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KNOWLEDGE MANAGEMENT IN THE DIGITAL AGE: TECHNOLOGICAL ADVANCES AND THEIR IMPACT ON ORGANIZATIONAL PERFORMANCE

GESTÃO DO CONHECIMENTO EM TEMPOS DIGITAIS: AVANÇOS TECNOLÓGICOS E SEUS REFLEXOS NA PERFORMANCE ORGANIZACIONAL

GESTIÓN DEL CONOCIMIENTO EN LA ERA DIGITAL: AVANCES TECNOLÓGICOS Y SU IMPACTO EN EL DESEMPEÑO ORGANIZACIONAL

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ABSTRACT

This article aims to analyze how advances in digital technologies impact knowledge management (KM) models in organizations, with an emphasis on the contributions of these innovations to organizational development and to meeting the requirements of NBR ISO 9001. This is a qualitative research, developed through a Systematic Literature Review (SLR). Fourteen studies published between 2015 and 2025 were selected, extracted from the SciELO and CAPES Journals, with strict inclusion and exclusion criteria. The analysis sought to understand the interrelationships between KM, emerging technologies and quality standards. The results demonstrate that the integration between KM and digital technologies, such as artificial intelligence, big data, gamification and collaborative platforms, favors the systematization, dissemination and application of organizational knowledge. Furthermore, this synergy strengthens the culture of innovation, organizational learning, and compliance with the requirements of NBR ISO 9001:2015. Although the review included articles in Portuguese and English, the research was restricted to specific databases and time frames, which may have left out relevant studies from other sources. Furthermore, the lack of empirical data limits the practical application of the findings. Nevertheless, it provides support for future research and practical applications. The study contributes by highlighting KM as an essential strategy in the digital age and highlights the value of emerging technologies in strengthening organizational performance and compliance with normative quality standards.

Keywords: Knowledge Management. Digital Technologies. Organizational Innovation. NBR ISO 9001. Organizational Performance.

RESUMO

Este artigo tem como objetivo analisar como os avanços das tecnologias digitais impactam os modelos de gestão do conhecimento (GC) nas organizações, com ênfase nas contribuições dessas inovações para o desenvolvimento organizacional e para o atendimento aos requisitos da NBR ISO 9001. Trata-se de uma pesquisa de natureza

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qualitativa, desenvolvida por meio de uma Revisão Sistemática da Literatura (RSL). Foram selecionados 14 estudos publicados entre 2015 e 2025, extraídos das bases SciELO e Periódicos CAPES, com critérios rigorosos de inclusão e exclusão. A análise buscou compreender as inter-relações entre GC, tecnologias emergentes e normatizações da qualidade. Os resultados demonstram que a integração entre GC e tecnologias digitais, como inteligência artificial, big data, gamificação e plataformas colaborativas, favorece a sistematização, disseminação e aplicação do conhecimento organizacional. Além disso, essa sinergia fortalece a cultura da inovação, a aprendizagem organizacional e o cumprimento dos requisitos da NBR ISO 9001:2015. Embora a revisão tenha incluído artigos em português e inglês, a pesquisa se restringiu a bases e recortes temporais específicos, o que pode ter deixado de fora estudos relevantes de outras fontes. Além disso, a ausência de dados empíricos limita a aplicação prática dos achados. Ainda assim, oferece subsídios para futuras investigações e aplicações práticas. O estudo contribui ao evidenciar a GC como estratégia essencial na era digital e destaca o valor das tecnologias emergentes no fortalecimento da performance organizacional e na conformidade com padrões normativos de qualidade.

Palavras-chave: Gestão do Conhecimento. Tecnologias Digitais. Inovação Organizacional. NBR ISO 9001. Performance Organizacional.

RESUMEN

Este artículo analiza cómo los avances en tecnologías digitales impactan los modelos de gestión del conocimiento (GC) en las organizaciones, enfatizando las contribuciones de estas innovaciones al desarrollo organizacional y al cumplimiento de los requisitos de la norma NBR ISO 9001. Se trata de un estudio de investigación cualitativa, desarrollado mediante una revisión sistemática de la literatura (RSL). Se seleccionaron catorce estudios publicados entre 2015 y 2025 de las bases de datos de revistas SciELO y CAPES, utilizando criterios rigurosos de inclusión y exclusión. El análisis buscó comprender las interrelaciones entre la GC, las tecnologías emergentes y los estándares de calidad. Los resultados demuestran que la integración entre la GC y las tecnologías digitales, como la inteligencia artificial, el big data, la gamificación y las plataformas colaborativas, favorece la sistematización, la difusión y la aplicación del conocimiento organizacional. Además, esta sinergia fortalece la cultura de innovación, el aprendizaje organizacional y el cumplimiento de los requisitos de la norma NBR ISO 9001:2015. Si bien la revisión incluyó artículos tanto en portugués como en inglés, la investigación se limitó a bases de datos y períodos específicos, lo que pudo haber excluido estudios relevantes de otras fuentes. Además, la falta de datos empíricos limita la aplicación práctica de los hallazgos. Aun así, ofrece una base sólida para futuras investigaciones y aplicaciones prácticas. El estudio contribuye al destacar la gestión del conocimiento como una estrategia esencial en la era digital y enfatiza el valor de las tecnologías emergentes para fortalecer el desempeño organizacional y el cumplimiento de las normas de calidad.

