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The human dimension in the institutionalisation of enterprise content management

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Background: Enterprise content management (ECM) solutions should be fully institutionalised to achieve improved efficiency, effectiveness or productivity. An ethnographic study spanning 10 years revealed a fragmented view of human behaviour during the institutionalisation of ECM, which was triggered by an implementation at NamPower.

Objectives: Inherent human dimensions observed during the implementation and institutionalisation process sparked discussions with project team members, peers and colleagues, discovering that observed behavioural patterns transcended single institutional boundaries, revealing a globally manifested phenomenon. Consequently, the study focused extensively on the failures of people's issues in institutionalisation rather than on procedural or technological failures.

Method: Data collection utilised an information management maturity instrument, gathering 108 responses and conducting a comparative analysis with 296 additional respondents to provide empirical data. This process included a critical analysis of human behaviour frameworks, serving as the theoretical foundation for conceptualising an interdisciplinary approach to human-centred ECM institutionalisation.

Results: Data collection highlighted areas for improvement, and the critical analysis of human behaviour frameworks led to a better understanding of the human ecological context in employees' interactions with information.

Conclusion: The results indicated involvement of various disciplines in ECM institutionalisation, perpetuating typical siloed approaches, resulting in a fragmented understanding of human behaviour. This paper discusses the complexity of the human ecological dimension and advocates for an interdisciplinary approach to ECM institutionalisation.

Contribution: Knowledge managers, with their deeper understanding of the human dimension, are ideally positioned to facilitate a systematic interdisciplinary approach to the institutionalisation of ECM, essential for achieving critical success.

Keywords: enterprise content management institutionalisation; human-centric solutions; systematic interdisciplinary approach; human behaviour; knowledge management facilitation.

Introduction

> There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain of success than to lead in the introduction of a new order of things because the innovation has for enemies all those who have done well under the old conditions and lukewarm defenders in those who may do well in the new. (Machiavelli 1532)

Childs and McLeod (2013:3) emphasise that human behaviour is critical in information and communication technology (ICT) institutionalisation. Enterprise content management (ECM) in this study is defined from the perspective of Tyrväinen et al. (2006:627) as technologies used to manage the content of information assets such as documents, websites, intranets and extranets in organisational or interorganisational contexts. Braojos, Weritz and Matute (2024:1467) contend that understanding the context of ECM institutionalisation, covering human resources, roles, leadership, culture and more, is essential. Braojos et al. (2024:1467) further argue that the focus of the literature thus far has been on the impact of ICT and digital transformation on business models, organisational performance and organisational culture, with little emphasis on how ICT

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and digital transformation affect the behaviour of individual employees over the long term.

Within organisations, social interactions prompt individuals to establish personal boundaries, regulating their individuality within groups. Respecting these boundaries empowers individuals while disrespecting them leaves them vulnerable. Extreme discomfort may lead to withdrawal or retaliation, with others perceiving them as negative influences, particularly evident in work settings (Jordaan & Jordaan 1987:688–703, 718–721; Knapp 2007:884; Pavao-Zuckerman 2000:34–36; Wolanski & Henneberg 2001:4). The study of human ecology assists in grasping these interactions between people. Human ecology seeks to elucidate the intricate interplay between people's social, cultural, political, environmental and geographical contexts (Knapp 2007:884). Individuals operate within physical, biological, cultural and social environments. What distinguishes them from other ecosystems is their capacity to comprehend, categorise and organise information to enhance their living environment (Pavao-Zuckerman 2000:31–56). Understanding people in their interdisciplinary context is crucial for comprehending their impact on their biological, economic, social and cultural surroundings and how their ecological context reciprocally influences them (Jordaan & Jordaan 1987; Wolanski & Henneberg 2001:4).

Gaston (2017:7, in agreement with Burr 2003) posits that humans are intricately linked to their environment and fellow beings. Humans' understanding of reality emerges from interactions with others, both past and present, and interactions with various physical, socio-economic or political environments. These experiences shape their beliefs; thus, human comprehension of information and its context is inseparable from their socially constructed reality. This reality continuously changes but is often associated with ECM implementation and requires transformational change for ECM institutionalisation to take place.

Organisations consist of people forming relationships and shared working cultures to achieve common goals. Recognising that organisations are part of the human ecological context is crucial. Introducing a new enterprise-wide technology that requires employees to act and communicate differently disrupts established community behaviour and communication patterns, thus destabilising the existing work environment. Cognitive dissonance arises when employees' understanding no longer aligns with their existing belief system, leading to resistance. Coyle-Shapiro and Shore (2007:5) and Martin (2022:1–13) suggest that employees anthropomorphise organisations, viewing them as 'persons'. Like a 'parent', the organisation bears responsibility for employee well-being and safety. Employees disengage when changes disrupt employee well-being and safety in the work environment, necessitating disciplined efforts to re-engage them. The process by which employees make sense of changes wrought by something as intricate as an enterprise-wide ECM institutionalisation is hugely complex.

From this literature and through meticulously observed human behaviour during ECM implementation and institutionalisation, the problem was identified that the resistance to ECM adoption in this single institution was not only confirmed but also based on the literature (Besley & Persson 2022; Burr 2003; Gaston 2017; Kempermann 2017; Li 2022; Yates & Loader 2016). The disruptive nature of ECM institutionalisation leading to resistance to adopting the technologies is a globally manifested phenomenon. As a result, the human-centred ECM institutionalisation failure is worthy of investigation.

This article argues that the human resistance to change in ECM implementation and institutionalisation requires an interdisciplinary approach to better understand and manage the human complexities involved in ECM institutionalisation towards better operational efficiency. This is framed from a human ecological context that includes information ecology and organisational ecology.

