Content as a Service fostering knowledge sharing amongst universities and communities: A bibliometric review

Farai Sebastian Mutindindi
University of Zimbabwe and University of Johannesburg
f.mutindindi@sociol.uz.ac.zw
ORCID 0000-0001-8972-9583

Kelvin Joseph Bwalya
Sohar University Oman
kbwalya@su.edu.om
ORCID 0000-0003-0509-5515

Sithembiso Khumalo
University of Johannesburg
skhumalo@uj.ac.za
ORCID 0000-0002-4734-0913

Abstract

Rationale of Study – This article explores how Content as a Service (CaaS) catalyses knowledge sharing across various contexts, particularly between universities and their communities.

Methodology – The study used bibliometric analysis, a quantitative methodology, to examine academic publications related to CaaS and its role in fostering knowledge sharing. A comprehensive search on the Web of Science database identified 393 relevant publications. The data were analysed using Bibliometrix with R programming.

Findings – CaaS is a multidisciplinary domain encompassing computer science, information science, business, and healthcare. It democratises information access and enhances economic benefits through subscription models. Notably, there has been a surge in CaaS-related publications over the past decade, especially in the USA, highlighting the need to investigate CaaS as a knowledge-sharing paradigm. However, a significant gap remains in the literature from Africa, limiting insights into how local contexts can influence knowledge sharing in higher education through CaaS.

Implications – CaaS can improve information accessibility, collaboration, discoverability, and cost-effectiveness through shared resources.

Originality – Given Zimbabwe's contextual nuance, this study is among the pioneering research investigating CaaS as a knowledge-sharing paradigm.

Keywords

SECI, digital literacy, collaborative content development, information architecture

1 Introduction

In the Fourth Industrial Revolution (4IR), the rapid advancement of technology has transformed the way knowledge is generated and content consumed. The concept of "Content as a Service" (CaaS) has emerged as a novel approach, revolutionising the digital landscape by providing information seekers with convenient and personalised access to a wide range of digital content. Adopting knowledge management to steer new skills and capabilities among people provides evidence that contemporary organisations should improvise on their core capabilities and generate new ones that can drive communities in the 4IR era (Anshari & Hamdan, 2022).

Knowledge sharing between universities and communities has long been regarded and recognised as mutually beneficial but practically challenging. As Steele and Rickards (2021) argue, "the university has a significant responsibility to share its knowledge with the surrounding society and progress the Sustainable Development Goal (SDG) agenda, as the university is largely funded by tax money". However, they further note that differences in priorities and values often inhibit meaningful collaborations that facilitate knowledge transfer. CaaS introduces a technological solution that allows each party to leverage their unique expertise. Universities can focus on generating educational content, while the CaaS solution manages the technical infrastructure and requisite information management considerations for scalable knowledge delivery to communities.

The Socialisation, Externalisation, Combination, and Internalisation (SECI) model propounded by Nonaka et al. (1996) has been used for decades as a knowledge-sharing benchmark. Existing knowledge-sharing solutions are, however, inadequate due to a lack of ICT capabilities that suit the university and community knowledge infrastructure (Al-Maskari et al., 2024). There is a need to manage knowledge in response to increasing environmental complexities (Eden & Nielsen, 2020). This has brought about the discussion around adopting CaaS for knowledge sharing in the contemporary environment.

In essence, CaaS is an approach to content presentation that collects an entity's content assets in a cloud-based server and intelligently presents it to readers upon request (Voight et al., 2021). Content is uploaded to the repository with tags and metadata to help categorise it. It is sent out to each reader when needed and displayed in a format optimised for the reader's device, whether a computer, tablet, or smartphone. This paper explores the literature on utilising CaaS to deliver a mutually beneficial knowledge-sharing service,

specifically on virtual platforms, that cultivates organisational learning and development amongst the universities and communities, respectively. Radenkovic and Grundy (2011) assert that using the CaaS allows researchers to upload different kinds of knowledge assets onto a knowledge repository, annotate them, and (re-) discover relevant ones for intellectual growth. Conversely, communities search for information on the CaaS platform linked to the knowledge repository. Hence, the service effectively provides a knowledge-sharing facility and semantic search engine. Additionally, a virtual Content Delivery Service (vCDS) configured in a search and retrieve manner enables information providers to distribute their content to designated consumers (Jin et al., 2012).

The paper aims to understand how CaaS can be used as a precursor for knowledge sharing in the context of the university and community. The most reliable knowledge-sharing tool for universities is the Institutional Repository (IR) (Lazarenko et al., 2022). CaaS enables collaborative manipulation and annotation of knowledge assets in the repository (Cesar & Geerts, 2011), a desirable specification that institutional repositories lack. The novel solution reviewed by this paper aims to provide a bibliometric analysis of literature on developing an information architecture platform specification conducive to knowledge sharing amongst universities and communities. More specifically, this research article intends to understand what researchers focus on when studying CaaS in knowledge sharing. Building on both prior literature on CaaS, the paper explores how knowledge can be packaged and shared by recipient research communities in the university context.

