Generative AI in Enterprise Knowledge Management: Recognizing Challenges and Enabling Success

Masterarbeit

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vorgelegt von:

Name: Webster [redacted]

Vorname: Samantha [redacted]

Prüfer: Prof. Dr. Michael H. Breitner
Betreuer: M. Sc. Lukas Grützner

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Research Summary

Introduction

Knowledge is a decisive part of the economic sense and progress-making (Chou et al., 2005). Knowledge management systems (KMS) have created an innovation on how to create, store, and retrieve knowledge for organizational tasks, inevitably changing how valuable information is handled internally (Santoro et al., 2018). Knowledge structures for enterprises are a vital characteristic of creating a competitive advantage by amplifying internal effectiveness (Santoro et al., 2018). Internal knowledge in enterprises encompasses all gathered data and information incorporated into intra-specific technologies, routines, and employees (Zincir & Rus, 2019). Idrees et al. (2023) highlight internal knowledge management to be a pertinent procedure to the strategic business position of organizations, changing outcome processes and innovation quality to new business models and creation strings. Du Plessis (2007) values knowledge management as a tool to build competencies pertinent to innovation procedures in organizations. As a result, a vast number of scientific literature has occupied research interests on managing internal knowledge in enterprises to a value-enhancing degree, indicating the relevance of addressing this field (Pendevska, 2022; Shahzad et al., 2020).

Technological endeavors are transforming enterprise landscapes continuously. Recent advances in artificial intelligence (AI) have shifted views on implementing disruptive technologies and are transforming the enterprise environment continuously (Liu et al., 2024). With the novel uprise of generative AI, the abilities and competencies are undoubtedly discussed in various publications grouped to alleviating tasks and enterprise operations, while further addressing an uprise in performance and productivity levels, alleviating costs and dependencies for several model structures (Bariah et al., 2024; Fui-Hoon Nah et al., 2023; KPMG International, 2024; Merhi, 2023). Feuerriegel et al. (2024) predict a 7% global gross domestic product increase with the deployment of generative AI. Originating from a case study, generative AI platforms in knowledge contexts of enterprises are emerging to present efficiency gains while improving quality outcomes by 56% serving an increased competitive advantage of 51% as of 2023 (Institute for Business Value, 2023; McKinseyDigital, 2024). Therefore, a transformation of internal enterprise knowledge structures equipped with generative AI is inevitably occurring. Yet with rising deployment rates of generative AI seeing increasing investing rates in enterprises, challenges to the implementation in internal enterprise knowledge systems equally occur (Kanbach et al., 2024). Sixty-seven percent of top management executives are perturbed about integrating generative AI into their knowledge management frameworks, due to its

potential to scale challenges and risks (Institute for Business Value, 2023). As for this, investigating the negative backside of generative AI deployment in enterprise knowledge management has seen little attention (Al Naqbi et al., 2024). To this day, a qualitative research investigation exploring why the application of generative AI into internal enterprise knowledge management systems leads to challenges and implementation failures is yet to be executed. In scientific literature, internal enterprise knowledge management with applied generative AI is discussed within knowledge conversion using the SECI model (Sumbal & Amber, 2024), business communication alterations (Iaia et al., 2023) or the aggregation of internal knowledge to improve creativity reflection in innovation and ideation phases (Joosten et al., 2024; Koch, 2011). Hitherto, scientific literature has grasped the negative characteristics of generative AI but has not yet assessed a corporate-level perspective of highlighting challenges and implementation failures accustomed to generative AI managing internal knowledge through organizational environments while filtering the critical factors for a successful embedding (Kshetri et al., 2024; Michel-Villarreal et al., 2023; Zhang & Kamel Boulos, 2023).

Assessing a holistic perspective on how to elevate internal knowledge management structures by implementing human, technical and institutional considerations while deploying generative AI is not yet present. We address this research thesis from a high-level perspective which will include a non-specific exploration of organizational fields (Boynton & Zmud, 1984). Highlighting the investigation of success-supporting factors in internal knowledge management of organizations, the research questions arise as follows:

RQ1: What are the challenges and reasons for the failure of generative AI in enterprise knowledge management?

RQ2: What are the critical success factors of generative AI in enterprise knowledge management to enhance business value creation?

The designated pathway followed by the proposed research questions will first be to reveal the challenges and failure reasons for deploying generative AI in enterprise knowledge structures. These insights will serve as a building block for the second research question. Emphasizing the assessment of challenges and failures, critical success factors (CSFs) to the amendment and the increasingly ubiquitous presence of generative AI in internal enterprise knowledge systems are further extracted.