Research methods and design

The findings reported in this article were conceptualised over a period of 10 years in an ethnographic study that commenced with ECM implementation in 2014. The study applied the user behaviour observations and resultant discussions documented during all the project phases, the support of a literature review and maturity assessment and change adoption surveys to determine whether the observed behaviour was authentic received formal written permission to conduct the research at NamPower in August 2017, and approval for the study was given under the ethics clearance process of the University of Pretoria's Faculty of Engineering, Built Environment and Information Technology Research Ethics Committee in October 2017 with approval number EBIT/104/2017. All existing secondary data collected from 2014 and subsequent questionnaires were covered by the ethical clearance application. The principal researcher acted as team lead, trainer and change agent and was tasked to facilitate and monitor ECM institutionalisation in this power utility. Aligned to ethnographic research, the principal researcher formed part of the observed participants' daily organisational life (Whitehead 2005; Williams 2007). The study was conducted, collecting 108 responses from participants in focus groups and observation discussions, and a further 296 responses were collected through maturity assessment questionnaires and technology adoption questionnaires. This article reports on the initial stage of the conceptualisation of the interdisciplinary context required to have a human-centred focus in ECM institutionalisation, resulting from a combined analysis of these secondary and primary data sources, as well as a comprehensive literature review.

Human, information and organisational ecology

When individuals experience a sense of belonging, they develop social and interpersonal communication skills. People in the same environment cultivate mutual understanding and communication patterns that guide their behaviour

within specific cultural boundaries. These communication patterns are based on each person's role within the group. Discomfort arises when individuals are forced to communicate outside their designated roles, leading to dissonance, a conflict between observed behaviour and group norms (Jordaan & Jordaan 1987:688–703, 718–721; Knapp 2007:884; Pavao-Zuckerman 2000:34–36; Wolanski & Henneberg 2001:4). Because of the interplay of physical, biological, cultural, social, political and geographical factors that shape each person's complex system of inter- and intradisciplinary relationships, Jordaan and Jordaan (1987:688–703, 718–721) emphasise that this context influences how individuals perceive their environment and interact with others. Thus, human ecology extends beyond the broader society and the environment and equally applies to organisational contexts.

Enterprise content management aims to seamlessly integrate people, processes, information and technology to achieve an organisation's strategic goals. AIIM (2012:14) emphasises that ECM goes beyond content storage, enriching and enhancing business processes. In this study's context, ECM transcends mere software implementation. Instead, it refers to strategically positioning ECM within the organisational structure as a management tool and business enabler. The ECM institutionalisation, supported by an ECM programme, encompasses governance, management, staff roles, budget allocation, continuous training, technology deployment and ongoing maintenance. Furthermore, the ECM programme establishes an organisational framework comprising skilled information management and ICT practitioners. Their role is to empower employees by fostering sound information management practices (Clark 2011; Latif, Baloch & Khan 2012; MindTools 2014).

Yates and Loader (2016:210) posit that the intrinsic link between organisational design and culture means that ECM institutionalisation impacts both and disrupts individual and collective aspects of the organisational system. Cultural changes reciprocally affect organisational design, creating a cyclic organisational change process. This change process should be managed appropriately; otherwise, ECM disruption could create system-wide dysfunction (Besley & Persson 2022:1–22). According to the Information Systems Audit and Control Association (ISACA) (2009:16), culture emerges from shared experiences within a group. People respond in specific ways to these shared experiences, creating norms that influence organisational information behaviour. Culture shapes the assessment of information, deciding what is valuable, influencing its interpretation and guiding its practical use. An organisation's specific information behaviour is deeply embedded in its culture. Thus, changing behaviour necessitates a corresponding cultural shift and changing information behaviours.

Culture is deeply rooted in people's thinking, emotions and behaviour. Their distinct culture emerges when a group shares common thinking patterns and behaviour. Within an organisation, culture is shaped by executive leadership, influencing how employees think, feel and act (Miller 2013). Al-Alawi, Al-Marzooqi and Mohammed (2007:25) highlight that an organisation's identity manifests in visible aspects such as values, philosophy and mission, as well as in unspoken values guiding employee actions and perceptions. Barden (2011:15) aptly describes organisational culture as extraordinarily difficult to generalise. It is highly individual, local and specific to each organisation. While it is shaped by internal factors, it is also influenced by external stimuli, including national regulations, organisational policies, hierarchical expectations and social dimensions such as family and community behaviour, as observed in the macro-meso-micro environment.

Change is inevitable, affecting both individuals and organisations. Surviving change requires innovative thinking and perseverance. For organisational change to occur, individuals within the group must change collectively. To achieve benefits realisation and a return on investment in enterprise-wide technology implementation, all employees should pull together in the same direction to move the organisation to a new way of perceiving the end goal. They should understand the reason for the change and be willing to change to enable them to drive organisational change in the desired new direction. Leonard (2005:29) highlights the complexity of organisational change because of unpredictable individual reactions and collective responses. Khaw et al's. (2023:19154) study on human response to change concludes that organisational leadership should clearly understand why employees resist change and how that resistance manifests in practice to enable them to steer the organisation towards successful change. According to Weick and Quinn (1999:365), Leonard (2005:43–52) and Tahir (2019), different types of change manifest in various ways:

- Episodic changes are infrequent, intentional organisational shifts designed for the organisation to adapt to external environmental shifts, such as during coronavirus disease 2019 (COVID-19) lockdowns requiring remote work and digitised sources, which then returned to 'normality' thereafter.
- Continuous changes are long-term, ongoing, evolving and cumulative as a result of learning, knowledge sharing, improvisation and innovative thinking with the benefit of exposing and resolving deep-rooted systematic problems that challenge organisational progress.
- Developmental change involves improving established processes that do not require retraining employees and are incremental, non-disruptive, with immediate positive results and low employee resistance.
- Transitional change is a significant change to ensure organisational competitiveness and represents the kind of change organisations made during the COVID-19 lockdowns to rapidly create a virtual remote workforce and continue operations without interruption or damaging socio-economic effects. Transitional change affects work relationships, job functions and work culture, all changes that require substantial retraining.

