management, innovation, process, and technology. The overlay visualization provides insights into the temporal aspects of the studies, revealing when they were updated and illustrating the relationships between the terms.

Density visualization of Digital Asset Management

The VOSviewer application features a mapping representation known as Density Visualization, as illustrated in Figure 9, which categorizes each term based on its popularity in research. This mapping relies on the colour exhibited by each term: a lighter colour indicates increasing research popularity, while a darker or faded colour suggests a decrease in research frequency. Figure 9 highlights several yellow terms with substantial diameters, such as asset management, digitalisation, asset, and digital twin, signifying their frequent usage in existing studies. The density map, derived from the analysis of all articles on Digital Asset Management from 2019 to 2023, reveals yellow patterns. The intensity of the yellow colour and the size of the circle diameter correlate with the frequency of keyword appearances. Conversely, fading or blending colours with the green background indicate less frequent keyword occurrences. According to Luckyardi et al., (2022) this outcome further validates the efficacy of bibliometric analysis in exploring and visualizing current literature, aiding in the decision-making process for potential further research.

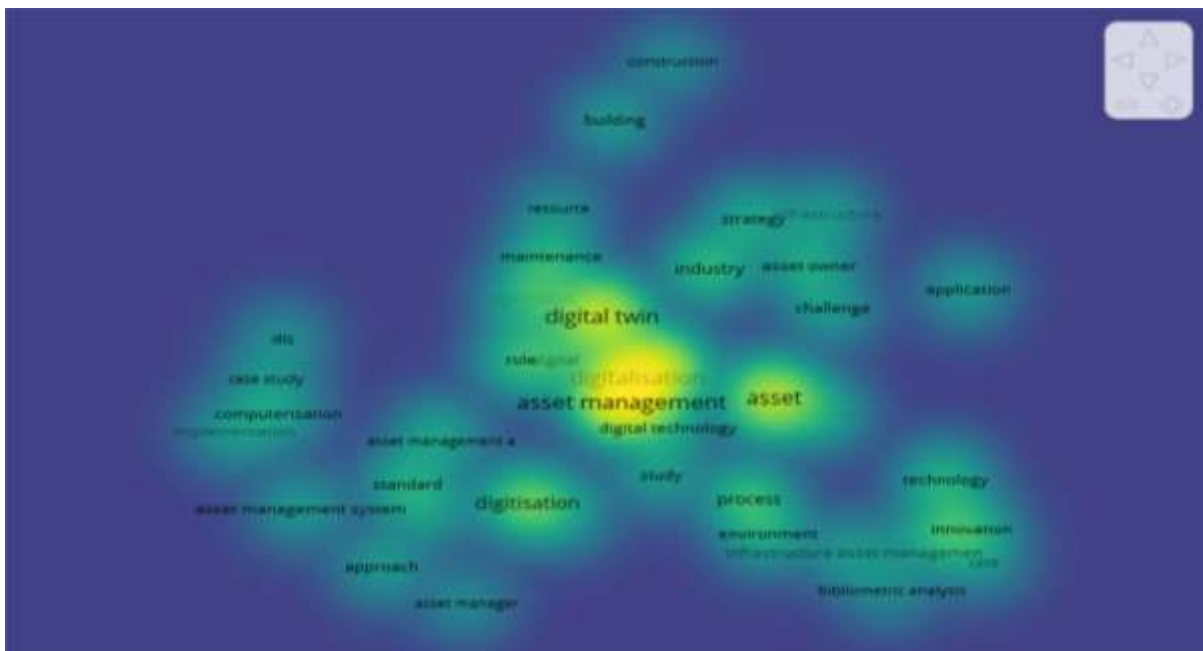


Figure 9. Cluster 8 Network visualization of Digital assets management

CONCLUSION

This study aims to analyse the bibliometric literature concerning digital asset management. Utilizing the keyword "digital asset management" to get data within a specific topic area, we identified 42 relevant articles after data filtration. Employing the VOSviewer software, we generated mapping data, encompassing network, overlay, and density visualizations. The exploration and analysis of these visualizations revealed that research on asset management, particularly concerning digital asset management, was most prevalent from 2019 to 2022 but experienced a decline in 2023. Through bibliometrics, we identified key themes in prior studies, providing valuable insights for evaluating novelty in future research.

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