

# THE BENEFITS OF USING ENTERPRISE CONTENT MANAGEMENT (ECM) SYSTEM TO MANAGE CONTENT IN HIGHER EDUCATION INSTITUTIONS: A SCOPING REVIEW

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**Abstract:** *Higher Education Institutions (HEIs) face a substantial challenge in effectively managing content and this is primarily due to the rapidly growing volume of digital content. In an attempt to manage the increased content, the HEIs have adopted an Enterprise Content Management (ECM) system. ECM is a system used to capture, manage, store, preserve, deliver content. The ECM vendors promise a number of benefits associated with its use. However, the benefits are not understood in HEIs. Thus, this study aims to explore the benefits of using ECM in HEIs. Given the paucity of research on the benefits of using ECM systems in HEIs, this scoping review aims to provide researchers with a comprehensive understanding of these benefits. A scoping review was conducted guided by the Preferred Reporting Items for Systematic Review and Meta-Analysis for Scoping Reviews (PRISMA-ScR). An eligibility criterion was established and only studies that focused on ECM in HEIs were included. A search string encompassing of five databases resulted in thirteen eligible studies, and a backward search of the references resulted in an additional of fourteen publications. Of the 27 studies, the majority followed a qualitative research approach (81.5%), most studies were conducted in the year 2020 (37.0%) and (74.1%) of the studies used an interpretivism research philosophy. This review reveals that cost reduction was the most dominant benefit of managing content in HEIs while data consistency and retaining of organisational memory were the least significant benefits. This review provides a comprehensive understanding of the benefits of the use of ECM system in HEIs. Future studies should focus on how to ensure that the benefits are communicated in HEIs so as to enhance the effectiveness and efficiency of their ECM systems.*

**Keywords:** *Enterprise Content Management, Benefits, Higher Education Institutions, Scoping Review*

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## Introduction

Most of the data in organisations is unstructured and digital transformation has enabled organisations to leverage big data. As organisations grow, the volume of content stored in servers also increases leading to the accumulation of substantial amounts of unstructured data (Dingayo, 2023). Digital content has been increasing rapidly to even beyond organisational control, resulting in organisations losing information assets (Rosman, 2020). Higher Education Institutions (HEIs) are the important centers for developing students with the skills and knowledge necessary to drive economic growth and contribute to various industries (Mugimu, 2021). The HEIs include Universities, Universities of Technology, Education and Training Colleges. HEIs store and process a variety of content which include student and staff information, course material, library resources, staff records, financial data.

According to Kustitskaya, Esin, Kytmanov, & Zykova (2023), the number of students enrolling in HEIs has been increasing rapidly and this led to an increase in the HEIs content. Likewise, the COVID-19 pandemic has resulted in the growth of digital content in HEIs due to the pressure to digitally transform to online learning (Kustitskaya et al., 2023). Post the COVID-19 pandemic, the HEIs has even larger amounts of content and which requires to be managed effectively. Dinayo (2020) further explains that Covid-19 raised the need for working remotely thus increasing the digital content even more.

Dingayo (2023) further outlines that the ECM system is a tool that organisations use to manage their content. The content is therefore managed by organising, storing and processing large quantities of data. Alalwan & Weistroffer (2012) utilise the definition provided by the Association for Information and Image Management (AIIM) to define ECM. According to AIIM, ECM refers to the strategy, method and tool used to capture, manage, store, preserve, and deliver content and documents pertinent to organisational processes. The benefits associated with the use an ECM system in public sector organisations were identified to include improved collaboration and customer satisfaction, increased consolidation and integration, continuity and flexibility, compliance and security, and improved performance and efficiency (Mohlala, 2020; Salamntu, 2016). Ease of accessing, controlling and locating the organisation's content were mentioned to be some of the benefits realised in state-owned enterprises (Salamntu, 2016).

The HEIs are continuously recognised for handling vast amounts of content, leading many to adopt ECM systems. Despite the extensive literature on ECM, the benefits of using ECM systems for content management within HEIs remain largely unknown. Therefore, this review aims to understand the benefits of using ECM systems for content management within the HEI sector.