- Transformational change implies deep-rooted organisational transformation to function optimally in a digitally transformed society. In this type of change, employees exchange their behaviour to contribute to the change's outcome because they understand the bigger picture and work towards the new vision.

These manifestations of change in relation to the research of Kempermann (2017:1–8) about decision-making in complex situations refer to the disruptive nature of ECM implementation change and reflect the different domains of change through which an organisation can move. The Cynefin Framework (The Cynefin Co 2023) consists of five domains that help decision-makers understand the problems and situations resulting from dynamic business contexts and enable them to take appropriate action. It helps identify what is complicated and what is not, allowing for the right response and avoiding energy wasted on unimportant matters. It also avoids simplifying complex situations (Corrigan 2020). Hasan and Kazlauskas (2009:7–13) employed the Cynefin Framework to model information systems (IS) sense-making, while Childs and McLeod (2013:191–227) applied the framework to institutionalising electronic records management (ERM).

Hasan and Kazlauskas (2009:5–8) state that IS continually change and require several decision-making tools to manage and institutionalise. They contend that users only understand the benefits of a new IS after the solution is fully incorporated into the daily work, which does not necessarily happen because users view the solution as chaotic and detrimental to their jobs, creating uncertainty. When uncertain, employees tend to revert to using familiar approaches rather than the IS (Nachbagauer 2021:2). When managed appropriately, change transitions from chaos to routine, achieving transformational change. Organisations must continuously reinvent themselves to stay competitive and relevant. Reinventing implies that a new cycle of transformational change may start before the organisation reaches the routine domain of a change process. All manifestations of change are present at the same time. Based on Khaw et al's (2023) work on the multitude of reactions to organisational change, organisations often experience multiple manifestations of change simultaneously, including episodic, continuous, developmental, transitional and transformational changes. This coexistence is because of modern organisational environments' complex and dynamic nature.

Based on observations during client engagements, cultural changes during ECM institutionalisation also affect the records and information management practitioners. They should be equipped with skills suitable beyond their traditional role as 'keepers of the paper'. Organisational changes and adaptability to remote work during the COVID-19 lockdowns created chaotic circumstances requiring rapid responses to unpredictable events. The shift to remote work using collaboration tools added complexity to records and information management. More information silos emerged, requiring integration into formal management strategies. Employees prefer informal collaboration tools over structured document and record systems. However, actual transformational change remains unproven as old habits persist. Concerns about the records and information management practitioners' ability to adapt to digital transformation environments are noted in the work of Yang, Du and Shi (2021:44), who argue that the records and information management disciplines have not yet fully transitioned to digital mindsets, as some of their practices are still based on the paper world. Thus, based on the work of Li (2022:1775–1793) on re-skilling and upskilling, the workforce to function in a disruptive environment focused on technologies. Re-skilling and upskilling practitioners should be considered critical for future-focused information management interventions.

The organisation as a complex system

Norman (2020) considers complexity as the interaction between the different system parts, sometimes driven by the same forces and often in a cause-and-effect relationship. This makes the system unpredictable. Alzahrani and Seth (2021:1) agree that rapid information technology development has created a complex but efficient approach to organising organisational duties and activities. An information management approach is heavily reliant on information and communication technologies, necessitating ongoing maintenance and updates, typical of ECM institutionalisations.

A systemic approach is required to ensure that focused attention is carried through from the implementation phase to the institutionalisation phase. In other words, people-process-technology (PPT) should work together as an interactive system to enable institutionalisation. A system is an organised, purposeful collection of structured parts or subsystems that are highly integrated, interrelated and interdependent to accomplish a goal. The various parts of the system continually influence each other directly and indirectly to maintain their momentum and transform various inputs into specific outputs, thus accomplishing the system's overall desired goal (Blignaut 2019; Dembek et al. 2023:2301; ISACA 2009; Yolles 2006). Complex systems consist of several simple parts interacting with each other and the environment. The interaction has the potential to generate new collective behaviour. The collective behaviour creates new functional structures and systems that interact with other functional structures. These systems can behave in a coherent and ordered way and extend their behaviour beyond the scope of the behaviour of the individual parts (Wadhawan 2009).

Furthermore, Wadhawan (2009) indicates that the ECM solution stack is made up of various integrated technologies, where one or more of the technologies may begin to behave in a way that is contrary to its intended purpose. The contradictory behaviour of a single part can cause other parts of the system to misbehave, disrupting the overall system's smooth operation. When this occurs, users lose faith in the system. During a client engagement in 2019, the effect of dysfunctional ICT infrastructure and ICT governance on the employees was observed first-hand. Despite issues with the systems and networks, the management expected the employees to meet

all their due dates without fail. If they could not meet due dates, they were disciplined. Employee frustration levels were extremely high, and they felt severely abused.

Jaakonmäki, Müller and Vom Brocke (2018), confirming the earlier views of Vom Brocke et al. (2011) and Alalwan and Weistroffer (2012), state that organisations experience rapid information growth, creating challenges in searching for content, archiving it according to retention standards or updating it to stay current. Globalisation and digitisation create pressure within and between business units and processes, requiring organisations to be adaptive to internal and external pressures. Sammut-Bonnici (2015:1) agrees with this view, further stating that organisations with the ability to learn from experience will easily adapt to environmental changes.

Based on these views and client interactions from 2014 to 2024, organisations consist of people who can adapt to changing conditions, even if they resist. Enterprise content management solutions cannot adapt to environmental changes but can help people operate in new ways. Enabling people to work in new ways needs interaction with information via business processes, whether ordinary or sophisticated. Kihlstrom (2022) contends that organisations must coordinate, align and continuously improve their processes to support the people in addition to implementing technology solutions.

