The DNA of a tertiary educational institution - Knowledge management rethought

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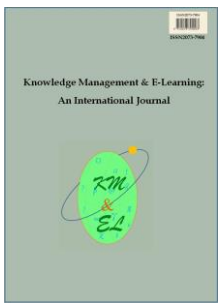

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The DNA of a tertiary educational institution - Knowledge management rethought

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Abstract: In the dynamic landscape of tertiary education, fostering innovation, adaptability, and enhanced institutional performance hinges on the effective management of knowledge. Responding to this challenge, this study introduces a novel model, the DNA model of a tertiary education institution, for systematically advancing knowledge management practices within such organisations. This model draws on established frameworks, most notably integrating the foundational components of the building block model and the Munich model. By synthesising elements from these existing frameworks, the DNA model thus positions lecturer-learner interaction as a key driver for educational processes and institutional performance. Using an action research-based approach, the study included qualitative interviews and focus group discussions at an Austrian tertiary educational institution to assess the applicability and effectiveness of the model. The results show that this DNA model not only facilitates effective knowledge sharing and retention but also supports transformation towards a learning organisation. This is accomplished by systematically identifying knowledge gaps, enhancing the acquisition of knowledge through tailored instructional strategies, and creating an atmosphere that encourages the sharing and retention of knowledge. The study highlights the need for a supportive organisational culture and advanced technological infrastructure to ensure the long-term sustainability of knowledge management efforts, thus contributing to the overall goal of improving educational quality and organisational resilience. In addition, the study formulates practical recommendations for the application of the model to enhance knowledge transparency, innovation capacity, and adaptability. Thus, this research contributes to the discussion on knowledge management in education by providing a practical, evidence-based model that can be customised for use in various learning environments.

Keywords: Knowledge management; Knowledge management model; Education; Learning organisation; Organisational transformation

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1. Introduction

In today's higher education landscape, managing knowledge effectively has become one of the most significant challenges facing institutions. Many organisations struggle not only to capture and structure existing knowledge, but also to leverage it in ways that support institutional goals. Effective knowledge management is now imperative for enabling informed decision-making, improving internal processes, and strengthening an institution's position in the labour market (Pérez Gamboa et al., 2023). Despite this, numerous educational institutions have difficulty adapting their knowledge management systems to address emerging challenges and often fail to utilise these systems efficiently and strategically (Putri et al., 2023). A salient example of such a contemporary challenge was the emergence of the SARS-CoV-2 virus, which compelled a mandatory shift from face-to-face teaching to online, or distance, or e-learning environments in higher education. The transition led to the emergence of new variables that substantially impacted students' motivation and learning experience. Research findings consistently reveal that, in both secondary and tertiary education, online learning experiences positively affect a variety of key dimensions of learner motivation. This demonstrates that knowledge management systems must adapt flexibly to such changing learning contexts in order to support effective learning and the further development of educational processes. In line with this need for adaptability, the study further proposes a re-evaluation of existing motivational models to enhance their capacity to capture the dynamics of online learning environments (Fišer & Pongračić, 2025). Such a re-evaluation is particularly crucial given that many institutions currently face challenges stemming from a lack of appropriate tools, processes, and clear strategies for knowledge transfer and collaboration issues that contribute to inefficient workflows (Desouza, 2011),

knowledge loss (Harteis & Fischer, 2020), and diminished innovative capacity. In the context of online learning, these challenges manifest themselves in various forms, including learning loss, difficulties in achieving educational goals, stress and anxiety, and a loss of motivation among learners. A high rate of absenteeism in online courses (with almost 80% of students dropping out) highlights the necessity for a systematic identification and resolution of knowledge and motivation deficits (Askangela et al., 2025). Addressing these challenges effectively requires the implementation of comprehensive knowledge management strategies that depend on strategic design, cultural support, technological enablement, and seamless integration into existing workflows (Santos et al., 2024). In addition, the spatial distribution of the workforce and the lack of communication and collaboration tools make it difficult to share and optimise the use of existing knowledge (Adelsberger et al., 2002). The integration of knowledge management systems is of paramount importance for the enhancement of internal and external linkages in higher education institutions (Pérez Gamboa et al., 2023). A cultural deficit in knowledge sharing and learning, exacerbated by lack of time, lack of incentives, and fear of losing competitive advantage, encourages silo thinking and leaves valuable knowledge potential untapped. Furthermore, outdated technological systems and infrastructures hinder the efficient management of knowledge (Adelsberger et al., 2002). These issues highlight the need for a focused, holistic approach to knowledge management in order to realise the full potential of educational institutions and increase their innovative capacity and competitiveness.

2. Theoretical background

Tertiary education institutions are central to knowledge creation and dissemination thereof and act as service providers in the education sector, where effective knowledge management is crucial to improve education and learning processes (Amelingmeyer, 2004; Sharma & Kaur, 2016). It is evident that knowledge management strategies and tools play a crucial role in the enhancement of tertiary education institutions and it has been demonstrated that these processes have the capacity to enhance decision-making, facilitate innovation, and strengthen collaboration (Santos et al., 2024). In this context, employing advanced strategies for managing knowledge becomes indispensable as the use of knowledge management tools and techniques is essential to optimise information access, decision making and service quality (Haqani & Ahlan, 2015; Kidwell et al., 2000). It can be posited that knowledge management constitutes a pivotal process for informed decision-making, facilitating the enhancement of internal processes and the optimisation of positioning in labour markets (Pérez Gamboa et al., 2023). Moreover, they ensure that valuable knowledge is preserved within the organisation. Thus, knowledge management also contributes to the retention of expertise, especially in the face of staff retirements (Sharma & Kaur, 2016). The utilisation of digital capability models in the evaluation of knowledge management maturity facilitates the identification of areas that may benefit from enhancement, such as the development of web-based knowledge management systems to facilitate enhanced knowledge sharing and accessibility (Putri et al., 2023). Consequently, these institutions are evolving into learning organisations where knowledge is actively shared and new knowledge is developed collaboratively (Sharma & Kaur, 2016).

In view of the dynamic changes in the education market, the development of an adapted knowledge management model is crucial for educational institutions in order to increase performance and competitiveness (Amelingmeyer, 2004). Such a model leverages both technological advancements and human expertise to maximise their

effectiveness. Using such a model makes it easier to combine human knowledge with intelligent systems to produce distinctive benefits for customers and to boost competitiveness (North & Maier, 2018). The integration of knowledge management and human expertise within tertiary education institutions has been demonstrated to have a significant impact on performance enhancement, competitiveness, and long-term knowledge retention (Callejas R, 2024). Comprehensive knowledge management also promotes a culture of knowledge sharing and improves the quality of educational programmes (Amelingmeyer, 2004). The new model of a tertiary educational institution's DNA is outlined below, with a focus on the interaction between lecturers and learners, showing how crucial it is for the educational process and institutional performance. This framework facilitates the systematic implementation of knowledge management in order to secure valuable knowledge in the long term and forms a sustainable basis for future generations (Pawlowsky, 1998). The successful implementation of knowledge management initiatives is contingent upon a strategic design, the existence of a supportive cultural environment, technological enablement, and integration into existing workflows (Santos et al., 2024). The DNA for knowledge management in a tertiary education organisation was modelled on the basis of five different models.