## Method

A scoping review was conducted guided by PRISMA-ScR and adhering to the Joanna Biggs Institute (JBI) framework which guides the structure of the review (Peters, Godfrey, McInerney, Khalil, & Parker, 2015). The eligibility criteria and search strategy were set out to clarify the database sources and the search string used to extract relevant studies.

### Eligibility criteria

The eligibility criteria shaped how the relevant articles were selected. Articles were included if they (1) dealt with the concept of enterprise content management system benefits, higher education institutions and content management, (2) were published from the years 2019 to 2024



## Findings

A total number of 27 articles were analysed in this review to provide an understanding of the research topic. Out of 27 articles, nine articles were conducted in South Africa, six in the United States of America, two in Malaysia, and one each from Australia, Germany, Norway, Uganda, Russia, Thailand, India, Bosnia and Herzegovina, Ghana and Romania.

### Data Collection Methods

As illustrated in Figure 2, the findings revealed that the majority of articles (14), utilised document analysis (14) and 6 articles made use of interviews. Three articles made use of a combination of document analysis and interviews. Additionally, surveys and document analysis and focus group, were each used two articles respectively.

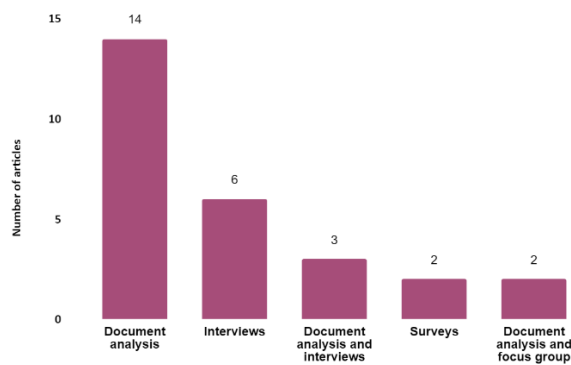


Figure 2. Number of articles per data collection method

### Research Philosophies

Figure 3 shows a breakdown of the research philosophy used by the 27 selected articles. The findings indicate that 74.1% of the studies followed an interpretivism approach, 7.4% followed a positivism and 18.5% followed a pragmatism philosophy. The prevalence of the interpretivism approach ties with the most frequently used data collection methods, which were document analysis and interviews, as can be seen in Figure 2.

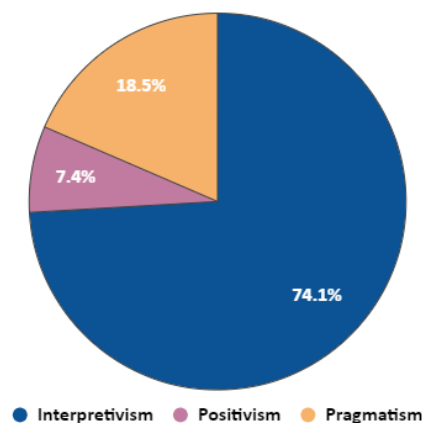
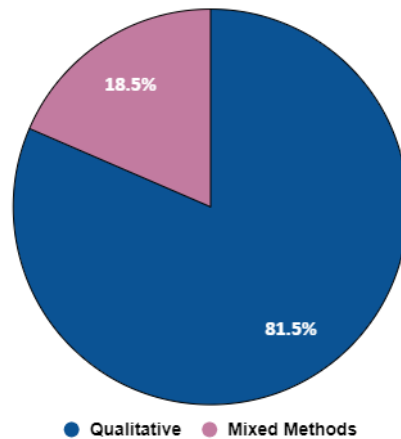


Figure 3. Number of articles per data collection method

### Research Methodologies

Figure 4 indicates that out of the 27 selected articles, 81.5% of the articles used qualitative methodology and 18.5% studies used a mixed method. This aligns with the research philosophies shown in Figure 3, as majority of the studies adopted an interpretivism research philosophy, which typically fit a qualitative research methodology.