Establishing pillars of the human-centred interdisciplinary framework

The first of eight interdisciplinary pillars (Figure 1) to be identified in the facilitated human-focused approach of moving ECM implementation to institutionalisation is information technology management (ITM).

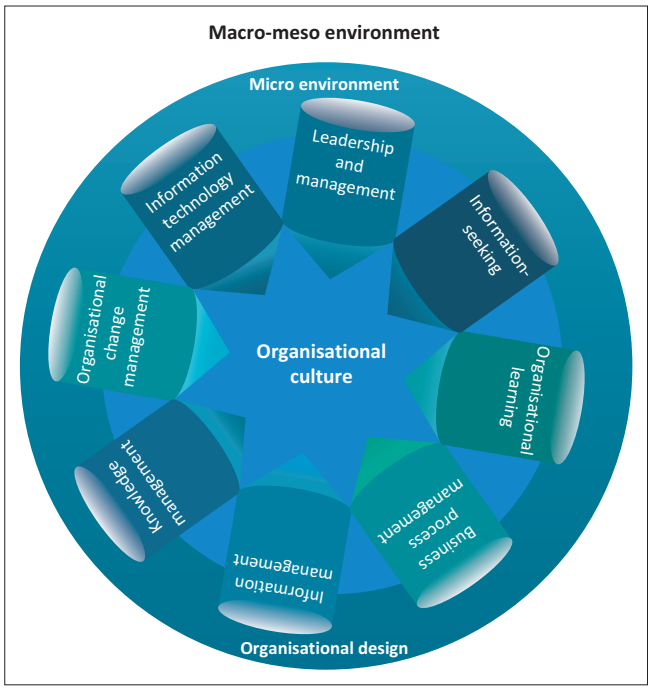

FIGURE 1: Interdisciplinary pillars towards a defragmented human behaviour approach in enterprise content management institutionalisation.

Information technology management

The perspective against which the ITM constructs are reviewed pertains to how they address the relationship between people, process and technology from an employee perspective as the end-user. At face value, the analysis revealed that the human aspect is addressed. However, the question arose regarding how detailed the human as an end-user component is addressed in terms of the impact enterprise-wide ECM solutions have on them. A synopsis of several prevailing IT management frameworks is given, focusing on how end-users' adoption should be managed during ICT implementations:

- ISO/IEC 38500 – Corporate Governance of Information Technology: The IT governance standard (ISO 2024) focuses on the executive level and is the overarching standard for several other standards that fulfil different objectives in the information technology space (Consultia 2017). One of the principles of the standard is that the executive level should provide direction on expected user behaviour when the technology is implemented (InEight 2021). It can be argued that the standard, although applicable to ICT implementations, does not focus on end-users. One can expect, however, that organisations aligning with the standard will provide sufficient support to end-users to enable them to adopt technology solutions into their daily work. Despite this, it is not evident in the adoption rate of ECM solutions.
- The Control Objectives for Information and Related Technology (COBIT): It focuses on the people aspect of an IT implementation, covering people skills and competencies. People are the staff needed to plan, implement, support, monitor and evaluate the IS and services (Aykurt 2015). Culture, ethics and behaviour address the requirement to interact with the solution's end-users to ensure that their needs and fears are addressed, and they buy into the need for new behaviour (Greefhorst 2017:18–21, 26; Hill & Turbit 2006:4, 13; ISACA 2012:59–60; Maryska, Nedomova & Doucek 2014:108–113; Thomas 2012:17–31). Organisations aligning themselves with COBIT can expect to provide sufficient and continuous change management and digital transformation support to end-users, enabling them to adopt technology solutions into their daily work. Despite this, sufficient support is not evident in the adoption rate of ECM solutions.
- The IT Infrastructure Library (ITIL): The IT Infrastructure Library focuses on the speedy resolution of customers' and users' needs rather than technological issues. Its focus on the people aspect of an IT implementation is on whether the senior management has bought into the need for the IT implementation and whether the organisation will employ people with the right skills and attitude to assist with governing the enterprise IT solution. Defined roles are all related to the IT governance aspect (Greefhorst 2017:18–21, 26; Hill & Turbit 2006:4, 13; ITIL® Process Map & ITIL® Wiki 2017; Lacy 2017; Maryska et al. 2014:113–116; Thomas 2012:33). Although applicable to ICT implementations, ITIL does not focus on end-user

needs nor provide sufficient guidance about change management and digital transformation support to enable end-users to adopt technology solutions into their daily work.
- The Open Group Architecture Framework (TOGAF) was born out of a need to address complexity and alignment (Kotusev 2021; Sessions 2007) and provides a framework for solution design at the enterprise architecture level. It explains the rules and provides the methods and tools for assisting in the acceptance, production, use and maintenance of enterprise architecture (Aykurt 2015; Greefhorst 2017:12–16; Kotusev 2021; Urbaczewski & Mrdalj 2006:18–19). Although applicable to ICT implementations, TOGAF does not focus on end-users' need for continuous support to adapt to new work realities.

For these reasons, ITM in isolation will not support the transition for ECM implementation to institutionalisation, and business process management (BPM) was identified as the second pillar.

Business process management

Swenson and Von Rosing (2014) argue that people who have a complete understanding of the end-to-end business process carry out the process's activities, while BPM is carried out by those who are primarily focused on enhancing business processes, with feedback from knowledgeable participants. Davenport and Kirby (2016), discussing the uptake of robotic process automation and AI, caution that BPM must continue focusing on the human viewpoint despite the use of technology to ensure optimised growth for workers and consumers.