2.1. The DNA model – Origin, definition and conceptual framework

The DNA model employs the metaphor of genetic structure to elucidate the fundamental processes of knowledge management in tertiary education institutions. The model delineates five core phases: identification, acquisition, development, utilisation, and preservation of knowledge, all of which are embedded within the organisational environment (e.g., culture, infrastructure, leadership).

The model assimilates and adapts pivotal elements from extant knowledge managemnt frameworks, including Probst's building block model, the Munich model, Pawlowsky's learning phase model, the Fraunhofer IPK reference model, and the Knowledge Garden. These were synthesised with the objective of reflecting the specific needs of teaching and learning in higher education.

The model was developed and tested within an Austrian tertiary institution using action research. The value of the visualisation of knowledge flows, the identification of untapped knowledge, and the support of a culture of sharing and learning was demonstrated. The DNA model provides a flexible and transferable framework to guide sustainable knowledge management in education.

2.2. Building block model of knowledge management

An organised approach to integrating knowledge management into the strategic and operational levels of organisations is described by Probst et al.'s (2012) building block model of knowledge management (Fig. 1). The definition of knowledge objectives, the location and identification of existing knowledge, and the identification of redundant or missing knowledge are all included. The process also includes the acquisition of external knowledge through recruitment or cooperation and the development of internal knowledge through research and training. This integrated approach ensures a comprehensive and robust knowledge base within the organisation, as knowledge development and acquisition complement each other. The model emphasises the importance of sharing and using knowledge within the organisation in order to increase effectiveness and avoid knowledge loss. It presents knowledge management as a continuous cycle in which the building blocks interlock and reinforce each other (Probst

et al., 2012). The Building Block Model, as proposed by Probst et al. (2012), is a seminal framework in the domain of strategic knowledge management, garnering significant attention from the academic community. Recent research, including Santos et al. (2024), has adapted the model to the higher education context in order to analyse the maturity of knowledge management strategies and identify improvement potential in institutional workflows.

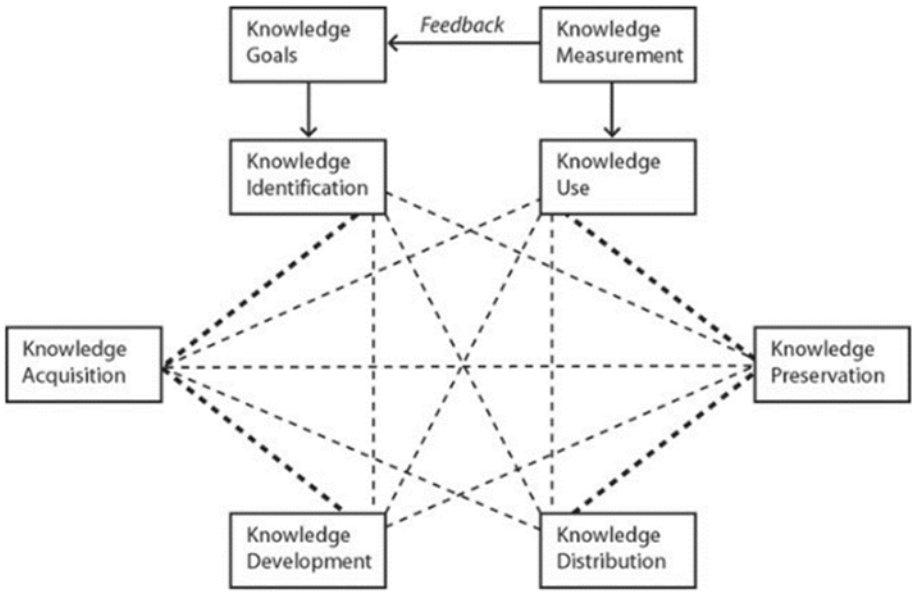

Fig. 1. Building block model of knowledge management, Adapted from Burkhard (2005)

2.3. Munich model

The Munich Model of knowledge management (Fig. 2) at the Ludwig-Maximilians-Universität München (LMU), Munich sees knowledge as a central factor in a system consisting of two circles: an outer circle for knowledge utilisation and representation and an inner circle for knowledge communication and generation (Reinmann-Rothmeier, 2001). It emphasises the role of individual and organisational learning as drivers of the knowledge process and strives for an integration of technology, information, and personnel management in order to promote organisational learning and secure competitive advantages (Reinmann-Rothmeier, 2001). The Munich Model places significant emphasis on the generation and dissemination of knowledge, principles that Mohammadi and Amini Faskhodi (2022) employed to analyse knowledge management dynamics in educational institutions through system modelling.

2.4. Learning phase model

The learning phase model (Fig. 3) by Pawlowsky (1998) describes four dimensions of learning: learning levels, learning forms, learning types and learning phases. The learning levels separate individual and organisational learning, with specific learning dynamics for the organisation (Pawlowsky, 1998), while the learning types include cognitive changes, cultural interpretations and behavioral interactions (Pawlowsky, 1998). The learning types are single-loop learning (type 1), double-loop learning (type 2), and deutero-

learning (type 3), while the latter improves future learning skills (Pawlowsky, 1998; Argyris & Schön, 2008). The model emphasises the integration of learning processes in the organisation to support sustainable and effective learning (Pawlowsky, 1998). Pawlowsky's learning phase model has been utilised in recent studies to comprehend how learning processes in higher education institutions evolve in response to digital transformation (Rudančić et al., 2021).

Fig. 2. Munich Model, Adapted from Reinmann-Rothmeier (2001)

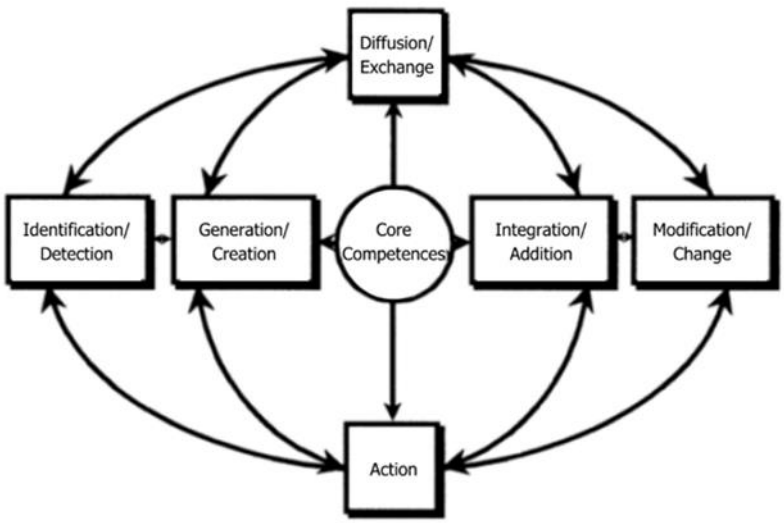

Fig. 3. Learning phase model, Adapted from Pawlowsky (1998)

2.5. Fraunhofer IPK's knowledge management reference model

The Fraunhofer's Institute for Production Systems and Design Technology (IPK) knowledge management reference model (Fig. 4), described by Mertins et al. (2016), aims to optimise business processes through systematic knowledge management. The model is based on four main activities: generating, storing, distributing, and applying knowledge, which take place in a continuous cycle (Mertins et al., 2016). It identifies six critical areas for implementation: management systems, organisation, corporate culture, IT, human resources, and controlling. The aim is to improve the company's performance and value creation (Mertins et al., 2016). The Fraunhofer IPK model continues to be a pertinent framework for the structuring of knowledge management processes within educational settings. Putri et al. (2023) applied it to evaluate knowledge management maturity in higher education institutions using digital capability models.