Palabras clave: Gestión del Conocimiento. Tecnologías Digitales. Innovación Organizacional. NBR ISO 9001. Desempeño Organizacional.

1 INTRODUCTION

In recent decades, knowledge has come to be recognized as one of the main strategic assets of organizations. The transformation of the industrial economy into an economy based on information and knowledge has driven a reconfiguration of organizational practices, requiring more dynamic and collaborative approaches in the creation, systematization and application of knowledge. In this context, knowledge management (KM) emerges as a multidisciplinary field aimed at generating value from intellectual capital and continuous organizational learning (Nonaka & Takeuchi, 1997; Davenport & Prusak, 1998).

Technological evolution, driven by digitalization, the internet of things, artificial intelligence (AI), and data-driven systems, has been promoting profound transformations in the ways knowledge is produced, accessed, and shared. Digital platforms, collaborative environments, intelligent software, and methodologies such as gamification and *design thinking* have become part of KM processes, supporting innovation, decision-making, and organizational sustainability (Luiz et al., 2023). These technological tools not only optimize the flow of information, but also enhance the conversion of tacit knowledge into explicit knowledge, favoring organizational learning.

KM, in digital times, can no longer be thought of only as a set of internal practices, but rather as a process articulated with networks, systems, and platforms that transcend the physical limits of the organization. According to Probst et al. (2002), knowledge management involves identifying, acquiring, developing, sharing, using and preserving relevant knowledge. In the digital age, these steps are profoundly mediated by technological resources, which alter not only the speed, but also the depth and scale of the circulation of knowledge in organizations.

In the Brazilian scenario, however, several challenges are still perceived for the consolidation of KM as a structured practice. The disparity in access to technologies, the absence of an organizational culture focused on sharing knowledge, the scarcity of investments in innovation, and the turnover of professionals make it difficult to systematize institutional knowledge. Despite this, promising initiatives have emerged in sectors such as health, education, and services, which demonstrate the effectiveness of digital tools in improving communication, data management, and the formation of learning communities (Vaz & Landeiro, 2022).

At the same time, there is a movement of maturation of organizations regarding the valorization of knowledge as a factor of competitive differentiation. Knowledge is no longer

just an input and is now understood as an integral part of business strategy, with direct impacts on performance, innovation, and the ability to adapt to complex and unstable environments. Weingärtner and Romeiro (2024) highlight that digital transformations not only modify operational processes, but also resignify the way organizations learn, relate, and position themselves in the face of contemporary challenges.

In view of this panorama, this article aims to analyze how the evolution of technologies has impacted knowledge management models in organizations, with emphasis on the contributions of these innovations to organizational development and, secondarily, to compliance with the normative requirements of NBR ISO 9001. The analysis is conducted from a systematic review of the literature, with a reflective focus on classic and contemporary authors, seeking to understand the interfaces between knowledge, technology and organizational transformation.

2 THEORETICAL FRAMEWORK

Knowledge management (KM) can be understood as a set of practices that involve the creation, organization, sharing, and application of organizational knowledge. Several theoretical models, such as those of Nonaka and Takeuchi (1997), Davenport and Prusak (1998) and Probst et al. (2002), emphasize that knowledge should be treated as a strategic asset, and that its conversion from tacit to explicit form is essential.

With the acceleration of digital transformation, new technological tools have come to play a central role in KM processes. Integrated management platforms, digital repositories, software based on artificial intelligence, learning management systems, and gamified learning environments are examples of solutions that optimize the flow of knowledge within organizations (Barbosa, 2020).

These technologies have enabled greater agility in data capture, more accessibility to information, and collaboration between geographically distant teams. Thus, by incorporating these innovations, organizations not only increase their operational efficiency but also build an organizational culture that is oriented towards learning and innovation.

3 IMPACT OF DIGITAL TECHNOLOGIES ON KNOWLEDGE MANAGEMENT

Recent studies show that the use of digital technologies has contributed significantly to strengthening KM processes. Collaborative platforms, artificial intelligence, and big data

have been adopted to automate information flows, facilitate access to knowledge, and promote strategic data analysis (Weingärtner & Romeiro, 2024).

The adoption of methodologies such as *design thinking*, use of intelligent tutoring systems, and gamification, as pointed out by Pereira et al. (2022), has expanded the possibilities of organizational learning and integration of tacit knowledge. These interactive approaches reinforce employee engagement, in addition to contributing to the retention and dissemination of institutional knowledge.

Although there are challenges, such as resistance to change and the lack of technological culture, studies show that the combination of KM strategies and technological solutions tends to promote greater adaptability, innovation and competitiveness.