Relating these views to ECM institutionalisation, people must adjust to new working practices when an ECM solution is installed and entrenched. The new way of working incorporates automated business processes, which call for extremely structured interaction with the task and involve escalations and measures to identify bottlenecks. Based on observations during client interactions between 2014 and 2024, it became clear that some of the resistance is because of the capability of ECM's business process capabilities to do escalations and capture audit trails of all activities that are happening in the solution and with information objects stored in the content repository. End-users believe the ECM solution would act as a 'big brother watching them', making them uncomfortable.

The PPT construct is all about maintaining equilibrium, striking a balance between the people's need to have a stable working environment and the organisation's need to meet ever-changing regulatory, stakeholder and social responsibility demands, aligning ICT with the needs of the business (Karlson 2022; Shaffiei & Abdullah 2019:371–373). People-process-technology are the three essential components for process improvement. These three areas must receive equal attention if the organisation is to improve and optimise its overall performance (Prodan, Prodan & Purcarea 2015:481). The PPT construct is the basis for many other business process-related constructs, such as the BPM 6 core elements Model, the BPM Lifecycle Model and the BPM context framework (Rosemann & Vom Brocke 2015:105–110; Vom Brocke & Mendling 2018:3–4).

The PPT construct does not necessarily imply a specific focus on end-users but on the people involved in improving the business processes. Patel (2010) argues that ECM institutionalisations will have limited success without a specific focus on understanding human behaviour. Also, the solution will not be fully institutionalised without a long-term focus on changing end-user behaviour to routinise and assimilate the technology after the implementation project, which introduces the third pillar of the interdisciplinary pillars to facilitate a human-focused implementation sufficiently supporting the end-user.

Organisational change management

When an ECM solution is implemented, the employees' work and collaboration style are expected to change (Chen 2021). Hence, enterprise-wide ECM institutionalisation needs to introduce deliberate, planned and continuous change management. Change management entails interaction with people to help them understand, embrace and adopt the change in the work culture (Prosci Inc. 2023b; Venus, Stam & Van Knippenberg 2018). The perspective from which change management models are discussed relates specifically to how a change management effort affects user behaviour during the institutionalisation of an ECM solution. Successful business change requires that an organisation continually assesses its performance, strategy, processes and systems to understand what changes need to be made (Prosci Inc. 2010). Thus, it is argued that change management is not a project but a continuous process to guide through the stages of the Kübler-Ross Change Curve.

The stages of grief Kübler-Ross wrote about are shock, denial, anger, bargaining, depression and acceptance (EKR Foundation 2023). Employees appear to go through similar stages of change during workplace changes because to learn new ways of working, they need to unlearn embedded methods and practices, which they have spent much time learning (Khaw et al. 2023:19142). This causes uncertainty and feelings of 'wrongness'. Peus et al. (2009:160–161) argue that fear of the unknown, unease over a possible loss of control and the innate propensity to prefer the familiar to the new are all examples of resistance to change. Hubbart (2023:3–4) and Peus et al. (2009:160–161) argue that employees who struggle with change cling to old routines and procedures, impeding organisational change.

During client interactions from 2014 to 2024, it was observed that several IT solutions were frequently implemented simultaneously for different business reasons. Work rotation programmes, structure changes and frequent staff turnover also coincide. All these changes distort the work equilibrium and systems, contributing to a complex work environment that affects employee behaviour and creates uncertainty because employees feel overwhelmed. Yamout (2013:13–14)

states that managers should be sensitive to and aware of what employees feel and think, as this will assist them in addressing resistance to change more effectively.

Awareness, Desire, Knowledge, Ability and Reinforcement (ADKAR®) change management model is the foundation of the Procsi change management practices. Based on observations during ECM institutionalisation, it seems that following a structured change management approach during project execution does not necessarily focus on individual users but on the user collective, the entirety of the end-users that will be working in the solution. This is despite Prosci's (2023a) ADKAR® Model purporting to be based on how individuals adapt to changes.

Change management activities are group based, and communications are group focused. The individual employees' needs, fears and concerns are mingled with those of the entire group rather than being addressed individually. Focusing on the user collective during an ECM implementation does not necessarily achieve long-term results, as individuals' needs to make sense of the new way of working do not receive focused attention (Van den Heuvel et al. 2020:1–4). During onsite client observations from 2014 to 2024, it was found that continuous hands-on support and interaction with individual users are required to enable them to feel that they are listened to and supported. The immediacy of the hands-on support, when requested, built trust between the information management support team and the users. A further observation was that the information management practitioners, who need to support the users in changing to the new way of working, are even more unsure about the changes in the well-established disciplinary practices and are not always sure how to assist the users. The purpose of an ECM solution is to enable organisations to manage information, the fifth pillar, to contribute to the sustainability of the organisation in an ever-changing competitive environment (Rosman 2020:128–133; Zeng, Lee & Lo 2020:1).

Information management

In ECM solutions, information resources are objects containing 'content', which is why the information objects exist (Lester 2011). Based on the discussions by Walker (2010) and Just (2017), ECM is meant to assist organisations in managing their information resources at the object level in a structured manner. Enterprise content management solutions should protect information as a critical strategic resource, ensure that information is admissible evidence in a court of law, enable information to be available when required, enable information to be used, shared and reused as a knowledge base for future decision-making and assist with pulling together information from different IS. This enables such information to be linked at the 'content' level to facilitate an integrated understanding of the information for predictive decision-making (Dalton-Hoffman 2018).