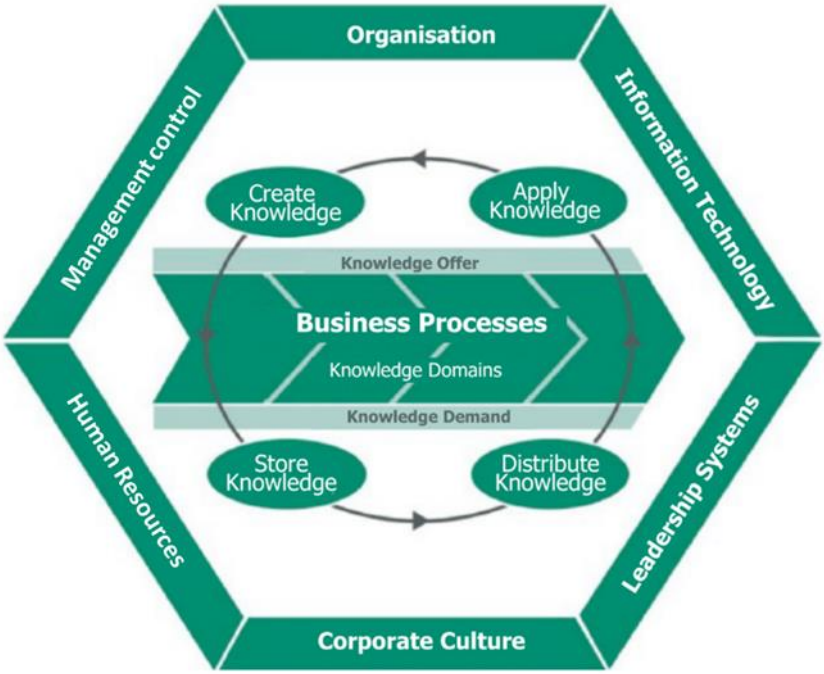

Fig. 4. Fraunhofer IPK's knowledge management reference model, Adapted from Mertins et al. (2016)

2.6. Knowledge garden

According to Vollmar (2015), the knowledge garden model (Fig. 5) metaphorically compares knowledge management to a garden, where the growth of knowledge is indirectly influenced. Knowledge management in this model is categorised into five critical areas: organisation and procedures that seek to incorporate knowledge-oriented procedures into working procedures; people who are essential and for whom a helpful work environment is established; strategy, which highlights the significance of strategically implementing knowledge management to achieve organisational goals; infrastructure, which offers the required equipment and resources; and culture, which fosters a transparent and trustworthy environment.

This model emphasises the organic integration and facilitation of knowledge development within an organisation (Vollmar, 2015). Vollmar's Knowledge Garden continues to inform cultural approaches to knowledge management, particularly in institutions seeking to foster trust-based knowledge sharing. Afolayan (2023) applied this perspective in analysing knowledge management implementation across Nigerian universities.

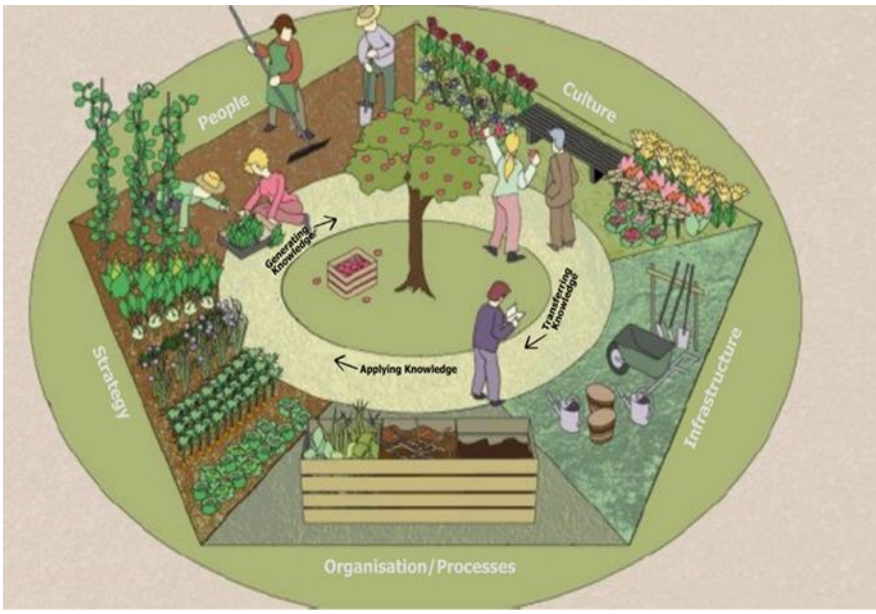

Fig. 5. Knowledge Garden, Adapted from Vollmar (2015)

2.7. Comparative overview and relation of the DNA model

The comparative overview demonstrates that while each model provides valuable insights, none fully captures the specific dynamics of knowledge management in higher education. The DNA model synthesises the structured logic of the building block model with the learning focus of the Munich and Pawlowsky models, the implementation depth of the Fraunhofer model, and the cultural orientation of the Knowledge Garden, adapting these to the needs of educational institutions.

The DNA model developed in this study builds on and integrates core elements of the five previously discussed models (Table 1). The Building Block Model (Probst et al., 2012) is a systematic approach to knowledge identification, acquisition, and sharing. The Munich Model contributes the dual perspective of knowledge generation and communication, which the DNA model applies in the interaction between lecturers and learners. The Pawlowsky Learning Phase Model is centred on integrating learning levels and feedback loops to strengthen organisational learning. The Fraunhofer IPK model provides the basis for process-oriented implementation and the use of technology and structural elements. Finally, the Knowledge Garden offers the cultural and environmental perspective necessary for long-term sustainability. The overarching objective of the DNA model is to synthesise these frameworks in order to create a comprehensive and customisable approach that is tailored to the needs of tertiary education institutions.