4 RELEVANCE OF NBR ISO 9001 CERTIFICATION AND CONTRIBUTIONS OF DIGITAL TECHNOLOGIES TO KNOWLEDGE MANAGEMENT

The ISO system was created in 1946 with the purpose of promoting international standardization and facilitating communication between countries. In 1947, the *International Organization for Standardization (ISO) was officially founded* , which currently has more than 22 thousand international standards published (ISO, 2018a). Among these standards, the NBR ISO 9000 family stands out, widely recognized in several sectors. It is composed of NBR ISO 9000, which presents the fundamentals and vocabulary; by NBR ISO 9001, the only certifiable one, which establishes the requirements for a quality management system; and by NBR ISO 9004, which offers guidelines for the improvement of organizational performance (Valls, 2005).

The NBR ISO 9001 certification, as pointed out by Godoy et al. (2009), provides benefits such as process improvement, indicator control and increased customer satisfaction. Data from a survey conducted by ACT Consultoria (2018), based on world records from 2008 to 2017, reveal that Brazil still has a long way to go to reach the certification levels of more consolidated countries, evidencing the need for greater awareness and preparation on the part of national organizations. Certification is often sought by companies that wish to meet supplier requirements, provide services with greater credibility or strengthen their internal management (UNIDO, 2016).

It is worth noting that, although the NBR ISO 9001 certification is not mandatory in all contexts, its adoption requires analysis of the organizational moment, level of maturity, team commitment, and clarity regarding the objectives to be achieved (ISO, 2015). According to

INMETRO (2018), the choice of a duly accredited certifying body is essential to ensure reliability in the certification process.

In this scenario, knowledge management (KM) starts to play a strategic role, especially from the inclusion of requirement 7.1.6 in NBR ISO 9001:2015, which requires organizations to create, maintain and make available the knowledge necessary for the effective operation of processes. The convergence between KM and normative requirements reinforces the importance of systematizing and valuing organizational knowledge.

Digital technologies, in this context, play a fundamental role in enabling greater accuracy, standardization, and traceability in knowledge management processes. Tools such as collaborative platforms, systems based on artificial intelligence, digital repositories and quality management software contribute directly to compliance with regulatory requirements. Companies that invest in these technological solutions tend to find it easier to obtain or maintain ISO certification, as they strengthen aspects such as documentation, internal communication, and continuous improvement.

5 METHODOLOGICAL PROCEDURES

RSL is a method indicated to examine a corpus of academic literature in order to obtain insights, critical reflections, in addition to generating new paths and research questions (Massaro et al., 2016). According to Sampaio and Mancini (2007, p. 2):

> A systematic review, like other types of review studies, is a form of research that uses the literature on a given topic as a source of data. This type of investigation provides a summary of the evidence related to a specific intervention strategy, through the application of explicit and systematized methods of search, critical appreciation and synthesis of the selected information.

5.1 DELIMITATION OF THE QUESTION

In the face of the digital transformations that mark the contemporary organizational scenario, knowledge management (KM) has gained new contours, especially with the incorporation of specific technologies, such as digital platforms, artificial intelligence, big data, and collaborative environments. These tools have been consolidating themselves as strategic allies to optimize the storage, dissemination, and reuse of critical knowledge in organizations.

Despite the growing appreciation of KM, many institutions still face recurring challenges, such as high staff turnover, absence of systematic knowledge sharing

mechanisms, failures in preserving information, and lack of adequate digital structures for organizational knowledge management. Such gaps result in rework, loss of tacit knowledge, and low operational efficiency (Rossetti & Morales, 2007).

In order to obtain answers to the research objective and following the RSL method, two research questions were chosen with specific views on the theme, presented below:

Table 1

Research Questions

QP1	How has the evolution of digital technologies transformed knowledge management models in organizations?
QP2	How do these technological innovations applied to knowledge management contribute to organizational development and compliance with the requirements of NBR ISO 9001?

Source: Authors.

5.2 SELECTION OF DATABASES

Once the question of the study has been delimited, the databases consulted are presented to select the studies to be excluded and included in the systematic literature review to be carried out. In the course of the databases used for a systematic review of the literature, the following were presented:

- SciELO: Comprises the production of articles produced in several Latin American countries; It is "an electronic library that encompasses a selected collection of Brazilian scientific journals".
- Capes Journal: Capes is a foundation linked to the Ministry of Education of Brazil that works in the expansion and consolidation of stricto sensu graduate studies in all Brazilian states. The virtual library of Periódicos Capes has on its website "more than 45 thousand titles with full text, 130 reference databases, 12 databases dedicated exclusively to patents, in addition to books, encyclopedias and reference works, technical standards, statistics and audiovisual content" (CAPES, 2021).

5.3 ELABORATION OF THE SEARCH STRATEGY

In order to select relevant texts on the theme in question, the search strategy applied began with the selection of digital libraries to be used, which were selected for their relevance and recognition of quality in the academic environment.

Table 2

Digital Libraries

Library	Email address
Capes Journal	https://www.periodicos.capes.gov.br/
Scielo	https://www.scielo.br/

Source: Authors.