Numerous authors (Bernstein 2009:68–69; Dalton-Hoffman 2018; Davenport & Prusak 2000:4–5; De Stricker 2014:59; Devlin 2013:44–45; Jennex 2017:69–77; Van Meter 2020:69–78) argue that merely storing information in an ECM repository does not make it meaningful. Information should be contextualised, analysed and understood to be useful to an organisation. Users should value the information as critical to an organisation's continued existence. Continuously adding meaning to data, information, knowledge and wisdom enriches and strengthens an organisation's ability to use its information resources innovatively as a competitive resource (Pearlson & Saunders 2006:12). The transformation of data into information and then into knowledge and wisdom is a human learning and sense-making process. Building an understanding of information during this learning process requires adding context to the 'information stage' in each layer of the hierarchy to enable it to be understood and turned into the next higher level of understanding (Ahenkorah-Marfo 2012:6). Competition and globalisation are making organisations realise the need for knowledge management practices and employee knowledge sharing. Daily operational feedback and employee interactions may be more valuable than staff training. However, organisations need to understand the extent of knowledge sharing required for long-term success. This underscores the importance of structured knowledge management practices (Mohajan 2019:53–54), which is the fifth pillar.

Knowledge management

An organisation's information resources are only valuable if employees are using the information to create new knowledge, increasing the organisation's competitive advantage (Pearlson & Saunders 2006:12). Along these lines, Currier (2010) and Al-Anqoudi, Al Nasseri and Srinivas (2012:2–3) argue that knowledge sharing contributes to collaborative learning, during which all of an organisation's intellectual capital is used to the organisation's advantage. Similarly, Krumova and Milanezi (2014:52–53) argue that collaboration and learning, intertwined with knowledge sharing, assist organisations to become more effective and innovative, while Kipkosgei, Kang and Choi (2020:3) argue that knowledge sharing benefits the knowledge seeker as a learning experience. Jarche (2014) explains that the concept of capturing knowledge, although frequently used, is a misnomer. Knowledge exists in a specific individual's mind at a specific instance in time. It changes continuously depending on the experiences that people live in each moment. When individuals convey 'knowledge' to another person, they convey information that is based on their lived experience, and this is already 'historical'. What is knowledge to one person cannot be knowledge to a recipient until they have assimilated the shared information into their knowledge system. When employees are encouraged to share their insights and experiences, and other employees use the shared information, the business value of the information increases.

Santhose and Lawrence (2023:1–2) state that knowledge sharing (in teams or alone) can boost an organisation's performance by developing, disseminating, capturing and using knowledge in addition to recorded information resources. McKendrick (2023:3–4, 9–12) claims that despite

organisations' use of enabling technologies such as ECM, knowledge management practices are still lacking because managers do not recognise its benefits or support its use. Knowledge remains in silos because of the use of several tools and the misconception that document management is 'knowledge management'.

Knowledge sharing is a willingness to participate in information interchange, which leads to collaborative learning in an organisation (Gurteen 2013; Just 2017; Laal & Laal 2012:491; Obrenovic et al. 2020:1–6; Walker 2010). Knowledge sharing and learning are interrelated human dimensions of 'learning' and a construct in ECM institutionalisations, the sixth pillar.

Organisational learning

Many of the concepts discussed above include learning as an aspect; organisational learning as a discipline is included as foundational in this study. When an organisation's core competencies are based on its skills, it has a bigger advantage over its competitors (Krüger 2008:49). This can be accomplished by sharing knowledge and always learning. For a company to work well, learning should be a normal part of how it runs and what it does. This is because learning gives an edge over others and helps long-term success (Baldrige 2024; Obrenovic et al. 2020:1–6). Similarly, Krumova and Milanezi (2014:52–53) and Tan and Olaore (2021:111) argue that learning, collaboration and knowledge sharing enable organisations to achieve innovative work practices when embedded in the organisational culture.

The availability of information resources is a critical success factor for individuals' learning, and individual learning is required to enable collective learning ability (Heeg, Hundertmark & Schanze 2020:765–768). Organisations can only innovate and reinvent themselves if they have or establish a culture of continuous learning that inspires workers to reconsider the role that information plays in the organisation (Tan & Olaore 2021:113). Learning should involve every employee to enable the organisation to evolve and adapt to changes. Learning ought to produce fresh insights and information in addition to altered behaviours and actions. As a social activity, learning necessitates interpersonal interaction; thus, learning should result in a permanent transformation and benefit the entire organisation (Obrenovic et al. 2020; Wilhelm 2017).

Learning is a method of interacting with information, whether that information exists in the form of raw data (things known because of prior learning or observation) or documented information sources (things learnt and documented) or experienced (things shared). For an ECM implementation to be institutionalised successfully, employees should learn continuously and grow into new capabilities to enable deep-rooted behavioural changes and increasing maturity, rather than merely and mindlessly adapting to a changing environment because they must. 'Deep-rooted' behavioural changes require continuous, dedicated employee involvement and employees need to be aware that the information stored in the ECM repository is a valuable resource that enables them to find information when needed. This introduces the idea that employees must seek information to use organisational information effectively.

Information-seeking

People look for, interact with, feel about and use information, showing information-seeking behaviour, whether they know it or not (Gordon et al. 2022:290–292). Seeking, finding and acting on information is required to enable learning. This is what Gaston (2014:43) refers to as information behaviour. The most basic thing about human behaviour is the need to find information (Gordon et al. 2022:292). The need to understand the information-seeking and sense-making angle of the human dimension in ECM institutionalisation forms the seventh pillar.

The work of multiple authors (Du Preez 2008:32–92; Heinström 2008; Ikoja-Odongo & Mostert 2006:146–149; Kundu 2017:393–394; Limberg & Sunden 2006; Meho & Tibbo 2006; Wilson 1999) was studied to compare information behaviour models. However, Kuhlthau's information-seeking model is the best fit for this discussion because it provides a useful framework for understanding the information-seeking behaviour of individuals in various contexts. Kuhlthau's (2008:12) information-seeking process shows how people feel, what they think and what they do during an information-seeking job, regardless of whether the information-seeking is performed in a physical or digital format. Information-seeking in the workplace generally involves collaborative work to identify knowledge needs and gaps, which leads to learning from existing information sources (Borgatti & Cross 2003:434–435; Hertzum 2008:960). Shah and González-Ibáñez (2011:913) suggest that collaborative knowledge seeking in the workplace can reveal and share previously undiscovered information. According to Karunakaran and Reddy (2012:2), information resources become more fragmented over time while organisations grow more information intensive, leading to information being stored in multiple systems. Thus, collaborative information-seeking requires employees to consult subject matter experts to identify relevant information.