Structuring this thesis, a guideline to answer the research questions is presented. First, the theoretical background in knowledge management, generative AI, CSFs, and the Technology-Organization-Environment (TOE) framework is displayed. This is complemented by introducing a chapter dedicated to defining the elements and characteristics of implementing an AI strategy for enterprises. Following, the methodology including the research design is explained. This encompasses presenting the combined CSF-TOE framework while elaborating the method of an intelligent literature review, the interview design, the method of transcribing and coding as well as the focus group discussion. The research process will highlight the process towards extracting challenges and failure reasons while deriving the targeted CSFs of generative AI in enterprise knowledge management presented in the final results. Further, a discussion of the results will be forwarded which will discuss insights as well as give implications for theory and practice and unveil limitations as well as strings for future research. Concluding, the core elements and results are highlighted while giving a brief outlook.

Theoretical Background

Knowledge Management

Focusing the two research pillars, we elaborate on defining knowledge management in enterprises while highlighting the core characteristics of generative AI. Starting with knowledge management, De Bem Machado et al. (2022) create a perspective on organizational knowledge management with knowledge being a basic resource for collectively constructed conclusions in organizational environments. Here, knowledge is referred to as intra-firm assets which combined and interconnected define an enterprise's knowledge level (Alavi & Leidner, 2001). Resulting, the core center of organizational knowledge is anchored in levels of individual workers, enterprise culture, systems, and documents (Alavi & Leidner, 2001). Kanapeckiene et al. (2010) have attempted to define the concept of knowledge management as the encompassing of various knowledge strings to a united knowledge platform. Farooq (2019, p. 140) defines knowledge management as "a higher-order construct with learning orientation, knowledge sharing, organizational memory, and knowledge reuse as its dimensions".

Generative AI

Mapping a definition to the deployed tool for this research analysis, we attempt to define the core elements of generative AI. Sætra (2023, p.1) defines generative AI as "machine learning solutions trained on massive amounts of data to produce novel outputs based on user prompts". Another stated understanding of generative AI is being a creation tool for users through input, achieving new material from wide-ranging datasets (Hao et al., 2023).

10 Conclusion

With the widespread deployment of generative AI for internal knowledge management processes in enterprises, we improve the relationship between enterprises' generative AI adoption trajectory by analyzing the proclaimed challenges and failure reasons in theory and practice while extracting critical factors for a success-empowered knowledge management foundation in organizations. This is achieved by gaining a three-dimensional perspective within the TOE framework, encompassing technological aspects, organizational factors, and environmental characteristics. This classification reflects the failure reasons and CSFs relevant to organizations.

We identify CSFs within the TOE framework through a structured literature review approach based on AI tools in accordance with Webster and Watson (2002) analyzing 138 abstracts to identify 93 for a final inclusion. In terms of practical insights, 21 expert interviews provided valuable support for analyzing this research objective. They contributed to the identification of challenges and failure reasons while clarifying the CSFs for organizational knowledge management augmented by generative AI. Based on the reviewed literature and practical analysis, the identification of challenges in applying generative AI for enterprise knowledge management encompasses 15 items related to failure reasons (e.g., lack of trust base, generative AI-influenced knowledge loss and regulatory restrictions), underscoring the critical importance of this research insight. In response to the identified challenges, we recognize 16 CSFs (e.g., generative AI design elements, top management support and regulatory obligations) for implementing generative AI in enterprise knowledge management processes, emphasizing key areas of value creation for organizations. This brings further clarity as the CSFs identify areas where enterprises can realize substantial value across various aspects. By proactively managing potential risks, these CSFs promote enhanced performance, driving efficiency, resilience, and innovation within organizations. Additionally, the challenges, failure reasons, and identified CSFs were evaluated in a focus group discussion with six experts from equally research and industry-related backgrounds. Further, the results are discussed and reflected upon, while parallels to related IS research fields are highlighted. Here, connections to fields such as project management and business intelligence systems were made (da Cruz Andrade et al., 2023; Yeoh & Popovič, 2016). Our synthesis of CSFs during the research process identified multiple discrepancies between scientific research and practical perspectives highlighting the diverse focus of generative AI deployment in enterprise knowledge management. The highlighted differences provide a comprehensive framework for considering various aspects within the field of generative AI in enterprise knowledge management. Additionally, this reveals numerous further

research directions to be of potential consideration in the future. As we advance, we present implications for research and practice that emphasize the value this study has contributed to both practice-oriented enterprises and research-based foundations. Next, the limitations of the identified results are summarized as originating from a lack of cultural and geographical diversity, constraints related to language preferences, and a lack of flexibility in the chosen CSFs approach. While our research has highlighted insights into failure reasons and challenges while identifying CSFs for generative AI in enterprise knowledge management, multiple endeavors are yet to be uncovered and in need of further investigation. Therefore, we close the circle by identifying future research directions to be attained based upon this work as a foundational pillar to further drive and enlighten the application of generative AI in enterprise knowledge management.

As the application of generative AI sees a fast-paced transformation, the area of knowledge management will see further transmission to changes inflicted by generative AI, marking an inevitable constitution of recognizing challenges to enable factors of success-based transfusions. Resulting, this work contributes to identifying, addressing, and simultaneously aiding the inevitable occurrence of generative AI in internal knowledge management of enterprises to reduce imperils and increase value gain supporting efficiency and market competitiveness elevations for researchers and practitioners respectively.