After the selection of the libraries, it is pointed out that each database contains individual rules and limitations, and it is necessary to observe different strategies to adapt the search. Thus, the next step was to define a *string* of search aligned with the objective and questions of the research.

Table 3

Search strings

Keywords	*Search Strings*
"Knowledge Management"	Knowledge Management and Evolution of Digital Technologies
"Knowledge management"	Knowledge Management and Organizational Innovation
"Knowledge Management"	Knowledge Management and ISO Standards

Source: Authors.

In addition to the *search string*, delimiting inclusion and exclusion criteria were established, including type of subject, period of publication, type of resource, and availability. The *strings* were entered in the search field of the Capes Journal portal and in Scielo, as shown in Table 4. Articles dated from the last 10 years (2015 – 2025) and in Portuguese and English were considered.

Table 4

Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Articles that address the theme of knowledge management in companies.	Articles that talk about knowledge management but without directing organizations and addressing digital transformations.
Articles that use technologies and programs in knowledge management.	Articles outside the research time frame (2010-2019).
Articles that address the use of digital transformations and changes in the quality and knowledge management of organizations.	Articles with restricted access, which do not allow full reading of the content for critical analysis. Systematic review articles

Source: Authors.

In the search carried out in the SciELO and CAPES Periodicals databases, 781 articles were identified, 491 in the SciELO database and 290 in the CAPES database. Among this total, 521 publications were excluded because they treated KM in a generic way, without applying technological resources to its development. 18 studies were also eliminated due to duplication between the databases, in addition to 108 studies classified as systematic literature reviews and 120 publications that were outside the period stipulated for analysis (2015 to 2025). After these filtering steps, a final set of 14 studies remained that fully met the established inclusion criteria.

As a way of organizing and presenting the results of the search in the databases, at the end of the entire process, Table 5 was elaborated, which presents the works selected for this RSL:

Table 5

Selected works

No.	Title	Author/Year	Summary	Methodology	Analysis of Results
1	Organizational learning strategies and information and communication technologies to support knowledge management in SMEs in the Cauca Valley, Colombia	Arango et al. (2020)	The article proposes strategies to strengthen knowledge management (KM) in SMEs based on its relationship with organizational learning and information and communication technologies (ICT). It is proposed to improve transfer mechanisms and practices and the implementation of virtual learning platforms.	This study with a quantitative approach, using a questionnaire applied to SMEs. The information obtained was analyzed using the SPSS software. The study was limited to companies located in the urban area of Cali with at least ten years of incorporation. It is characterized as a descriptive study that specified properties and characteristics. The expert judging technique was applied with five experts to validate the	The main results of the survey showed the lack of a formal area for knowledge management. SMEs have collaborative processes that facilitate knowledge sharing. Formal and institutional mechanisms for the transfer, documentation and adequate storage of knowledge have not been established. There is a weakness in the lack of organizational culture that fosters the exchange of knowledge. Strategies are proposed to strengthen KM practices aiming at strategic competitiveness

				content of the instrument. Cronbach's alpha test was performed for the reliability of the questionnaire.	
2	Knowledge Management in Organizations 4.0	Jala et al. (2023)	Knowledge Management (KM) comprises the construction of assertive strategies to streamline business decision-making, particularly in Industry 4.0, which is characterized by technical and economic innovation with a focus on artificial intelligence and accessibility to *big data*.	The information collection process took place in three stages: 1) semi-structured interviews with managers of different organizations 4.0 (qualitative information); 2) establishment of criteria and classification codes for content analysis; 3) elaboration of empirical and descriptive conclusions for the writing of theoretical and explanatory conclusions	Within the knowledge management category, subcategories such as "basic conditions" and "human talent" are associated. The subcategory "organizational learning" is "cause of" human talent. The anecdotes and episodes that employees remember the most are the characteristic that stands out in every organization, showing that experiences allow for adequate knowledge management in entities 4. The interviewees highlighted that KM manifests relevant characteristics for teamwork, self-management, and that experience and willingness to share are essential. Communication, commitment, collaboration, and experience strengthen organizational identity, facilitating business strategy and the use of technology.
3.	Methodology for estimating and evaluating a knowledge management model using structural equations	Armas et al. (2020)	The article presents a methodology for the estimation and evaluation of a knowledge management (KM) model using structural equations, which test and estimate causal relationships from statistical data	The proposed methodology includes the construction of a questionnaire. Structural Equation Models (SEM) were used to test theoretical hypotheses. Five hypotheses were formulated. The initial instrument had	The most influential variables in knowledge management for the department of systems and technological resources at Universidad Simón Bolívar are ICT, Intellectual Capital, Organizational Learning and Innovation. The ICT tools of core services define KM solutions by accessing knowledge repositories, based on the processes of