Institutionalising an ECM solution makes hidden information sources transparent, allowing employees to find task-related information. It lets people save, share and collaborate on information, utilising the same data for decision-making. Because information-seeking is a human skill, ECM solutions cannot actively give information to employees. They allow employees to store information for reuse, thus contributing to information-seeking processes.

Do Nascimento Souto, Dervin and Savolainen (2012:277–282) theorise that the final step in information-seeking behaviour is not purely using the information but using the information for sense-making purposes. Sense-making is widely used in multiple disciplines (Gaston 2014:17; Naumer, Fisher & Dervin 2008), with Dervin's sense-making metaphor focusing

on understanding how people make sense out of information to enable the development of better information and communication systems, shifting the focus towards the user of information rather than the process or the system itself. Dervin's sense-making model, therefore, explains how users react to a changing environment when implementing and institutionalising an ECM solution.

Every time and space-bound journey involves knowledge gaps that are filled by repetition and habits (Do Nascimento Souto et al. 2012:281). When habits and repetition fall short, a sense-making process is followed to fill the gap. This process includes internal actions (remembering, reflecting, thinking, emotions, relating and questioning) and external actions (scanning, seeking, connecting, chatting, asking and gathering). Sense-makers gather information using documented information or conversations (Ancona 2011:3), use insights, ideas, intuitions, cognitions, thoughts, attitudes, beliefs, values, feelings, memories, stories and narratives to construct new realities from the collected data. This new reality is the 'sense-making bridge' that allows the sense-maker to adapt to a new scenario (Michael et al. 2014:11).

Individuals approach sense-making from different historical and cultural backgrounds (Gaston 2014:4), because of their knowledge, experiences, habits and talents. Knowledge gaps affect everyone differently, especially in a work environment where a collective of people must work together to achieve the same goal. Despite differing experiences, the result is a drive to fill the gap with information, sometimes sufficiently, other times more knowledge gaps are prompted from information-seeking activities, thus restarting the sense-making process. Thus, sense-making is a continuously evolving process (Gaston 2014:44–46).

As a result, employees do not only have to cope with making sense of the changes in the work environment, but they also need to make sense of new ways of using information when an ECM solution is institutionalised. The relationship between communication and sense-making was observed from 2019 to 2024, where management assumed employees knew what to expect about the project because email communications were sent out. However, employees did not understand the email content in the same manner as management did. Thus, when the project team met with employees, they expressed confusion, frustration and worry that they would be redundant when the technology was completely integrated. Management did not reiterate the message or use alternative communication channels to communicate the vision more clearly, which hindered employees' ability to understand the change around them. Management also did not realise that the communications were misunderstood, demonstrating the importance of strong leadership awareness and communication in ECM institutionalisation, the final pillar.

Leadership and management

Organisational change is closely related to how organisational leadership drives the change process and how it supports the organisational management to direct and control continuous work practices while the changes occur. The role of leadership in inspiring learning behaviour is closely related to creating a learning organisation through the encouragement of learning behaviour (Gaston 2014:43). Leadership must ensure that enterprise-wide IT implementations integrate people, process and technology. The presence or lack of leadership is a recurring theme throughout the discussion of many concepts related to this research. The rationale for the discussion of leadership is specifically related to understanding how leadership should support a changing environment when implementing and institutionalising ECM solutions. During ECM institutionalisation, organisations emphasise working smarter to achieve higher production goals and customer relevance, often to the detriment of the employees struggling to cope with the changes in the work environment.

Lack of leadership in ECM implementations and institutionalisations is often quoted as a reason for failure (Hoëseb & Seymour 2017:57–58; Patel 2010; Severson 2014). According to AIIM (2014) and The Standish Group (2013), leadership refers to senior management, mostly not sufficiently involved to provide direction for aligning the ECM with the organisation's strategic goals. Information technology managers are mainly focused on technology and are less interested in knowing whether the solution roll-out has created a healthy workplace, and project managers only focus on the project's primary goal by leading the project team to deliver the project successfully.

Enterprise content management solutions are implemented and institutionalised to enable organisational leadership and management to access information resources to equip themselves with knowledge about the internal and external drivers that force organisations to adapt to changing circumstances to remain in business and competitive. Arbabi (2022), however, argues that implementing new technologies and expecting employees to adapt to using them without taking a big-picture view of how these changes will affect the organisation's interaction with the environment would not make an organisation competitive and sustainable. Mohrman and Worley (2010:289–292) further argue that organisations must be adaptive and think systemically in such a connected world. They must pursue organisation-centric sustainability and the larger system's sustainability. When organisations decide to be sustainable, they commit to a different way of operating that considers the health of the larger system on which they depend.

Changed organisational culture

The interdisciplinary pillars are the disciplines within organisations tasked to defragment human behaviour towards a transformative change in the organisational culture in ECM institutionalisation. Transformed thinking requires a focus on human dimensions to enable deep-rooted change. Various authors discussed the need for transformational leadership thinking to enable transforming organisational cultures to function in digitally transformed

environments (Bonini et al. 2024:1–29; Caro-Gonzalez 2024:47–55; Jarl 2024:430–434; Maran, Baldegger & Klösel 2022:133–147; Saha et al. 2023). The following are indicators of transformed thinking:

- Adaptability: Are they comfortable with change and able to adjust strategies quickly in response to new information or shifting conditions?
- Continuous learning: Do they seek new knowledge and skills, stay updated on industry trends and promote a learning culture within their team?
- Visionary thinking: Can they articulate a clear vision for the future that inspires and motivates their team while remaining flexible enough to pivot when necessary?
- Empathy and emotional intelligence: Are they able to understand and manage their own emotions, as well as those of their team, fostering a supportive and collaborative environment?
- Innovation and risk-taking: Do they encourage creative thinking, and are they willing to take calculated risks to drive innovation and improvement?
- Effective communication: Are they skilled at communicating ideas clearly and persuasively, and do they actively listen to and incorporate feedback from their team?
- Decisiveness: Can they make well-informed decisions swiftly and confidently, even in the face of uncertainty?
- Empowerment and delegation: Do they trust their team members with responsibilities, empowering them to take initiative and make decisions?