**Figure 4. Number of articles per data collection method**

### Benefits of the use of ECM system in HEIs

Figure 5 provides an overview of the benefits of using ECM systems in HEIs and each benefit is represented by bubbles. Larger bubbles indicate benefits frequently reported in numerous articles, while smaller bubbles denote benefits that were least mentioned in the 27 selected articles. A detailed description will be provided for each benefit.



**Figure 5. Benefits of the use of ECM in HEIs**

## Discussion

The aim of this review was to understand the benefits of the use of ECM in managing content in HEIs. After reviewing the literature, the subthemes which emerged were grouped into strategic, managerial and operational benefits.

### Strategic benefits

Strategic benefits refer to the long-term plans made that involve a high-level decision making (Salamntu, 2016). Dingayo (2023), concurs and states that strategic benefits are highlighted as improved creative thinking, increased decision-making capabilities, and improved stakeholder perception of enterprise professionalism. The strategic benefits that emerged were collaboration and integration of business processes, enhance business continuity, compliance and governance, and retaining organisational memory of HEIs, and will be explained in detail.

### Collaboration and integration of business processes

It was found that the use of ECM in HEIs enhances collaboration and integration of business processes within organisations (Momoti, 2023; Rosman, 2020; Harr, Vom Brocke, & Urbach, 2019). Eight studies identified collaboration and integration of business processes as one of the benefits of using ECM to manage content in HEIs. In the study by Arko (2019), it is outlined that the use of ECM system makes the departments to work together. Not only does ECM enhances or introduces collaboration of business processes within the organisation, but it also allows organisations to collaborate with other parties outside the organisation (Mohlala, 2020). Lastly, Rolland & Hanseth (2021) argues that the use of an ECM system not only enhances collaboration but it also assists to manage integrated documents. In HEIs, collaboration frequently occurs among students, administrators, lecturers, and other institutions. This is done to achieve educational objectives and enhance the quality of teaching and learning (Ahmad, Elias, Sahari, & Mohamed, 2023).

### Enhanced Business Continuity

Business continuity is the organisation's capability to survive challenges in order to sustain organisational existence and relevance. Therefore, the use of ECM system ensures business continuity (Rosman, 2020). In this review, enhanced business continuity was identified in three studies. HEIs are urged to follow the principle of continuity when designing educational databases (Kustitskaya et al, 2023). Because during the COVID-19 pandemic, many institutions had to close operations and migrate to working remotely. However, for business continuity purposes, HIEs had to make use of documents stored in ECM systems (Dinayo, 2020). HEIs were part of the institutions that had to transit to working virtually. The use of ECM systems has enhanced business continuity and has made it easy for students and lecturers to execute the academic project. Thus, the enhanced business continuity was identified as a benefit of the use of ECM systems in HEIs (Mohlala, 2020).

### Compliance and governance

Momoti (2023) and Rosman, (2020) highlight that the use of ECM brings about compliance and governance. This consist of records management legislation, policies and standards. Seven studies identified this as a benefit in HEIs. For example, in Thailand an ECM system known as an electronic trial master file (eTMF) has contributed to growth in regulation (Wisawapaisarn & Yodmongkol, 2022). HEIs are subject to regulatory requirements and accreditation standards, therefore the ECM system helps to ensure compliance and governance. This is through securely storing documents according to regulatory requirements.

Nkholezeni & Netshakhuma (2020a) also note that the fundamental element of content management is evaluating which records are worth keeping and which should be disposed of, as this contributes to good governance. It is important in HEIs to assess the legal and administrative aspects of every process that affects how records are handled because they are accountable to the government and the public at large. Hence archives and records management programmes are established to guarantee that they meet records keeping requirements (Nkholezeni & Netshakhuma, 2020b). With that being said, using ECM systems to manage content in HEIs ensures that they comply with the Higher Education Act No. 101 of 1997 where Section 41 of the Act makes a provision for the management of records as a key enabler for decision-making and definition of responsibilities.