To address the research question, this paper draws on a bibliometric analysis of data on CaaS extracted from the Web of Science (WoS) database in June 2023. The bibliometric analysis addressed questions including the main disciplines or research areas in which CaaS is published, any patterns and volumes of literature published, and exploring the key concepts discussed in published literature.

2 Literature review

Appreciating what has been published on CaaS is essential; therefore, this paper presents a robust literature review to tackle this area of study, given its emerging significance in complex information-seeking environments.

2.1 Content as a Service

CaaS refers to providing digital content on a subscription or pay-per-use basis, allowing users to access various forms of media, such as articles, videos, music, or multimedia, from a central platform over the Internet (Voigt et al., 2021). Unlike traditional content

distribution models, CaaS eliminates the need for physical ownership or storage media, making content accessible anytime, anywhere, and on multiple devices simultaneously. CaaS is an information management model whereby content is created, packaged, and made available to information seekers over ICT platforms. Raw content material is available on different networked structures for users to devour following their unique needs (Doglio, 2019). This takes place normally in the cloud, with a centralised platform that may be globally available and gives a widespread layout and access to content material. CaaS centralises content in a single repository that can be managed, categorised, shared, searched, and utilised.

CaaS has had a profound impact on information management and the digital landscape. Firstly, it has democratised content accessibility, as users from diverse backgrounds can now access a vast repository of information autonomously and on diverse platforms. This has broadened access to content and contributed to the dissemination of knowledge and promoting digital literacy among users worldwide. Furthermore, CaaS has revolutionised information entrepreneurship by shifting from single-purchase to subscription-based models. This paradigm shift has enabled content creators and distributors to generate more consistent and predictable revenue streams while users benefit from more content options. CaaS offers numerous benefits to both knowledge generators and content consumers. For knowledge creators, CaaS provides an avenue to reach a wider audience, enhance content discoverability, and gain valuable data insights regarding user preferences and consumption patterns. Additionally, the subscription-based model provides a steady income stream, allowing creators to further invest in content quality and innovation.

On the consumer side, CaaS offers unparalleled convenience, granting users instant access to a vast library of content tailored to their preferences. Content strategy is a significant component of content management, ensuring content is relevant and appropriate for users and determining its delivery method, style, and structure (Bailie & Urbina, 2012). By utilising algorithms and machine learning techniques, CaaS platforms personalise content recommendations, providing users with a curated and immersive experience. Moreover, the absence of physical media enables seamless content consumption across multiple devices, offering flexibility and mobility. (Capati, 2019)asserts that universities can determine who their blog audiences are through effective content management. Content creators can improve their blog creation strategies through data analytics and maximise their distribution channels.

2.2 Benefits of Content as a Service

At the community level, CaaS enables collaborative content development and crowdsourced repositories. Piller and West (2014, p. 63) explain that using CaaS allows many participants to contribute small pieces of content to benefit the entire community. Participants can build on each other's work in an iterative, agile manner, not bound by organisational silos. CaaS also facilitates integration with social tools to curate, discuss and remix content in context (Mention et al., 2019). This democratisation of knowledge sharing strengthens ties between academia and community members for mutual benefit.

2.3 The democratisation of knowledge sharing between universities and communities

CaaS can contribute to the democratisation of knowledge sharing between universities and communities in several key ways:

- **Accessibility of content** - CaaS platforms centralise and consolidate content in the cloud, removing barriers to access. This enables universities to easily share research, resources, and lectures with community members. As Bates (2015, p. 3756) notes, CaaS helps "open up academic knowledge that was previously trapped within the ivory tower."

- **Participatory content development** - CaaS allows collaborative content contributions from multiple stakeholders. Universities and community members can co-create resources like public policy wikis and local history repositories (Piller & West, 2014). This facilitates diverse perspectives and delivers a first-hand view of community members on the ground.

- **Social curation** - Integrated social tools within CaaS environments enable collaborative curation, commentary, and remixing of content in context. This allows community members to engage with academic knowledge and repurpose it for local needs (Levy et al., 2016).

- **Two-way dialogue** - CaaS can incorporate multi-directional communication channels like forums and social Q&A. This connects universities and communities for ongoing discussion and feedback around shared content and issues of interest (Huang et al., 2014).

- **Universal access** - Cloud delivery and mobile optimisation provide broad, cross-channel access to CaaS content. This expands reach beyond academics to general public access, helping democratise knowledge (Oliver et al., 2021).

CaaS breaks down the traditional one-way, top-down knowledge broadcast from academia to communities. CaaS makes knowledge sharing more reciprocal and collaborative by enabling participatory, socially curated content flows. This supports the democratisation of learning for the benefit of society.