				199 items, evaluated by two experts and reduced after a pilot test with 42 IT employees, eliminating items with corrected element-total correlation of less than 0.70. The statistical programs SPSS 25, AMOS 22 and STATGRAPHICS Centurion XVI were used.	creation, organization and use. ICT tools of packaged services solve specific problems, such as customer relationship management. The designed instrument is reliable according to the results of the Cronbach's Alpha test.
4	YouTube Tutorials as a Non-Formal Learning Strategy for College Students	Rodriguez (2021)	The study discusses the didactic criteria of YouTube tutorials, noting that their relevance or pedagogical quality is not evaluated. *Likes*, *dislikes*, comments, or video length are not enough to determine its quality. Comments are essential as a feedback mechanism for users and creators, addressing technical and execution aspects.	The methodology is not explicitly detailed in the sources, but the text discusses the evaluation of YouTube tutorials as a non-formal learning strategy and mentions "our investigation", indicating the conduct of a study.	The relevance or pedagogical quality of YouTube tutorials is not evaluated. *Likes*, *dislikes*, comments, or the length of the video are not sufficient requirements to determine the quality. Comments are essential as a feedback mechanism for users and creators.
5	Influence of Knowledge Management Practices Applied to Agile Software Development	Candal et al. (2022)	The document presents a theoretical platform, method and materials applied in the research, presentation, analysis and discussion of the results, and conclusions. It addresses the relationship between	Exploratory-descriptive research with a qualitative approach with two stages: 1) literature review on the relationship between PGC and DAS; 2) application of a *controlled survey* with the Delphi	The assertions with the highest consensus include questions about *software* maintenance, staffing, knowledge sharing, agile practices, and generic DAS improvements. Assertions with less consensus address software maintenance and DAS-specific components (artifacts, ceremonies, method, and team). The model

			Knowledge Management (KM) and Agile Software Development (DAS). The Agile Manifesto is an important milestone in the DAS.	method21. A face test was performed with four experts to improve the questionnaire, which was then applied to other specialists.	can enable the evolution of studies on the correlation between knowledge management and *software development* with agile methods.
6	Use of technologies by nurse-managers in the management process	Vaz & Landeiro (2022)	The study identifies the technological profile of nurse managers. It is a quantitative, descriptive and exploratory study with 74 nurse managers who filled out a questionnaire on the use of ICT in management. Nurse managers are over 51 years old, have more than 28 years of professional practice and have more than 11 years in management, and have acquired knowledge about informatics through self-learning.	This is a quantitative, descriptive and exploratory study. The eligible population was nurse managers at a Hospital Center in the Northern Region (CHRN) and nurse members of the Portuguese Association of Nurse Managers and Leadership (APEGEL). A self-completed questionnaire was used. The data were treated with statistical and descriptive analysis.	The most well-known technologies used by nurse managers are *e-mail* and videoconferencing. *Webs*, discussion groups and videoconferencing are known by 36.5% of the nurses. *E-mail* is the most used technology for management (4.3%), followed by *webs* (28.4%) and discussion groups (25.7%). For face-to-face training, the most mentioned are videoconferencing (63.5%), *e-mail* (60.8%) and discussion groups (50.0%). The technologies for which nurse managers would be interested in receiving training are *webs* (33.8%), discussion groups (32.4%), *blogs* (32.4%) and videoconferencing (29.7%).
7	Knowledge management is a key element in information management in healthcare organizations	Martinez et al. (2022)	The study aims to evaluate the characteristics of information management of organizations in a knowledge *cluster* in hospitals and clinics in Ambato, Ecuador, and the impact of ICT.	Descriptive approach, using the *survey* technique. A consultation instrument was applied to 10 key informants (2 health workers per hospital center) using the 13-item Likert scale. Information collection was carried out in 5 health organizations,	The results show congruence in the management of information from the hospitals consulted. The health centers have homogeneous results regarding the use of *web software*, *Microsoft Office* and *online* tools, management of social networks for service information, *online* interaction for access to services, and recording of results in the management of human talent, finance, health technologies and logistics. These

				both public and private.	homogeneous operating techniques possibly respond to a regulatory policy.
8	ECG Tutor: development and evaluation of a gamified intelligent tutor system for teaching electrocardiogram	Pereira et al. (2022)	The study aimed to explore the interest and motivation of medical students in the use of a gamified intelligent tutor system (ITS) for the study of electrocardiogram (ECG). The need to adapt to mobile devices and improve the elements of gamification and aesthetics was noted.	This is an exploratory and quantitative survey research. Graphic design prototypes of a gamified STI were conceived and evaluated by medical students from two universities. The population was 779 medical students from the fifth period onwards. Data collection was carried out through a structured questionnaire in Google Forms.	At the beginning, 53 undergraduates participated, but only 14 answered the post-interaction questionnaire.... 75.4% of the students self-rated their ECG interpretation skills as "terrible" or "bad"100. 96.2% classified the classes on ECG as quantitatively insufficient. All students agreed that interacting with the system was clear and understandable and easy to use.
9	Applied knowledge management: digital transformation and communities of practice	Weingärtner & Romeiro (2024)	The study seeks to understand whether knowledge management (KM) practices, such as community of practice, applied in the study unit, will allow an effective improvement of processes. Process improvement is a complex and knowledge-intensive process, even more so in digital transformation projects.	Interpretative case study. The adoption of collaborative discussion through a model similar to that of communities of practice was determined. Field note records and active participation were used for observation. Document analysis included identification, collection, organization, permissions, reading, analysis and interpretation, and cross-analysis.	In the initial stages of the process methodology, only the view of the person responsible or the direct participants is considered, focusing on explicit knowledge, which neglects intangible elements and part of the history of the process. Having intentional spaces for discussion allowed the process of knowledge creation to flow in an appropriate and timely manner. The most recurrent words in the documentary corpus were: *learning*, *students*, *education/educational*, *reading/lectura*, *blended* and *teacher*. Information and communication technologies are undeniably important in educational scenarios. Evaluation, collaborative work, and technological mediations are the most relevant aspects in the design of *b-Learning experiences*.