Table 1
Comparative overview of five knowledge management models

Model	Purpose	Key Concepts	Strengths	Limitations	Suitable for	Contri-bution to DNA Model
Building Blocks	Strategic KM process	Identify, acquire, share, use, preserve knowledge	Cyclical, structured	Less contextual flexibility	Corporate KM	Forms core structure
Munich Model	Learning-centred KM	Knowledge generation & representation	Emphasises individual & organisational learning	Limited practical tools	Educational settings	Adds focus on communication
Learning Phase Model	Organisational learning	Single-/double-/deutero-loop learning	Deep understanding of learning dynamics	Abstract level	Learning organisations	Explains iterative learning
Fraun-hofer IPK	KM for process optimisation	Generate, store, distribute, apply	Strong on im-plementation, IT-based	Company-focused	Business & tech contexts	Adds process and tech aspects
Knowledge Garden	KM as cultural & organic growth	Strategy, people, processes, culture	Holistic, metaphorical	Less structured	Agile/ creative institutions	Emphasises environment & values

3. Literature review

The increasing relevance of knowledge management in educational institutions emphasises the role of intelligent systems and human capabilities for competitive advantage and unique customer value (North & Maier, 2018). By combining these systems with human expertise, institutions can effectively harness and apply knowledge. In this context, tertiary educational institutions, as learning organisations, foster a culture of learning and knowledge sharing to stimulate innovation and continuously develop knowledge (Sharma & Kaur, 2016), supported by communities of practice and learning platforms. Nonetheless, challenges to knowledge management have been identified, including the operationalisation and application of knowledge for decision making (Meusburger, 2021; Harteis & Fischer, 2020), as well as the recognition of the social and economic importance of tertiary education through knowledge generation and transfer (Lozoya-Santos et al., 2019). Furthermore, barriers such as mistrust and insufficient resources affect knowledge transfer (Karim & Majid, 2019), as do inefficient data management practices of various departments (Ostate et al., 2021).

The Building Block Model by Probst et al. (2012), originally developed for corporate use, has been adapted in higher education to map knowledge management processes and identify knowledge gaps (Santos et al., 2024; Putri et al., 2023). Its focus on goal setting and knowledge retention supports strategic knowledge management in academia. The Munich Model (Reinmann-Rothmeier, 2001) highlights knowledge generation and communication through individual and organisational learning. It has guided academic knowledge management studies, such as Mohammadi and Amini Faskhodi's (2022) institutional modelling. Pawlowsky's Learning Phase Model links learning processes to organisational development. This study draws on its double-loop and deutero-learning concepts to understand the evolution of universities into learning organisations (Rudančić et al., 2021). The Fraunhofer IPK model offers a process-oriented knowledge management approach. Putri et al. (2023) used it to develop web-based knowledge management systems aimed at improving accessibility and internal integration. Vollmar's Knowledge Garden (2015) supports trust-based knowledge sharing and cultural change. Afolayan (2023) applied it to knowledge management practices in

Nigerian universities. While each model has been applied in educational contexts, a comprehensive, lecturer–learner-focused integration remains rare. This study addresses that gap by combining all five into a coherent, customisable framework

The integration of human and technical elements, supported by leadership and a culture of collaboration, is imperative for effective knowledge management in higher education (Afolayan, 2023). The efficacy of intranet portals is contingent upon the active dissemination of knowledge. The efficacy of incentives and training in fostering this culture remains a subject of debate, with ongoing research exploring their long-term effectiveness (Chakraborty & Biswas, 2019). The engagement and skill development of lecturers are pivotal to the sustainable implementation of knowledge management practices (Mohammadi & Amini Faskhodi, 2022).

4. Research aims and questions

This study addresses significant research gaps in the field of knowledge management at tertiary education institutions, which have received scant attention to date. Whilst extant models remain either theoretical or do not adequately take the education sector into account, the present work develops an integrated, tried-and-tested model (DNA model) that is specifically tailored to the particularities of higher education institutions. Empirical validation through qualitative methods is employed in order to bridge the gap between theory and application. Furthermore, it proposes a holistic approach to the transformation of universities into learning organisations, and to sustainable knowledge preservation in the digital age.

The objective of this study is to develop and apply an integrative knowledge management model that is tailored to the specific needs of tertiary education institutions. The model has been designed to enhance knowledge sharing, retention, and organisational learning by combining technological infrastructures with human expertise and cultural factors.

The following research question has been posited to guide this study: How can an integrative knowledge management model be designed and implemented to improve knowledge sharing, retention, and organisational learning in tertiary education institutions?

5. Method

The research process (Fig. 6) for developing the DNA model of a tertiary educational institution follows a systematically structured, multi-stage design that integrates both deductive and inductive elements. The initial stage is the theoretical background, which was developed on the basis of extant literature and theoretical concepts. From this theoretical foundation, the deductive categorisation process was initiated, entailing the preliminary analysis and establishment of categories. These categories then served as the foundation for the subsequent development of survey instruments.

It is evident that the aforesaid deductively derived categories have formed the basis for the subsequent surveys, and more specifically, the development of guidelines for a guided expert interview and two subsequent focus group discussions. These data collections were subsequently undertaken in the ensuing phase. The expert interview is conducted first, followed by the two focus groups. The data collected were transcribed in full, thus establishing the basis for the qualitative content analysis.

The content analysis was conducted in accordance with the approach outlined by Kuckartz (2018). The transcripts of the interview and the focus groups were analysed systematically, and both terminological clarifications and graphical elements were developed for subsequent modelling. In addition to the existing deductive categories, newly emerging inductive categories were also considered and integrated in this analysis step. The development of the DNA model of the tertiary educational institution was based on a qualitative content analysis evaluation. The model integrates the identified categories, terminologies and visualised correlations, and forms the central theoretical-conceptual achievement of the research project.

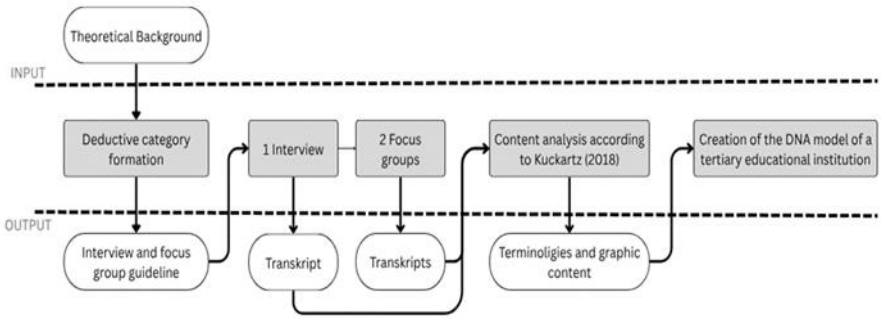

Fig. 6. Research process

5.1. Participants

The interviewees were selected based on their strategic and operational roles within the institution. The participants in this study comprised department heads, programme coordinators, digital learning specialists, and experienced lecturers. The participants of this study were selected on the basis of their active involvement in the creation, dissemination, and development of knowledge within the institution. Consequently, given their roles, they are uniquely positioned to provide valuable insights into current knowledge management practices, challenges, and opportunities within the institution. Their daily responsibilities encompass the coordination of teaching and learning processes, the facilitation of digital infrastructure, and the management of academic knowledge flows. Consequently, they function as reliable proxies for comprehending the status and requirements of knowledge management within a tertiary education context.

The semi-structured interview was conducted on July 5, 2023, with the head of an institute at a tertiary educational institution in Vienna and lasted 45 minutes. The institute has been managed by this person since it was founded 16 years ago and currently provides jobs for 23 people. A large proportion of the employees work part-time, in other words, upwards of 8 hours per week. At the time of the survey, there were three full-time employees.