2.4 Challenges and concerns of content as a Service

While CaaS has introduced remarkable advancements, it also poses several challenges. One primary concern is the potential loss of ownership and control over digital content. As users become dependent on subscription-based models, they may face restrictions on accessing content if they discontinue their subscriptions. Another challenge lies in copyright and piracy issues (Cesareo & Pastore, 2014). With the ease of digital content distribution, unauthorised access and sharing of copyrighted material become more prevalent, posing a significant threat to the revenues of content creators and distributors. This necessitates the development of robust digital rights management systems and effective copyright laws to safeguard intellectual property. Therefore, a CaaS platform must be anchored on a framework protecting intellectual property rights.

According to Dalkir (2013), content management pertains to processes and policies regarding utilising content throughout its lifespan. Content management begins with content creation, dissemination, and use, right through to content archiving. Such content management is optimally achieved through metadata in various formats, such as administrative, descriptive or structural metadata. Chalasani et al. (2014) add that tagging will ensure that the content is semantically categorised. Through effective content management, content will remain relevant, updated, easily accessible, and properly organised to improve community information consumption. Below is an elaboration of the methodology adopted in analysing published literature about CaaS.

In addition, openly accessible university content can help communities address existing education gaps, promote lifelong learning, and empower personal growth. However, this potential depends on whether the university content meets real community needs and is presented in an accessible way. Fostering effective knowledge sharing requires understanding target users and tailoring content accordingly. This highlights the human aspect of knowledge management that Haas and Hansen (2005) emphasise: "Technology can facilitate collaboration and knowledge sharing, but technology alone will not suffice". An ongoing, two-way dialogue is needed between universities and communities to guide the curation and localisation of content.

3 Methodology

This study aims to assess the existing knowledge on CaaS, reveal trends and ascertain publication output. The bibliometric approach is utilised because it provides real-time data through accessing external sources of information. Rousseau and Rousseau (2021) describe this as measuring all available literature related to the publication. This research approach is suitable when assessing the status of a discipline using various indicators, such as the most influential and cited publications, journals, authors, institutions, and countries (Schaer, 2013). The bibliometric approach enables the assessment of the level of collaboration between authors, institutions, and countries. More broadly, this research approach enables the analysis of a vast amount of publications data at the macroscopic and microscopic levels (Kokol & Blažun Vošner, 2019). Prior studies have successfully used this research method to analyse many research fields and domains. Scholars use bibliometric analysis for various reasons, including uncovering emerging trends in article and journal performance, collaboration patterns, and research constituents and exploring the intellectual structure of a specific domain in the extant literature (Verma & Gustafsson, 2020).

Bibliometric analysis involves enormous volumes of data, and objective is usually several citations and publications, occurrences of keywords and topics, though its interpretations often rely on both objective (e.g., performance analysis) and subjective (e.g., thematic analysis) evaluations established through informed techniques and procedures (Donthu et al., 2021). Bibliometric analysis is useful for deciphering and mapping well-established fields' cumulative scientific knowledge and evolutionary nuances by rigorously making sense of large volumes of unstructured data. Therefore, bibliometric studies build firm foundations for advancing a field in novel and meaningful ways. It enables and empowers scholars to gain a one-stop overview, identify knowledge gaps, derive novel ideas for investigation, and position their intended contributions to the field. This study builds on prior studies to investigate the current level of knowledge development on CaaS.

4 Database selection, extraction, and analysis

The bibliometric study commenced with extracting data from the Web of Science (WoS) database. WoS includes various scholarly articles from various disciplines, ensuring a broad and inclusive dataset for analysis. The database features high-impact, peer-reviewed journals, enhancing the research findings' reliability and validity. Additionally, the WoS allows for citation analysis and tracking, thus helping identify key and influential authors.

The search was conducted on the 14th of June 2023 on the WoS database using a combination of the following Boolean logic search criteria:

"Content as a Service" AND "knowledge management"

AND

"Content as Service" AND "knowledge sharing"

Data was collected from relevant scholarly articles, cleaned to remove duplicates and ensure accurate datasets, and then metadata was extracted from each publication. This included author, titles, publication year, abstracts and keywords. The bibliometric analysis yielded 393 relevant documents identified and selected for further analysis using a bibliometric tool called Bibliometrix (Aria & Cuccurullo, 2017). More precisely, this study used an interface for Bibliometrix called biblioshiny. Bibliometrix is an R-tool that provides comprehensive science mapping analysis (Aria & Cuccurullo, 2017).
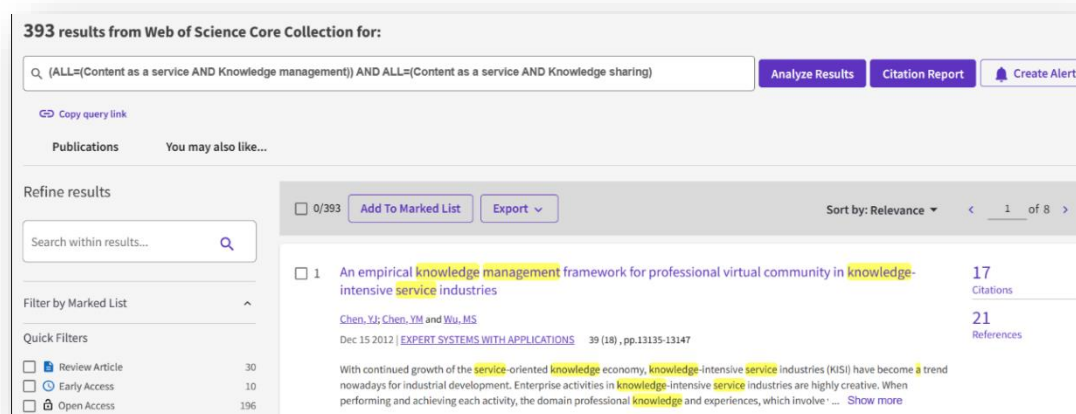

Figure 1: Search results from the Web of Science database.