10	The use of *design thinking* in solutions Innovative for information and management Knowledge in teaching hospital pharmacy	Luiz et al. (2023)	Develop innovative solutions to solve problems that are caused by the difficulty in reconciling the information recorded in the system with the physical stock in a pharmacy of a teaching hospital.	Exploratory research of qualitative nature – method adopted, case study. The sources of evidence were: interview, questionnaire, document analysis, direct observation and indirect observation with a *design approach thinking.* Three employees who work in a pharmacy of a teaching hospital, in the control of the stock of medicines (receipt, storage and distribution) were the subjects of the research.	The results show that there is a need to understand how the stock control of medications, who makes it and how it is done, in addition to identifying who used this control and their needs. In order to understand how individuals viewed this process, it was necessary to verify the occurrence of accidents, incidents and/or errors that could impair the control of the stock of medicines.
11	An Enabling Framework for the Development of Knowledge Management Practices: Perspectives from Nigeria	Pepple and Okuiomse (2023)	This study investigated the knowledge management (KM) practices of palm oil producers in Nigeria, comparing indigenous and contemporary farmers. The focus was on how information is created, stored, and disseminated, using the facilitating framework of Lee and Choi (2003).	The research adopted an interpretative posture and qualitative methodology. The structure of Lee and Choi (2003) was used to frame the interview questions. We interviewed 40 purposefully selected participants (20 indigenous farmers and 20 contemporaries) , with more than 5 years of experience in palm oil cultivation. The interviews were conducted via Zoom and lasted from 45 minutes	Indigenous farmers use traditional methods and orally transmitted information..., without documentary evidence. Contemporary farmers have formal organizations and discuss best practices in forums. Indigenous skills are learned by observation and generational transmission. There is concern about the lack of access for Nigerian producers to the relevant technology. Contemporary farmers use KM software such as "Agrisoft Systems". Both groups receive government support. Contemporary farmers use incentives and recognition (financial and non-financial) to motivate staff and foster creativity.

				to 1 hour. Thematic analysis was used, with a priori coding based on the literature.	KM contributed to increased profits and better agricultural yields for both, but contemporaries benefited more due to KM technology and practices.
12	Continuing Education in Health and Knowledge Management: Initiatives in the Regional Health Superintendence	Ribeiro and Friedrich (2023)	The study aimed to present the actions of Permanent Education in Health (PEH) and Knowledge Management (CG) carried out in a Regional Health Superintendence (SRS) of Minas Gerais, Brazil, and to reflect on the possible parallels. The results indicate formal and informal processes of training and knowledge sharing, construction and transformation of work processes, as well as fragmentation, sectorization and competitiveness based on information.	This is a qualitative and exploratory study.... Data collection took place from February to May 2021, using a remote instrument developed via Google Forms. The sample consisted of 10 health workers with complete higher education and working in management. The data were analyzed using Bardin's Thematic Content Analysis technique.	Knowledge is perceived as reflected and transformative information, which interacts with formative processes and experiences, being applied in daily work and in articulation with municipalities. There is a criticism of the lack of structure and incentive for PEH, despite its potential to favor access, exchange and integration between civil servants. KM is conceived as a tool/instrument for the daily intra-organizational work, aiming at optimizing and improving performance. There is compatibility between EPS and CG, with KM being an enabler for EPS.
13	The contribution of Learning commons practices to the knowledge management process in libraries	Pfleger and Macedo (2024)	The objective of this article is to analyze the contributions of the practices of Learning commons used in libraries for the process of managing knowledge.	Qualitative research. It used an analysis model developed in Macedo's doctoral thesis (2008) and validated in Espíndola's (2012) master's thesis. The model was adapted, using 10 KM processes identified in the literature, 21 CL	KM processes have 3 to 8 characteristics, with "partnership with other libraries" having the lowest number (3) and "sharing-dissemination-knowledge transfer" the highest number (8). The model is very useful for University Libraries and can be used for library management evaluation and action planning. The application of the model and the appreciation of the data that there is a significant relationship between Learning