In the first focus group, four course leaders from the institute were interviewed. The discussion was held online via Zoom and recorded. In total, the discussion lasted one hour and two minutes. The participants lead university courses, not all of which lead to a Master's degree:

- Person 1 (P1): University course with a Master's degree
- Person 2 (P2): University course with a Master's degree

- Person 3 (P3): University course
- Person 4 (P4): University course

In the second focus group, the number of people will be expanded once again. The entire team of the institute is invited to the second discussion. In the end, the discussion was held with six staff members on July 14, 2023, on site in Vienna. The discussion lasted 1 hour and 15 minutes.

- Person 1 (P1) is a project manager in various national and international projects and responsible for management matters
- Person 2 (P2) is a project manager in an Erasmus+ project
- Person 3 (P3) is project leader in a national project and in an Erasmus+ project
- Person 4 (P4) is project leader in a national rural development project
- Person 5 (P5) is responsible for administration and office organisation
- Person 6 (P6) is responsible for managing the Erasmus mobility of students at university colleges of teacher education in Austria

5.2. Instruments and data-collection

The semi-structured interview is frequently used in action research. This interview technique uses a guideline with open questions that are handled flexibly in order to facilitate the flow of the conversation and enable an in-depth exploration of the topics (Döring & Bortz, 2016). The method allows interviewees to freely explore topics in greater depth or skip them based on their relevance and may be adapted to fit each interviewee's needs. The flexibility of the semi-structured interview makes it possible to integrate questions that arise during the interview and thus gain a detailed understanding of the interviewee's perspective (Döring & Bortz, 2016). The process includes the preparation, selection of interviewees, determination of key questions, conducting the interviews with a balance between directive and non-directive elements, as well as transcribing and analysing the data. Döring and Bortz (2016) emphasise that special attention is paid to the careful recording and archiving of the interviews for future research and review of results. The focus group discussion, a specialised version of the focused interview, as described by Merton et al. (1990), allows participants to explore a range of individual viewpoints on a broad subject (Döring & Bortz, 2016). The process is divided into four phases: preparation, thematic introduction, active implementation to promote momentum, and final data collection using a short socio-demographic questionnaire (Döring & Bortz, 2016). The discussion is recorded and transcribed to enable a detailed analysis of the group's range of opinions and attitudes.

5.3. Data analysis

Empirical research always follows the same format: research question, data, and data analysis. However, iterative and flexible steps are built into qualitative content analysis. Fig. 7 shows that the analysis process is not strictly linear. The research question plays a central role in all methodological areas (Kuckartz, 2018). The theoretical starting point and the ongoing textual work throughout the analysis process are two differences in quantitative content analysis (Kuckartz, 2018).

The interview data were analysed using the qualitative data analysis software MAXQDA. A thematic content analysis was conducted, following a hybrid approach that combined deductive and inductive coding. Initial codes were derived from the theoretical framework (e.g., the five knowledge management models), while new codes were generated inductively from the interview material. The utilisation of MAXQDA's coding tools and category system was instrumental in the structuring and visualisation of emergent themes. Furthermore, the code co-occurrence model and summary grids were utilised to identify relationships between themes and to extract key statements relevant to the development of the DNA model. This systematic approach facilitated the establishment of a transparent and traceable process, from the initial raw data to the subsequent conceptual conclusions.

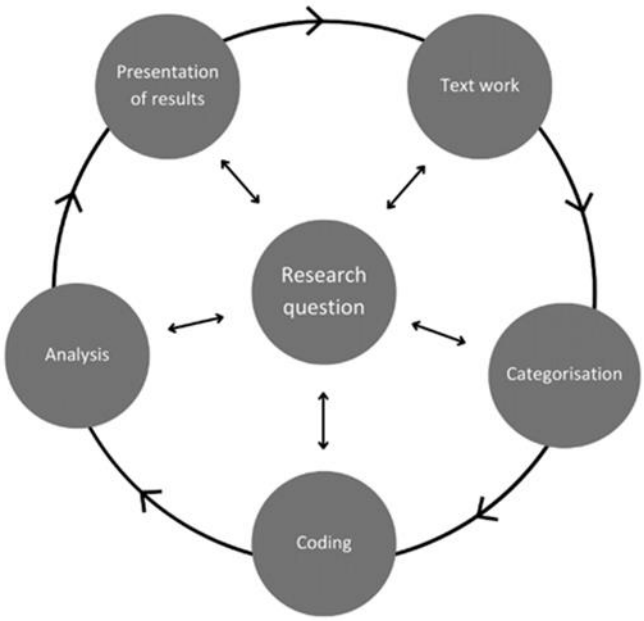

Fig. 7. General procedure for qualitative content analyses, Adapted from Kuckartz (2018)

As part of this survey, deductive categories (Table 2) based on existing theories and previous findings were defined before each survey step. These categories served as structuring elements for the data collection. After each data collection step, the collected material was analysed in detail, resulting in inductive categories (marked with * in Table 2 after the first focus group discussion). These inductive categories emerged directly from the data and reflected new, unexpected findings that crystallised during the course of the research. The results from the individual survey steps were of crucial importance for the further research process, as they were discussed further in the subsequent steps with a slightly modified or expanded group of participants in the two focus group discussions. This iterative approach enabled a continuous adaptation and deepening of the understanding of the research, which significantly increased the relevance and depth of the study results.

Table 2
Main- & Subcategories

	Interview 1	
Nr.	Main Category	Subcategory (SC)
1	Definition of knowledge management	SC 1: Approaches to knowledge sharing
		SC 2: Advantages of knowledge management
2	Aims pursued by knowledge management	SC 1: Expected changes
		SC 2: Resources required
3	Transfer and learning success	SC 1: Design of learning activities
		SC 2: Learning outcomes
		SC 3: Resources
	Focus Group Discussion 1	
Nr.	Main Category	Subcategory (SC)
1	Places and people with knowledge	SC 1: Form of knowledge
		SC 2: Cosmos of knowledge
		SC 3: Unused knowledge
2	Knowledge transfer in educational programmes	SC 1: Resources required
		SC 2: Purchased knowledge
		SC 3: Briefing of lecturers
3	Learning activities and exams	
4	Professionalisation steps*	SC 1: Obstacles to professionalization*
		SC 2: Wishes and suggestions*
	Focus Group Discussion 2	
Nr.	Main Category	Subcategory (SC)
1	Supplement Knowledge Cosmos	
2	Supplement Aims pursued by knowledge management	
3	Activities for knowledge transfer	SC 1: Required support
		SC 2: Problems / difficulties identified during implementation
4	Working environment in the organisation	SC 1: Learning organisation
		SC 2: Attendance of training courses

6. Results

A new model for learning and teaching organisations is developed by adapting existing knowledge management models to meet the specific needs of tertiary educational institutions. This model (Fig. 8) recognises the dynamic interactions between lecturers and learners and the importance of individual knowledge and learning. It aims to promote effective knowledge management in tertiary educational organisations and to strengthen their function as teaching and learning units.