The figure above reveals that 393 publications related to "knowledge management" and "Content as a Service" exist.

5 Results and analysis

The sections below present and discuss the key findings from the bibliometric analysis of the body of knowledge on CaaS.

5.1 Publications in Content as a Service

Below is a presentation of primary information about the dataset extracted from WoS, which contains papers dealing with CaaS and Knowledge Management.
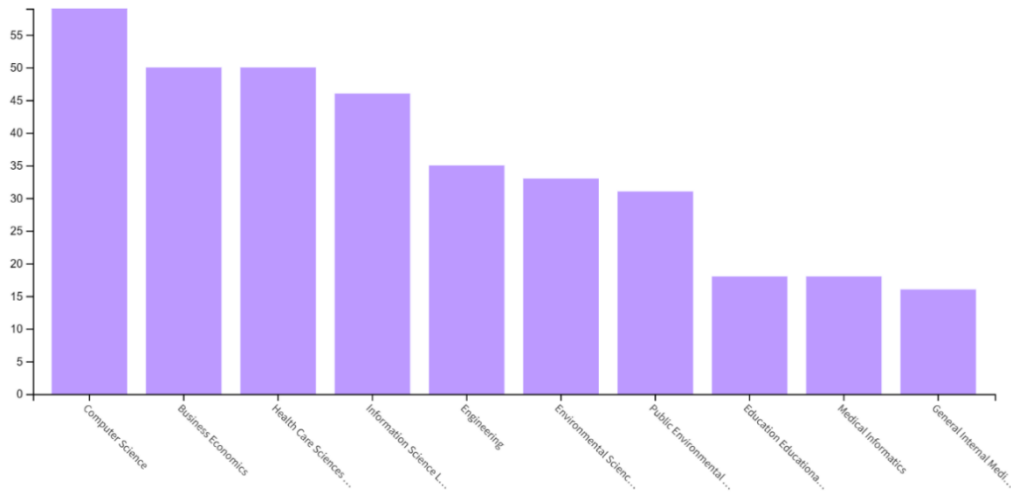
Figure 2: Main research areas where CaaS is published

Most research on content as a Service has been published in Computer Science (59), Business Economics, and Health Care Sciences Services (50) each, followed by Information Science/ Library Science (46) and finally engineering (35). The findings reveal that CaaS is indeed a multidisciplinary subject being researched in all the above areas dealing with information management. Therefore, there is a need for more collaborative research on CaaS.
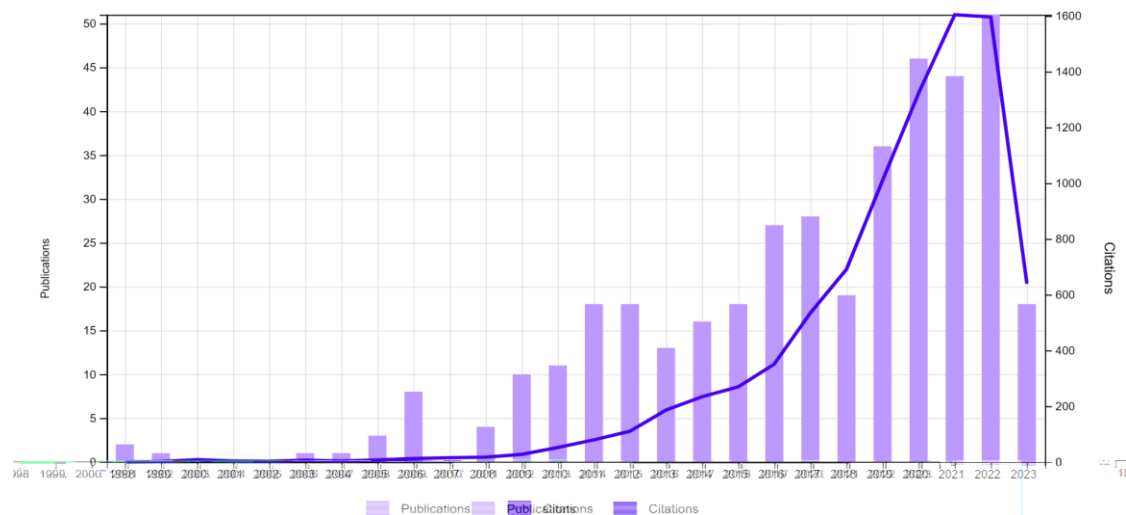