				practices and characteristics inherent to KM processes applied in libraries.	commons and knowledge management, and both are relevant to the innovation of libraries.
14	Tacit Knowledge Management Strategies in Small and Medium-sized Enterprises: An Overview	Adesina and Ocholla (2024)	The study investigated tacit knowledge management (TKM) strategies in small and medium-sized enterprises (SMEs) in the province of KwaZulu-Natal (KZN), South Africa, aiming to reduce operational discontinuity and knowledge loss.	The study adopted a quantitative research method, being the second phase of a sequential exploratory research of mixed methods. It targeted 326 SMEs in KZN, getting 180 valid responses (55.2%) via Google Forms. The data were statistically analyzed using the Statistical Package for Social Sciences (SPSS). The reliability of the	Most SMB owners are aware of the importance of tacit knowledge. The most common methods of capturing tacit knowledge are: monitoring (93.9%), hands-on sessions (92.2%), internal training programs (91.7%), and brainstorming/knowledge-sharing sessions (91.7%). Tacit knowledge is mostly shared in meetings, employee dialogues, and brainstorming sessions. Storage takes place in electronic files on computers, cloud storage, and physical files. Almost all respondents (96.1%) use information and communication technology (ICT) to manage tacit knowledge.

Source: Authors.

6 PRESENTATION AND ANALYSIS OF DATA

The systematic literature review contributed to studies focused on the problem of knowledge management. Among the authors conducting research focused on the area of study, the following stood out: Armas et al. (2020), Arango et al. (2020), Rodriguez (2021), Vaz and Landero (2022), Candal et al. (2022), Martinez et al. (2022), Pereira et al. (2022), Luiz et al. (2023), Jala et al. (2023), Pepple and Okuiomse (2023), Ribeiro and Friedrich (2023), Weingärtner and Romeiro (2024), Pfleger and Macedo (2024), Adesina and Ocholla (2024).

6.1 KNOWLEDGE MANAGEMENT IN THE ORGANIZATIONAL PROCESS OF COMPANIES

The study by Arango et al. (2020) presents contributions to discuss organizational learning strategies and the use of technologies to support knowledge management in small

and medium-sized enterprises (SMEs), specifically studying those in the Cauca Valley in Colombia.

The study by Jala et al. (2023) contributes that knowledge management within organizations that adapt to Industry 4.0 uses technological tools. For the authors, the pillars of KM are creation, sharing and use, providing strategic positioning and generating competitive advantages.

The authors adopt the definition of knowledge management based on Davenport and Prusak (2001); Koulopoulos and Frappaolo (2001); Nie, Ma and Nakamori (2009) in which it is characterized by being a set of practices and procedures, which enable organizations to: a) identify the knowledge necessary for the execution of their present and future activities; b) have this knowledge; and c) apply it appropriately to achieve the expected results (Arango et al., 2020). Among the organizational learning strategies, this study contributes to the improvement of knowledge transfer practices, in addition to the implementation of virtual platforms and the strengthening of the organization's culture to improve and qualify the knowledge management of SMEs.

The study by Martinez et al. (2022) addresses health organizations and contributes by saying that knowledge management (KM) is of great importance to manage the organization's tacit knowledge and convert it into valuable information for health centers, allowing them to respond to the demands of the environment.

The reflections and study by Ribeiro and Friedrich (2023) focused on problems in the health area, with the need to implement knowledge management and promote training and training. Knowledge management is included in activities as "the process of coordinating the flow of knowledge in an organization in a systematic and integrated manner, for the benefit of work" (Ribeiro & Friedrich, 2023).

With the authors Pepple and Okuiomse (2023) there is a facilitating framework for the development of knowledge management practices. The main points are: the definition of knowledge management, the components of its structure, the benefits and implementation.

6.2 THE EVOLUTION OF TECHNOLOGIES IN ORGANIZATIONAL KNOWLEDGE MANAGEMENT

The research by Arango et al. (2020) points to the contributions of technologies to the organizational culture of companies. For the authors, digital transformations challenge managers and companies, promoting changes in processes and organizational structure.

Thus, organizations are driven to seek new knowledge, make data-driven decisions, establish strategic partnerships, and reconfigure their operational strategies (Arango et al., 2020). Such aspects show how technological evolution directly impacts traditional models of knowledge management.

The study by Vaz and Landeiro (2022), conducted in the health sector, investigated how technologies integrated into management practices can support the work of nurses. Tools such as electronic medical record systems and management software were analyzed, which, according to the authors, enable more efficient communication, better organization of information and data, and greater agility in decision-making. The authors emphasize that digital technologies are indispensable to contemporary management, because "with the internet and constant updates and innovations, a lot of information is networked, which is vital to management" (Vaz & Landeiro, 2022). These advances reflect the growing role of technologies in strengthening KM processes.

Such studies indicate that technology has promoted significant transformations in the way knowledge is produced, managed, and disseminated. However, Vaz and Landeiro (2022) highlight that challenges still persist in the adoption of these technologies, such as resistance to change and lack of employee training. In order for the benefits of technology to be fully enjoyed, it is necessary to invest in infrastructure and continuous training of teams.