A semi-structured interview with the head of an institute at a tertiary educational institution in Austria revealed the strategic significance of knowledge management in enhancing institutional competitiveness. Knowledge management practices, including but not limited to structured documentation, preservation, transfer, and application of knowledge, are recognised as pivotal mechanisms. A variety of methods are employed to facilitate this exchange, including the storage of files, the provision of manuals, the delivery of online training, and the undertaking of collaborative projects. Core knowledge

management objectives include the safeguarding of institutional knowledge, the mitigation of staff turnover, and the effective utilisation of technical tools. In the future, there will be a strong emphasis on expanding exchange formats and aligning teaching content with student needs through interactive, relevant learning designs. These insights were instrumental in informing the model phases "Acquiring Knowledge" and "Developing Knowledge", with a particular emphasis on structured content delivery and the promotion of critical thinking.

A focus group comprising course leaders revealed a divergence of opinion regarding the centralised document repository (accessible via VPN), which stores important resources such as templates. While certain participants expressed appreciation for the convenience of the system, others drew attention to technical limitations. It was asserted by participants that experiential knowledge remains a key resource, despite the limitations of digital tools in addressing certain gaps. The challenges experienced by the lecturers included a scarcity of time in which to participate in EU projects, and the underutilisation of the organisational chart, which could otherwise have improved the visibility of the internal expertise. These findings informed the phases "Preserving Knowledge / Sharing Experience" and the overarching "Environment" dimension of the DNA model, as they point to the need for systematic visibility, exchange structures, and contextual enablers.

In a subsequent focus group comprising six staff members, participants collaboratively visualised their "knowledge cosmos" based on Meusburger's model (2021), distinguishing between active and unused knowledge. This exercise in mapping revealed hitherto untapped potential and established a strategic foundation for enhancing knowledge management at the centre. A revised visualisation, created after the first session, enhanced clarity and accessibility, rendering unused knowledge more actionable. This work directly informed the phase "Identifying Knowledge (Gaps)" and served to strengthen the model's conceptualisation of structured, emergent, and unused knowledge types.

The emphasis on dynamic knowledge flows, including hidden or underutilised resources, resulted in the spiral structure of the proposed DNA model. The model's centre reflects the ongoing interaction between lecturers and learners, a concept that is consistently highlighted across all empirical sources and supported by the literature on learner-centred knowledge management (Fadel et al., 2017; North & Maier, 2018). The outer strands of the model represent the organisational context (e.g., infrastructure, leadership, resource availability), which has been repeatedly identified in both interviews and focus groups. The nomenclature of each phase of the model was meticulously selected to correspond with categories derived from the empirical data and anchored in established knowledge management frameworks.

The DNA model (see Fig. 8) synthesises qualitative findings and insights from five established knowledge management models (Probst et al., 2012; Pawlowsky, 1998; Reinmann-Rothmeier, 2001; Vollmar, 2015; Mertins et al., 2016). The structure of the programme is such that it ensures theoretical coherence and empirical validity by aligning each phase with the relevant literature and observed practice (see Table 2). For instance:

The identification of knowledge gaps is informed by Probst's and the Munich model's diagnostic focus, and is grounded in categories related to prior knowledge, briefing needs, and unused knowledge. Acquiring Knowledge is indicative of Biggs' (1996) constructive alignment and is associated with structured teaching, objectives, and resource planning. The development of knowledge encompasses the 4C skills (Fadel et al., 2017) and is associated with competency development, exam design, and

collaboration. The application of knowledge is observed in real-world contexts, including student empowerment activities, and addresses the transfer of knowledge. Preserving Knowledge / Sharing Experience builds on Vollmar's cultural focus and underlines the importance of collective learning and documentation. Environment synthesises contextual elements from the Fraunhofer IPK model and empirical findings on infrastructure, leadership, and organisational culture. This integrated approach ensures that the DNA model is not only conceptually robust but also rooted in the actual experiences and challenges of tertiary education professionals.

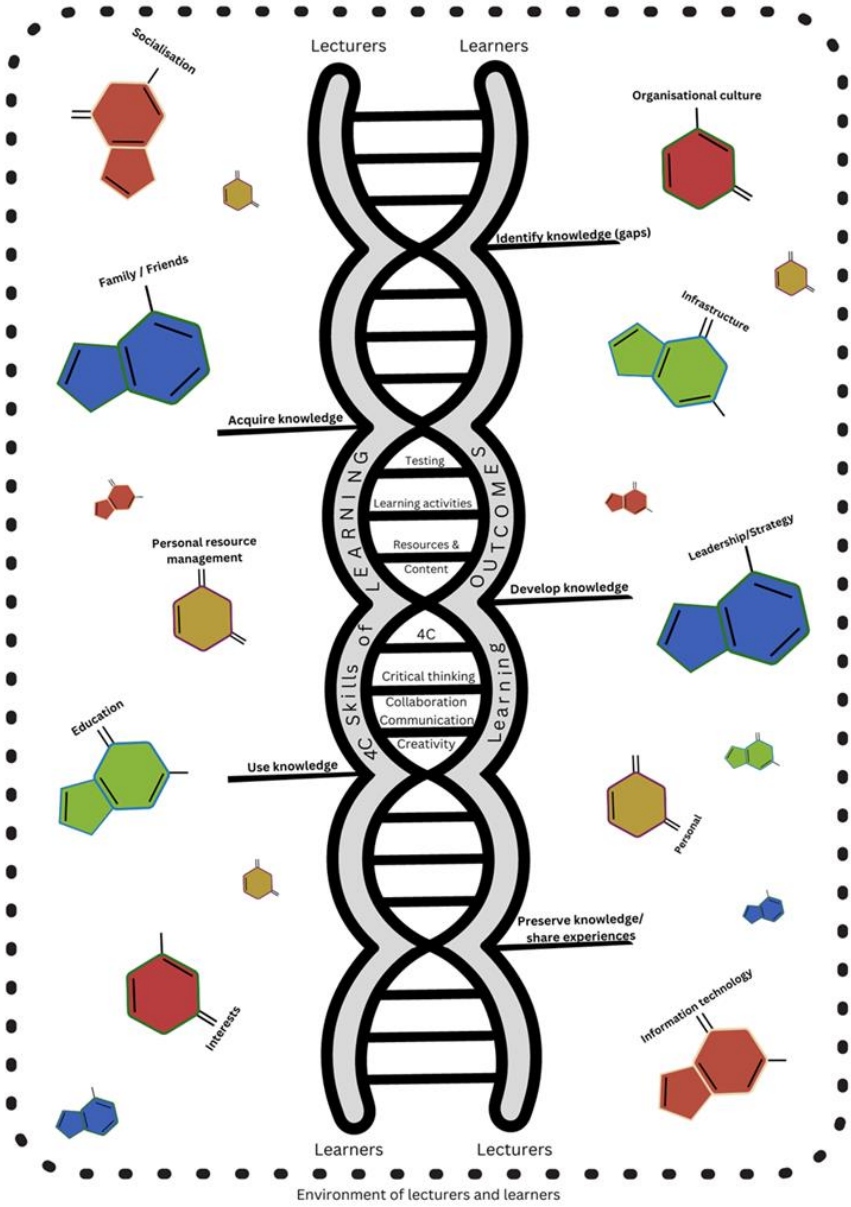

Fig. 8. DNA of a tertiary educational institution

This illustration visualises the learning process in the form of a stylised DNA double helix, which symbolises the interdependence between lecturers and learners. This graphic metaphor illustrates that the educational processes are to be understood as co-operative and dynamic interactions between the two groups of actors. The two strands of the double helix represent the lecturers on one side and the learners on the other, who are connected to each other through mutual interactions. The surrounding dotted contour denotes the extended learning environment in which these interactions occur and which is significantly characterised by institutional, social, and individual contextual factors.