Figure 3: CaaS publications and citations in the last decade

The figure above shows a steep increase in the published output and citations in CaaS in the last ten years. From 2011 to 2016, an average of 18 publications were indexed annually on the Web of Science database. The published output increased from 44 in 2021 to 51 in 2022. CaaS is, therefore, a highly topical subject in information management that is worth

spending time and resources on research. Citations have also escalated from below 200 in 2015 to 1,600 in 2021. This is evidence of increased interest in CaaS.
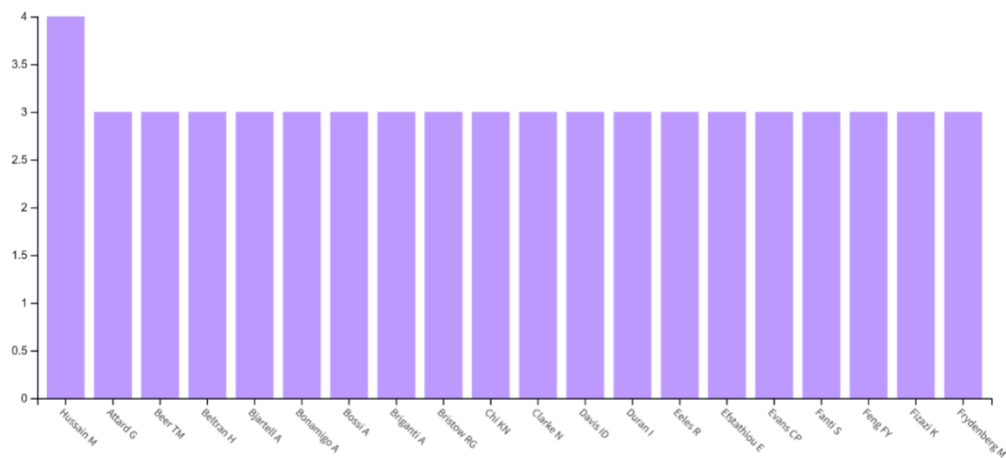

Figure 4: Authors publishing in CaaS in the last decade

The most published author has four articles, followed by several authors with three articles each. The findings reveal an equal distribution of research output on CaaS from knowledge generators.
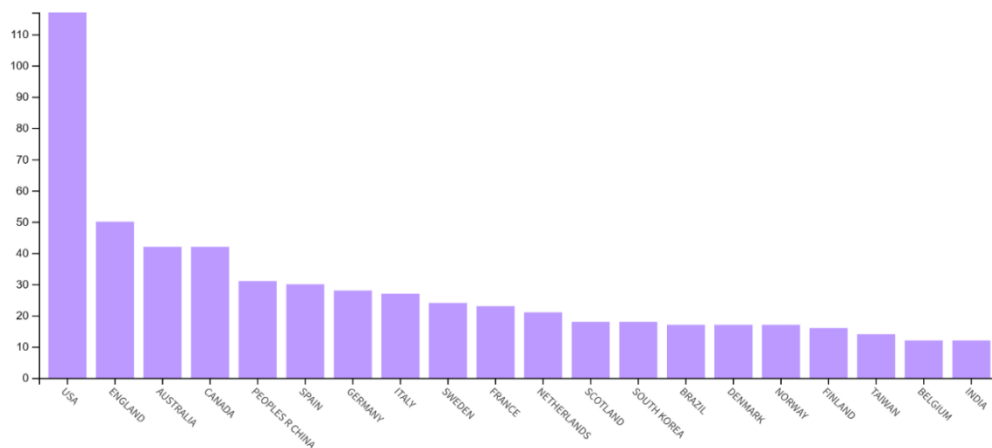

Figure 5: Countries publishing in content as a Service

The USA has the most publications on CaaS, totalling 117, followed by England (50), and Canada tied with Australia (42). France, Germany, Italy and Sweden have fewer publications, averaging 18 each. African countries with related publications include South Africa (12), Nigeria (6), Morocco (5), Kenya, Uganda, Egypt and Algeria (3), then Zambia, Malawi, and Zimbabwe (1) each. Clearly, there is a need for more research in CaaS