Creating a new organisational culture is challenging and ongoing, not a one-time project. Successful organisational transformation requires active, long-term orchestration (Mullins 2005:134). Introducing technology into the culture disrupts 'unwritten rules', impacting employee behaviour, attitudes and performance (Denning 2011). Organisations are composed of and driven by social interactions between people. People change, amend and discard their beliefs, so organisational culture remains in flux (Ellinas, Allan & Johansson 2017:3).

Digital transformation is complex without people working together to change organisational culture (Nadkarni & Prügl 2021:234, 257, 258). Galli (2022:2–4) argues that the organisational culture contributes to the employee's well-being and ability to adapt to changes. Leso, Cortimiglia and Ghezzi (2023:151–154) report that COVID-19 lockdowns accelerated the speed at which collaborative technologies were adopted, thus pushing organisations into adapting their business models to provide digital services and remain operational. This change was not about technology but about transforming organisational cultures so customers and employees could benefit from using technology. True digital transformation is meant to be a lasting dynamic change, not a short-term solution, and it only works if the transformation is driven by leadership and supported by committed employees. It remains to be seen whether all organisations that rapidly adopted collaborative technologies will truly be transformed.

Institutionalising an ECM solution affects organisational culture because it requires new information behaviour, which in turn affects existing habits, beliefs and attitudes, which still hold value (Barden 2011:11–16; Denning 2011; Mullins 2005). When working together and collaborating, changed habits, beliefs and attitudes can be assimilated into an organisation, thus supporting the institutionalisation of the ECM solution. Within the intricate fabric of organisational culture, where shared values, norms and rituals shape behaviour, lies a fundamental truth: organisations are not mere machines but living systems. Just as ecosystems thrive on interdependencies and feedback loops, so do the humans within these organisational ecosystems, each individual, a node in a dynamic network, influencing and being influenced by their environment (Huber & Bartunek 2019).

Conclusion

The study established that different independent disciplines were involved during the implementation and institutionalisation of the ECM solution. This serves as a contributing factor in the lack of full institutionalisation, as each discipline has its own point of view regarding what it wants to achieve. This article argued for identifying interdisciplinary pillars that can result in a defragmented approach to ECM institutionalisation in alignment with studies carried out by Orji (2010:620–621), arguing that the academic background of the role players affects their perception of information and technology in the workplace and, hence, their behaviour. Bulgacs (2014:1) argues that the fragmented approach to behaviour, organisation and technology affects the institutionalisation of ICT solutions. Holland (2010:208) argues that complex situations require cross-disciplinary approaches to problem-solving. Senge's (2004:10) view that systems thinking 'takes into account the interrelationships among the disciplines and fuses them into a coherent body of theory and practice'.

Typical limitations of conceptual articles presenting a novel framework are the requirement to rely on existing literature. A limitation of this study could be that existing literature might not support the conceptualisation of the framework, or crucial empirical evidence could be overlooked in the process of conceptualising the framework. Furthermore, the balance between theoretical depth and practical applicability of the framework is susceptible to misinterpretation and oversimplification in real-world settings. Every effort was made to firmly contextualise this study from a human-centred focus, and all concepts related to ECM institutionalisation from a human perspective were considered. This article presents the interdisciplinary baseline that was observed over a period of 10 years in this ethnography, in which the lead author was immersed in the daily activities of the group being studied to ensure every detail of the human-centred context is represented with literature to back it up.

Sufficient evidence was provided in this article that managing human dimensions is critical to the success of an IT implementation. However, despite these theoretical

constructs, evidence points to a lack of institutionalisation, which relies heavily on the human dimension during and after the implementation. There is a need to properly understand how human dimensions contribute to the complexity of institutionalising new work practices and information behaviours when an ECM solution is institutionalised.

A possible contributor to the low adoption rate of ECM solutions is that the various disciplines utilising these theoretical constructs each address different aspects of organisational behaviour and practices within their own respective silos. Each discipline pursues its own agenda and formulates its view of organisational reality based on its unique perspective. Arguably, such a fragmented view prevents them from understanding that they are all dealing with the same complex behaviour regardless of the discipline involved. The specific disciplines (Figure 1) form the foundation for further research in this research towards developing a systemic interdisciplinary approach to ECM institutionalisation.

Interdisciplinarity serves as a method to combine knowledge and techniques for effective problem-solving (Clark & Wallace 2015:234, 236, 241). Integration essentially represents adaptive behaviour in the contexts where people live and work. Each discipline alone is inadequate to address the complexity of environmental issues, presenting a dilemma: while disciplinary approaches are crucial and always part of any problem-solving strategy, they are not enough to address problems without full integration. Interdisciplinarity facilitates integration by offering a comprehensive approach to problem-solving.

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Authors' contributions

H.L.V. is the principal researcher of this study and conducted under the supervision of M.A.M. The article is based on H.L.V.'s PhD research and serves as an excerpt from the dissertation for scholarly dissemination.

Ethical considerations

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Data availability

The data that support the findings of this study are available from the corresponding author, M.A.M., upon reasonable request.

Disclaimer

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