The central phases of the learning process are depicted along the vertical axis of the double helix. The learning cycle begins with the identification of knowledge gaps, which enables a targeted assessment of needs. This is followed by the acquisition of new knowledge, which in turn leads to the development and differentiated organisation of this knowledge. This is followed by the practical application of what has been learnt, which is ultimately supplemented by the retention and transfer of experience. This cyclical structure reflects the continuous and process-oriented nature of learning and knowledge development.

Key didactic and curricular elements are located at the centre of the DNA presentation. These include the learning outcomes, which define the intended competence gains of the learners. A particular focus is placed on the so-called 4C competences: critical thinking, collaboration, communication, and creativity, which are regarded as key competences for the requirements of the knowledge society of the 21st century. These core competences are supplemented by operational elements such as examinations, learning activities, and learning resources and materials, which form the didactic framework for the acquisition of competences.

The presentation also takes into account the multi-layered influencing factors that affect learners. These include aspects of socialisation, family and friendship networks, personal resource management, previous educational experiences, and individual interests. These factors have a significant influence on students' starting positions, and learning prerequisites and affect their motivation, strategies, and success in learning.

On the part of the lecturers and the educational institution, organisational and structural framework conditions that determine the institutional context of learning are taken into account. These include the organisational culture, the existing infrastructure, the institutional management and strategic orientation, the qualifications and commitment of the teaching staff, and the use of information technology. These factors significantly determine the quality of teaching-learning interactions and the institutional support structures for the learning process.

Overall, the diagram illustrates the complexity and multidimensionality of educational processes, in which individual, organisational and didactic factors are closely intertwined. The chosen DNA metaphor vividly illustrates the systemic linkage and the equal importance of the contributions of lecturers and learners in the context of sustainable skills development.

7. Discussion

This study analysed the implementation of the DNA knowledge management model of the tertiary educational institution, which was developed by aligning established theoretical frameworks with empirical insights from interviews and focus groups. The aim of the model is to support educational institutions in the sustainable generation and

effective utilisation of knowledge. The findings highlight key factors that are essential for successful implementation. To enhance understanding of the model's significance and impact, the main results and their implications are discussed below.

The first phase of the model emphasises the early identification of prior knowledge and knowledge gaps, as learners' prior knowledge is a decisive factor for their learning performance (Ell et al., 2012). This finding was corroborated in the interviews and focus groups, where participants highlighted the significance of briefings, orientation phases, and the visibility of unused or inaccessible knowledge. Further analyses revealed that knowledge sharing through platforms such as Moodle, along with targeted teaching measures, is essential to closing knowledge gaps and expanding the organisational knowledge base (Probst et al., 2012). In this context, the visualisation of the knowledge cosmos contributed to highlighting dormant knowledge potentials and reinforced the need for more structured knowledge diagnostics. Accordingly, it is imperative not only to identify gaps in knowledge but also to consider individual learning prerequisites and potential obstacles, such as academic procrastination. Research has shown that field-dependent learners, defined by reduced academic self-efficacy, demonstrate a heightened propensity for procrastination, particularly in situations involving task aversion. Therefore, a more profound comprehension of these individual discrepancies and their influence on learning behaviour, particularly among young individuals in digital learning environments, is imperative for the formulation of targeted support measures (López-Vargas et al., 2025).

In the second phase, knowledge acquisition is aligned with learning objectives and pedagogical design. According to Biggs' (1996) constructive alignment, the alignment of teaching methods and assessment formats to intended learning outcomes supports deep understanding. This assertion is corroborated by empirical evidence demonstrating that structured learning activities, adapted lesson formats, and transparent learning goals contribute to learner engagement. Innovation and visionary thinking are key factors for the success of knowledge transfer, as confirmed in the discussions and research by Harteis and Fischer (2020). Fostering creativity and innovation is crucial to increase the efficiency and effectiveness of knowledge transfer and to overcome challenges in a dynamic environment.

A central aspect of this phase is the development of knowledge, which is closely intertwined with the cultivation of the 4C skills of the 21st century. According to Fadel et al. (2017), critical thinking can be best supported through collaborative environments between instructors and students. This collaboration enhances the quality of learning and promotes a deep learning approach (Chan & Chan, 2011). Reflecting this perspective, interviewees emphasised the importance of engaging students through project work and real-life problem solving. Consequently, meeting learners' needs and fostering a positive learning attitude requires lecturers to modify their roles and adapt instructional goals and activities (Jones, 2006). Alongside these instructional adjustments, creating a supportive learning environment with adequate resources is essential. Attributes such as self-management, curiosity, and perseverance contribute significantly to learning success (Mannetje et al., 2021). Moreover, critical thinking is highlighted as a key competency that empowers learners to solve complex problems and make informed decisions.

Practical application across diverse contexts underpins the effective utilisation of knowledge. For learners to succeed, they must flexibly respond to unforeseen situations by devising solutions and actively transferring knowledge to others. Discussions highlighted that empowering students through real-world tasks and opportunities for knowledge dissemination, such as teaching or mentoring, plays a crucial role in this

phase. Ultimately, applying knowledge not only fosters personal achievement but also addresses broader societal challenges (Fadel et al., 2017).

The preservation and dissemination of knowledge are pivotal for the establishment of a sustainable institutional memory. Focus group participants identified professionalisation, experience sharing, and leveraging knowledge from past projects as critical, yet often underutilised. Creating a supportive and transparent organisational culture depends heavily on both knowledge sharing and generation (Sharma & Kaur, 2016), which in turn demands a transformation in leadership styles toward empowerment, reflection, and openness. Systematic knowledge transfer, as emphasised by Vollmar (2015), is central to the capture, categorisation, and accessibility of knowledge in organisations. This approach is designed to facilitate long-term knowledge retention and learning from both success and failure.

The external configuration of the DNA model captures the contextual factors influencing all subsequent phases. Central to this context is the establishment of organisational norms and values, which Rowley (2000) identifies as key to fostering an environment conducive to effective knowledge management. Equally important are the components of the learning environment—infrastructure, information technology, and socialisation—as they provide essential support for knowledge acquisition. In this context, mobile learning environments (m-learning), in particular, are becoming increasingly important as an innovative digital infrastructure with the potential to enrich learning at various levels. The effectiveness of these pedagogical approaches can be significantly enhanced by the integration of computational or motivational scaffolding, which provides specific support to promote learners' self-efficacy and positively influence individual differences in the learning process (López-Vargas et al., 2025). The participants highlighted leadership, time resources, technical infrastructure, and team culture as enabling or inhibiting conditions for successful knowledge work. This finding is consistent with the theoretical underpinnings espoused by Mertins et al. (2016) and Vollmar (2015), who underscore the pivotal role of environmental enablers in fostering learning organisations.