emanating from Africa and, more specifically, Southern Africa and Zimbabwe, in particular.
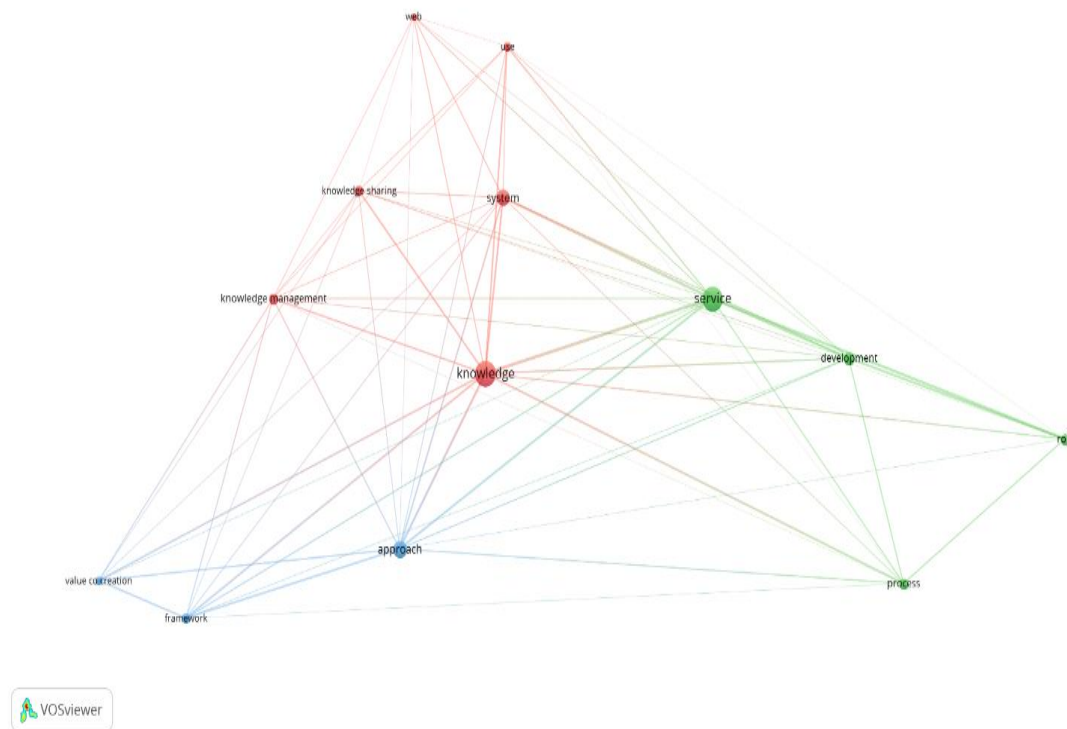

Figure 6: Content as a service network visualisation

The CaaS network visualisation above was developed to ascertain the key concepts discussed in content service publications. According to the bibliometric analysis first-level cluster, the most recurring concepts in CaaS review are knowledge management, knowledge sharing, process, web, and system.

5.2 The knowledge ecosystem

The mass production of knowledge and proliferation of ICTs have brought about the need to innovate and reach some consensus about best practices in managing knowledge in the university and community knowledge ecosystems. The growth in knowledge consumption across platforms, devices, and operating systems, compounded by increasing demand for innovation, has brought about the need for tools to deliver content to external applications and products (Ye & Kankanhalli, 2018). CaaS should present facilities for functions and best practices for persistent knowledge generation, use, storage, and dissemination.

A review of CaaS (CaaS) architecture reveals that it refers to a model where content is treated as a standalone service, decoupled from the applications or platforms that deliver

it. This approach allows organisations to centralise their content management and distribution processes, making it more efficient and scalable. In a CaaS architecture, content is stored in a separate repository and can be accessed and delivered through APIs, enabling seamless integration with various applications and channels. This architecture promotes reusability, as content can be easily repurposed and distributed across multiple platforms, ensuring consistency and reducing duplication efforts. Additionally, CaaS enables organisations to have greater control over their content, facilitating updates and personalisation in real-time. Overall, CaaS architecture offers a flexible and agile solution for managing and delivering content in today's digital landscape.

CaaS application architecture is a modern approach to delivering and managing scalable and efficient content. This architecture focuses on decoupling content creation, management, and delivery processes, allowing organisations to easily distribute content across various platforms and devices (Benlian et al., 2018). In a CaaS environment, the content is stored in a central repository, separate from the presentation layer, enabling content delivery flexibility. This architecture leverages APIs to provide CaaS, enabling developers to seamlessly access and integrate content into different applications. By adopting a CaaS application architecture, organisations can streamline content management processes, improve scalability, and enhance user experiences across multiple channels (Demirkan & Spohrer, 2014).

Leveraging an Application Programming Interface (API) has been widely acknowledged as a valuable approach to system design that promotes knowledge extraction and analytic services (Wulf & Blohm, 2020). Application Programming Interface enables computer programs to communicate with each other. Since knowledge is generated and stored in diverse applications by universities and must be presented in different applications to the communities, a CaaS delivery platform should embrace API in programming methods, requests, routines, and endpoints used in knowledge sharing. Chagas et al. (2019) add that the main advantage of APIs is that they allow the system developers to hide information, an approach whereby implementation details are hidden from other modules. Encapsulation hides internal details of the system's work, revealing only what the programmer will find useful.