### **Retain organisational memory**

Retaining organisational memory means that the organisation is able to preserve documents and information, which can be retrieved. Two studies mentioned retaining organisational memory as a benefit of an ECM system. Salamntu (2016), pointed out that the use of an ECM system resulted in retaining of organisational memory in the public sector organisations. In agreement with this, Mohlala (2020) mentioned that one of the benefits of ECM is retaining organisational memory. HEIs often maintain a comprehensive repository of information, including staff and student's data, equipment records, examination results, and financial information. For example, a student's data can be accessed using their unique student number, which reveals information such as academic year, enrolled courses, and age etc. The institution is able to retain such information even when the student graduates and leaves the institution.

### **Operational benefits**

Operational benefits include day-to-day activities that are normally repeated periodically (Salamntu, 2016; Dingayo, 2023). These operations in HEI include but are not limited to administration, academics, communication, and IT support. The operational benefits include reduced paper handling, cost reduction, secure data storage, data sharing, data consistency, and ease of accessibility.

### **Reduce paper handling**

The use of ECM is seen to be reducing paper handling (Ngoepe & Mello, 2021; Dingayo, 2023). It was identified in three studies. According to Ahmad et al. (2023), HEIs have adopted the Learning Management Systems (LMS) which is a form of ECM that comprises tools for delivering, monitoring and managing online teaching, learning and training. Examples of the LMSs include Schoology, Blackboard, Moodle and Google Classroom. These are ECM systems used to replace paper handling in HEIs. From their use, HEIs have since reduced paper handling.

### **Cost reduction**

Cost reduction was identified as the most common benefit of using an ECM system to manage content in HEIs. It was identified in ten studies. The use of ECM systems is mentioned to reduce organisational costs (Arko, 2019; Wisawapaisarn & Yodmongkol, 2022; Harr et al., 2019; Kalusopa, Mosweu, & Bayane, 2021). An example of these costs includes but are not limited to, software licence costs (Mohlala, 2020), storage and maintenance costs (Ngoepe & Mello, 2021) and energy consumption costs (Salamntu, 2016), as well as printing costs and remuneration for personnel involved in manually sorting and storing documents.

Rosman (2020), argues that cost reduction is a significant driver for the implementation of ECM systems in organisations. In HEIs, cost reduction has been identified as a key benefit of using an ECM system to manage content.

### **Secure data storage**

Four out of the 27 selected articles mentioned secure data storage as a benefit of using an ECM system in HEIs. The ECM system offers a secure data storage point which is often cloud computing. Cloud computing is defined as a technology that provides a set of organised hardware and software services to consumers (Gupta, Mazumdar, Mishra, Shinde, Srivastava, & Deepak, 2023). ECM systems ensures that data is stored in a central and secure location, where it is protected from unauthorised access or loss.

### **Data Sharing**

ECM systems can solve organisational content management problems by enhancing knowledge sharing within the different departments in the organisation (Harr et al., 2019). This is because the ECM system has an independent central repository for content storage which makes it easy for content to be distributed among the departments (Salamntu, 2016). This aligns with the study by Arko (2019), who observed that collaborative systems enable sharing of documents and the flow of information. This was identified in six articles and have mentioned that data sharing is one of the benefits of using an ECM system.

### **Data consistency**

Dinayo (2023) outlines that one of the challenges of managing content is that it can be unstructured and semi-structured which leads to problems to duplicated documents, missing and lost files, and inconsistencies. This challenge has been consistent and has resulted to many institutions making use of content management systems. In the study by Dinayo (2023), it is found that an ECM system provides consistent information as it can allow users to track the payment of invoice, for instance. In HEIs data consistency was found to be the benefit of using ECM and was identified in two articles.