It is inferred that knowledge management and the adaptation of processes in companies are increasingly interconnected with technological resources such as artificial intelligence, digital platforms and online systems, which have proven effective in optimizing tasks, systematizing organizational knowledge and continuous learning of employees. In this sense, the research by Pereira et al. (2022) discusses innovative methodologies applied to KM, such as the use of artificial intelligence platforms and gamification in specific teaching and training contexts.

The study demonstrates the positive impacts of gamification on the learning process of medical students with difficulties in interpreting electrocardiograms (ECG). For this, intelligent tutoring systems (ITS) associated with gamification techniques were used. The results showed that the students considered the system clear, easy to use and useful, with high acceptance in terms of usability and intention of use. Despite this, aesthetic and gamification elements were not widely approved, indicating the need for adjustments in the design of these features.

In corporate environments, knowledge management is configured as the basis for strategic decisions and innovation processes. The study by Luiz et al. (2023) presents the use of *design thinking* as a tool to boost organizational learning. This approach favors the entry and circulation of knowledge through the creation of scenarios that stimulate action, innovation, and the transformation of tacit and cultural knowledge into intangible assets and social capital. The adoption of this approach highlights the growing technological sophistication in the structuring of processes aimed at KM.

In this same field of discussion, Weingärtner and Romeiro (2024) emphasize that knowledge should be treated as an essential asset for competitiveness. Digital transformations, according to the authors, directly impact management models by automating complex tasks and freeing up professionals' time for activities of greater strategic value. Thus, emerging technologies become facilitators in the process of capturing, organizing, and applying knowledge in organizations.

Finally, the study by Pfleger and Macedo (2024) contributes to the understanding of the role of digital platforms and environments in the process of knowledge management in libraries. The authors highlight the Learning Commons model as a dynamic and collaborative space, integrating individual and collective study environments, thus promoting active learning and knowledge exchange. The advancement and diffusion of these digital environments demonstrate the constant evolution of technologies applied to knowledge management.

In view of this, it is observed that the evolution of technologies has significantly impacted knowledge management models, making them more dynamic, accessible and centered on organizational innovation. The studies analyzed demonstrate that the incorporation of technological resources such as AI, gamification, digital platforms, and collaborative environments not only modernize KM processes, but also expand their effectiveness and reach, even contributing to meet normative standards such as NBR ISO 9001.

7 CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to analyze how the evolution of technologies has impacted knowledge management models in organizations, highlighting the contributions of these innovations to organizational development and, in a complementary way, to meet the normative requirements of NBR ISO 9001. From the systematic review of the literature, it was

possible to verify that knowledge management, when articulated with emerging technologies, gains a strategic dimension that goes beyond the traditional limits of stored information, becoming a central element for innovation, continuous learning and competitiveness.

Several studies analyzed reinforce this perspective, as Arango et al. (2020) and Vaz & Landeiro (2022) show that digital technologies cause transformations in organizational culture, management structures, and decision-making capacity, especially by facilitating access, organization, and use of knowledge. Resources such as collaborative platforms, artificial intelligence, electronic medical record systems, management software, and digital environments have proven effective in promoting a more dynamic, accessible, and problem-solving-oriented KM.

In addition, authors such as Pereira et al. (2022) and Luiz et al. (2023) point to the importance of active methodologies, such as the use of gamification and *design thinking,* in stimulating learning and converting tacit knowledge into explicit knowledge. These models reveal a transition movement in knowledge management, in which technologies not only support operational processes, but also reconfigure the way knowledge circulates, legitimizes itself, and is applied in organizational daily life.

On the other hand, persistent challenges were also identified, such as those pointed out by Vaz & Landeiro (2022): resistance to change, absence of a culture of sharing, lack of digital infrastructure, and gaps in team training. Such obstacles reinforce the need for structured actions by organizations to effectively integrate technologies into knowledge management, not only as instruments, but as part of the culture and business strategy.

From a theoretical point of view, the present study reinforces the relevance of classical KM models, such as those of Nonaka & Takeuchi (1997), Davenport & Prusak (1998) and Probst et al. (2002), while proposing their updating in the face of the demands of the digital age. Knowledge management, in current times, requires not only formal structuring, but also flexibility, interactivity, and integration between people, technologies, and organizational purposes.

As a path for future research, it is suggested to carry out empirical studies in Brazilian organizations of different sizes and sectors, with the purpose of understanding how technological resources are being effectively implemented and what results have been achieved. In addition, it is recommended to investigate the role of leaders in the consolidation of an organizational culture guided by knowledge management, based on data and focused on innovation. Another relevant point is to deepen the analysis of the interactions between

digital knowledge management and normative requirements, such as those of NBR ISO 9001, in different organizational contexts.

In this scope, it is also proposed the development of a practical and easily accessible tool to assist companies in the application of knowledge management concepts in accordance with the requirements of the ISO standard. Such an initiative can work as a strategy to encourage the adoption of these practices, especially by organizations that face structural limitations or lack of technical knowledge. In this way, the field of application and reflection on KM as a strategic tool for organizational development in times of digital transformation is expanded.

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