Best practices in designing API have reached significant maturity levels, primarily due to open collaboration (Boyd, 2015; Rivero et al., 2014). Current trends include an API created to represent a stateless interface, create uniform request and response patterns, and

maintain a shared data dictionary. Common mechanisms to access resources like media, hypermedia and annotations should be deployed (Signer & Norrie, 2011). API should also present support for CRUD operations (Create, Retrieve, Update, Delete), and patterns for retrieving (Get and Filter) for all content become essential (Srivastava & Bharti, 2023). The specific recommended steps when designing an API include selecting a protocol, identifying the resources, and then mapping the actions (Subramanian & Raj, 2019). The decision on the approach between SOAP and REST in API design (Mumbaikar & Padiya, 2013). Knowledge management processes should be upheld and preserved regardless of decisions made for specific systems design, including knowledge generation, access, sharing, and transfer

A CaaS system typically provides content providers/ consumers with the functions to upload content to the repository, interact with peers through social group plug-ins, submit a content delivery service required, and launch media applications.

5.3 System functional architecture for Content as a Service

The bibliometric review identifies some recurring concepts crucial in setting up the information architecture platform for content as a Service. Below are the requisite modules identified as critical for the functioning of a CaaS platform:

- **Content storage** - Content can be saved on-site or in the cloud. This module provides a service for storing content in the CaaS platform at a security level specified by content providers (Jin et al., 2012). The key requisite functionalities include distributed secure storage, content naming and resolution, and content replications.

- **Content distribution** - This module provides services for optimally distributing the content from its source to its consumers. These services are supported by content caches strategically located throughout the network (Wang et al., 2014). The distribution component also includes the actual mechanism and the protocols used for transmitting data over the underlined network and serving the content to the consumers.

- **Content processing** - This module provides services for acquiring or adapting content to suit the network conditions, user preferences and device capabilities. This includes modification or conversion of both contents and requests for contents. Examples include content adaption for wireless devices or added privacy by embedding personal information in user requests. Also, media transcodes into

different formats when the content is injected into the CaaS platform, influencing organic searches (Berman & Katona, 2013).

- **Content routing** - This involves services for navigating clients' requests to upload their content and consumers' requests to retrieve the content to the location that provides the best user experience (UX). Content-based routing is the execution of defined rules that determine the placement and configuration of network traffic between information seekers and web applications based on the content being sent; for instance, a notification of an event triggers the URL or header fields of the request (Tarkoma, 2012).

- **AAA management** - The transactions of this module are built around authorisation, authentication, and account. It provides services that enable audit trails, monitoring, logging, accounting and even billing of CaaS usage (Wang et al., 2014). Mechanisms in this module will uphold and ensure the identity and privilege of all parties involved in a transaction and compliance with digital rights management.

- **Social group management** - This module has gained popularity in the 4IR media-suffused environment, marked by access to abundant information and rapid changes in technology tools and services (Malita, 2011). The module manages the communication within and across the social groups for the CaaS application, including both private social groups (Google Talk, Meet) and public social groups from social networks (X, Facebook, Google+).

The modules elaborated above are critical to the core functioning of a CaaS platform. Equally imperative is the knowledge-sharing system's ability to "talk" to other programs. This is possible by adopting an application programming interface (API). An API is a set of defined rules that enable different computer applications to communicate with each other. Below is an embellishment of optimising API to foster knowledge sharing.

5.4 APIs as a catalyst in knowledge sharing

Knowledge-sharing platforms are becoming more pervasive, and institutions of higher learning are compelled to provide content on them. Adopting APIs in knowledge ecosystems yields several benefits that further accelerate the complexity and pervasiveness of content delivery as a service for university and community knowledge sharing.

APIs will enable organisations to design and disseminate innovative sets of resource types (Godefroid et al., 2020). The emergence of new resource types like hypertext media, video streaming channels, and social media platforms can be integrated to increase information dissemination to diverse audiences.

APIs bring about independence in actual content and programming language. They encapsulate algorithmic complexity, hiding it from client applications, allowing communities to focus on knowledge consumption and universities to engage in knowledge generation. Annotations are recommended for enhanced content repackaging, such as translation for text, transcription of audio, and filters for media (Dalkir, 2013). This enables the consumption of generated knowledge by a diverse clientele.

Information from different sources is disseminated through a single platform, for example, finance, education, engineering, and technology (Ayaz et al., 2022)). The search algorithms retrieve knowledge based on the existence of keywords in content, not the discipline where the information source is retained. This allows the integration of heterogeneous services, such as maps and weather.

APIs facilitate the use of content in different domains, promoting the emergence of multiple new related products, applications, and user experiences (Godefroid et al., 2020). User analytics and feedback will provide the information professional with insight into emerging trends and behaviour regarding using information services.

Through the use of APIs, complex internal workflow tools can be supported, allowing the emergence of specification of collaboration points in a distributed protocol (Wang et al., 2014). Delegation of user rights in the knowledge ecosystem will become possible among stakeholders in the knowledge-sharing process. For example, authors to generate, librarians to index, as clients access and provide feedback on content.

APIs can be used to target information dissemination to specific groups of clientele using diverse media. In addition, subscription services, social platforms, and linked open data services can all be integrated into the CaaS platform to ensure timely and relevant knowledge sharing.