### **Ease of accessibility**

The ease of accessibility benefit was mentioned in eight studies. With the use of ECM systems, electronic records archives are easily accessible to many individuals simultaneously. Furthermore, ECM allows remote access to documents and files, unlike traditional records which can only be accessed by one person at a time and in a single location (Akorhonor, 2020). ECM systems in HEIs enable students and staff from various faculties and departments to access information quickly and simultaneously regardless of their location. Botha (2020) studied University ABC, and found that students can gather over multiple campuses in one virtual location to access their academic records, and can also interact, discuss and receive feedback. Furthermore, Ahmad et al. (2023) highlights that the transition in education from traditional to online learning has made it easier for students to access learning materials, and the use of ECM encourages students to engage more in their learning using the forum and access academic content from their lectures. Moreover, the study by Botha (2020) found that accessibility is one of the benefits of using content management systems at University ABC. Therefore, the ease of accessibility was found to be the benefit of using an ECM system to manage content in HEIs.



### **Managerial benefits**

Managerial benefits are defined as the benefits that include activities like controlling and allocation of resources, and operations monitoring (Dinayo, 2023). In this study, the managerial benefits that emerged include improved quality of information, improved organisational performance, improved decision-making, empowering of employees, and limiting fraud, which will be discussed in detail.

#### **Improved quality of information**

Three articles revealed that one of the benefits of using ECM systems is to improve the quality of information. According to Wisawapaisarn & Yodmongkol (2022) the use of content management system has resulted in improved quality of information. Abdurrahman et al, (2020) concur by stating that the use of an ECM system brings about an improvement in the quality of information.

#### **Improved organisational performance**

Improved organisational performance is the benefit of using ECM systems (Harr et al, 2019). This benefit was mentioned in five articles. ECM systems assist students to get better access to education and ensure they receive high quality education which leads to students performing better and improving the performance of the institution.

#### **Improved decision-making**

Five studies mentioned improved decision-making as one of the benefits of using an ECM system. The HEIs are organisations with hierarchical structures where decisions are made by management. The use of ECM systems is mentioned to improve the decision-making process. Thus, allowing managers access to accurate and up-to-date information. A study by Salamtu (2016) also revealed that use of an ECM system improves the manner in which management reaches their decisions.

#### **Empowers employees**

The use of the ECM system is mentioned to empower employees (Dinayo, 2023). This was mentioned in two studies. An ECM system in HEIs empowers administrators, lectures, and admin staff by providing access to up-to-date content that will be used for teaching and decision-making without working hard to retrieve it. Additionally, employees are empowered to collaborate with the staff, even across different campuses. This often leads to increased efficiency, better communication, more informed decision-making.

#### **Limit fraud**

When an organisation establishes a proper records management programme, it improves accountability and transparency (Nkholezeni & Netshakhuma, 2020b; Kalusopa et al, 2021). This limits fraud because the system ensures that the content is managed accurately and that it is only accessible to authorised individuals. To support this, (Nkholezeni & Netshakhuma, 2020a) mentioned that records appraisal contributes to good governance, access to information, accountability and transparency. ECM systems in HEIs promote accountability and transparency by allowing the administrator to control who can access, modify, or delete documents, which in turn reduces chances of fraud or unauthorised actions. For example, only lectures are allowed to alter students' marks which limits any fraudulent activities like increasing student marks. Limiting fraud was identified in three articles as a benefit of using an ECM system.

## Conclusion

In conclusion, HEIs face a challenge in managing content due to the growing volume of digital content and it is imperative that HEIs manage their academic records, research documentation, and administrative content. The study aimed at answering the research question “what are the benefits of using ECM systems to manage content in HEIs?”. The study followed a scoping review method and 27 selected articles were selected and analysed. A range of benefits about the use of ECM to manage content in HEIs were found. These benefits were categorised into three categories namely; strategic, operational, and managerial benefits. This study found that cost reduction was the most prominent benefit in HEIs, followed by ease of accessibility, and collaboration and integration of business processes. The least identified benefits were retention of organisational memory, data consistency and empowering of employees. Overall, these benefits suggest that the use of ECM systems plays a vital role in enhancing content management in HEIs. This review contributes to literature by providing the benefits of using ECM systems in managing content in HEIs. Despite these findings, further research on communication strategies for conveying the benefits of ECM systems in HEIs is recommended to ensure that the HEIs stakeholders are aware of the existence of these benefits.

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