The knowledge ecosystem requires complex internal processes to generate, aggregate, curate, validate, and disseminate knowledge to a diverse clientele. API integration will significantly impact internal workflow processes on a content delivery platform. Establishing responsibilities and clear separation of tasks, therefore, becomes imperative. Workflows within the knowledge ecosystem should articulate the activities involved in the

lifecycle of an information resource and the scope of responsibility of relevant stakeholders. Discretisation of tasks and definition of data resources yield catalyst-related benefits from an API-driven approach.

5.5 Future implications of CaaS

Looking ahead, CaaS is poised to continue transforming the digital landscape. Technological advancements such as virtual reality, augmented reality, and artificial intelligence will further enhance the immersive and interactive nature of the CaaS platform. Integrating user-generated content and social media elements will foster greater engagement and community building. Moreover, the convergence of CaaS with emerging technologies like blockchain holds the potential for decentralised content distribution, ensuring transparency, security, and fair compensation for content creators. As CaaS evolves, it will likely redefine the traditional boundaries of content consumption, shaping the future of information management. Further research is still needed to develop appropriate incentives, policies, and design thinking that mutually benefit universities and communities. However, the potential is clear for CaaS to connect academic expertise with authentic learning needs at scale.

6 Conclusion

In summary, CaaS provides a strategic platform for universities and communities to evolve past fragmented content silos. Using an ecosystem-based approach, CaaS allows stakeholders to share knowledge more efficiently through centralised, cloud-based architectures. The benefits of enhanced discoverability, accessibility and collaboration are key drivers for adoption as organisations aim to unlock their intellectual capital and foster broader knowledge exchange. CaaS has introduced promising new means for universities to share knowledge with society, assuming both sides actively participate.

The bibliometric analysis methodology has gained immense popularity due to the expediency of bibliometric software and databases that ease the acquisition and assessment of large volumes of scientific data research. In this paper, the bibliographic analysis methodology has revealed that CaaS has undoubtedly redefined how knowledge is generated and shared amongst stakeholders of the knowledge ecosystem. Its ability to democratise content accessibility, enhance personalisation, and provide new revenue streams has disrupted traditional models while offering remarkable opportunities. Nonetheless, its challenges must be effectively addressed to ensure a balance between content ownership, security, and fair compensation. As the digital landscape continues to

evolve, CaaS will remain a dynamic force, shaping the future of content creation, consumption, and distribution. This paper has revealed a growth of interest in the multidisciplinary field of CaaS. The publications are emerging from diverse disciplines, including computer science, business economics, health care, and information science.

Most publications in content as a service are emerging from the USA; there is a glaring disparity between the high volumes generated in this country and anywhere else in the world. Africa has the fewest publications regarding content as a service. Therefore, there is a need to explore the concept from an Afrocentric perspective. The analysis of key concepts in content as a service revealed an emphasis on knowledge management facets, including knowledge generation, sharing, content architecture, and the use of API in integrating systems.

7 Implications of the study

Positive implications revealed by this bibliometric study include the ability of CaaS to increase the accessibility of information through seamless content sharing. CaaS enables improved collaboration through standardised content formats, and CaaS platforms provide enhanced discoverability and robust search and recommendation features. CaaS ensures real-time updates reflecting the latest research developments, thereby avoiding redundant research through shared content and metadata. Finally, costs are reduced through shared resources, infrastructure and maintenance costs.

However, CaaS initiatives should address Intellectual property concerns regarding ownership and licensing issues. Standardisation is paramount because inconsistent metadata and formatting hinder search and retrieval. Quality control is equally critical to ensure content credibility and validity. Interoperability and compatibility issues may exist, and these technological barriers should be addressed. Finally, interventions to counter cultural and language differences should also be explored to ensure content relevance and applicability.

The study's findings noted that knowledge management theories must adapt to the digital landscape shaped by CaaS. Integrating CaaS allows for a more nuanced understanding of how knowledge is generated, shared, and utilised in academic and community settings. The ripple effect is the promotion of Open Access, which calls for knowledge to be available and accessible beyond the University walls. This will help close the have and have-not gaps that exist in academia.

Universities should prioritise the implementation of CaaS solutions tailored for knowledge sharing. This includes evaluating existing systems and investing in user-friendly platforms that facilitate easy access.

The study emphasises that embracing CaaS democratises knowledge sharing and strengthens the relationships between universities and the communities they serve. This has the potential to create a more inclusive and effective knowledge-sharing ecosystem, which will ultimately lead to enhanced educational outcomes and community empowerment.

8 Recommendations

The following recommendations are put forward as a result of this study:

- There is a need to enhance existing knowledge-sharing models and theoretical frameworks by integrating CaaS as a critical component

- The study recommends that universities promote open access to CaaS platforms to ensure that knowledge is available beyond university walls. This supports initiatives to close the information gap between academia and underserved communities.

- All stakeholders must be involved in the content creation to nurture and foster ownership and ensure that the knowledge produced meets society's needs.

- The paper calls for an audit of the existing knowledge-sharing strategies in light of CaaS so that informed investments in user-friendly platforms that facilitate easy access can be made.

- Universities must have robust feedback channels to capture all insights from the end user's perspective.

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