The concept of the learning organisation plays a central role in knowledge management by creating a framework for the optimal use of knowledge and employee skills, leaving no potential untapped (Rudančić et al., 2021). In such organisations, processes are continuously improved (von Loh, 2009), and a culture of learning and knowledge transfer is promoted. This contributes to the personal development of employees and the mastering of complex challenges.

Taken together, this analytical approach highlights the relevance of knowledge sharing, knowledge retention, the promotion of critical thinking, innovation readiness, and organisational culture — all of which contribute to the sustainable generation and use of knowledge. By mapping these elements to the DNA model, the study provides a robust framework to guide future implementations and address gaps in current knowledge management practices.

8. Conclusion

The study demonstrates that an organisation's capacity to compete and innovate hinges largely on the effective utilisation and transfer of knowledge. Central to this process is the careful integration of external knowledge, which plays a vital role in enabling successful knowledge sharing. Beyond fostering competitiveness, effective knowledge management also promotes innovation and strengthens team cohesion. The analysis of

the case institution revealed concrete potentials and challenges in knowledge flows across multiple domains. Particular emphasis is placed on Erasmus+ projects, which require project management skills and international cooperation, as well as curriculum development in the areas of agriculture, food, and nutrition. Notwithstanding the extensive array of services provided, it was discovered that certain knowledge domains, including medical, management knowledge, as well as, horticultural knowledge remained underutilised. To activate this potential, regular internal exchange and training programmes are recommended to strengthen knowledge transfer and skills development within the organisation.

The study emphasises the pivotal function of an intentional knowledge culture and the empowerment of employees in the activation of untapped knowledge reserves, culminating in their transformation into tangible innovations. Creating a suitable technical environment, ensuring data protection, and tailoring tools to employee requirements constitute crucial technical aspects. Furthermore, knowledge must be transferred in a demand-oriented manner that uses knowledge specifically for problem-solving. Innovative potential and visionary thinking are crucial for the professionalisation and effectiveness of knowledge transfer and promote collaboration and organisational effectiveness.

The findings highlight that cultivating an open, needs-based, and well-supported knowledge environment fosters enhanced performance, streamlined processes, and learner-centred innovation. Overcoming organisational challenges and improving collaboration depend particularly on adopting a needs-oriented approach. Technical tools such as digitalisation play a vital role in promoting knowledge exchange, which is further reinforced by innovative methods like tapas training. Emphasising this, Focus Group 2 identifies corporate culture as a foundational element for successful knowledge sharing and utilisation. An open and supportive culture not only facilitates relationship-building but also encourages the active participation of employees in contributing their expertise, an action that, in turn, strengthens knowledge transfer, enhances training quality, and boosts organisational effectiveness and innovation through improved collaboration.

Effective knowledge transfer relies on more than just technical tools and well-developed networks; it also necessitates structured and transparent communication practices. Focus groups emphasise that incorporating diverse sources of knowledge and engaging with external experts significantly enrich this process. To ensure efficiency and smooth workflows, careful planning of training activities is essential. Within this context, strong networks and relevant contacts remain crucial for promoting knowledge exchange, while personal interactions, whether face-to-face or through informal channels, strengthen relationships that facilitate knowledge sharing. Clear structures, guidelines, and transparent communication provide the foundation for the transfer and dissemination of knowledge, ultimately fostering collaboration, professionalisation, and innovation.

At the educational institution studied, the focus is on practice-oriented knowledge transfer, whereby the applicability of what has been learnt in professional practice is particularly emphasised. The promotion of critical thinking and reflective discussion are seen as essential, and exchange between learners is encouraged to enrich the learning process. Teaching methods are tailored to align knowledge with real-world professional contexts and adapt to the individual needs of each student. In addition, learning processes are assessed through alternative assessment methods such as seminar or portfolio work and regular feedback to improve the quality and practical relevance of teaching. Course design is firmly learner-centred, aiming to effectively support students by addressing

their unique requirements. This comprehensive approach maximises the effectiveness and practical applicability of learning.

The central contribution of this study lies in the formulation and empirical substantiation of the DNA model for tertiary educational institutions. This knowledge management model supports the sustainable generation and utilisation of knowledge by aligning empirical findings with theoretical constructs. These elements were identified as being instrumental in fostering collaboration, professionalisation, and innovation. The DNA Model proved to be an effective analytical tool for investigating specific knowledge management aspects of the educational organisation. The action research design provided insights into how knowledge is created, transferred and preserved within an academic organisation. Analysis of interviews with key stakeholders underscored the critical role of knowledge sharing and robust networks in enabling effective knowledge transfer. By facilitating an in-depth examination and addressing the research questions, the DNA model establishes a solid foundation for further development and implementation of knowledge management systems tailored to specific requirements of the educational organisation.

This model offers a practical and evidence-based approach to the strategic development of knowledge management in higher education.

9. Practical implications

The DNA model developed in this study provides a practical and adaptable framework for supporting knowledge management in tertiary educational institutions. The following recommendations are derived from the model's five phases and environmental dimension to systematically improve knowledge processes.

Effective knowledge management within organisations requires a systematic, multi-layered approach. This begins with identifying existing knowledge assets and detecting knowledge gaps. To this end, regular knowledge audits and mapping exercises are conducted to visualise explicit and tacit knowledge domains. Involving staff and relevant stakeholders in these processes facilitates the systematic capture of informal and tacit knowledge. Complementary methods, such as self-assessments, team retrospectives, and structured reflection formats, are employed to elicit experiential knowledge and make it accessible for further organisational learning.

The subsequent phase focuses on knowledge acquisition. Structured onboarding and professional development programmes are designed to align with institutional objectives and the individual learning trajectories of personnel. Digital platforms, including learning management systems such as Moodle and massive open online courses (MOOCs), are used to enable the flexible, scalable, and accessible dissemination of knowledge. Furthermore, external knowledge is actively acquired through strategic collaborations, benchmarking exercises, and participation in international project partnerships supported by Erasmus+ frameworks.

Knowledge development is advanced through interactive, reflective and participatory teaching and learning formats that aim to foster essential 21st-century competencies, including critical thinking, collaboration, and problem-solving skills. Interdisciplinary exchange and peer learning are systematically promoted among staff and learners alike. Additionally, organisational structures facilitate experimentation, prototyping, and iterative idea development within collaborative team settings, thereby stimulating innovation and creative problem-solving.

Knowledge utilisation is operationalised by embedding its application within authentic problem contexts and decision-making processes. Teams are systematically encouraged to document the lessons they have learned from project work and teaching activities. Furthermore, institutional mechanisms are in place to formally recognise and reward the successful application of knowledge and innovation.

To ensure the preservation of organisational knowledge, sustainable documentation strategies incorporating shared repositories, institutional knowledge bases, and collaborative wikis are implemented. Mentoring programmes and peer support networks facilitate the transfer of tacit knowledge across generational and hierarchical boundaries. Promoting reflective practices and storytelling formats, and establishing communities of practice contributes to consolidating a shared organisational knowledge culture.

Finally, the organisational environment is a critical enabler of effective knowledge work. Leadership development initiatives strengthen managerial competencies in fostering an empowering and supportive knowledge culture. Appropriate infrastructure is provided, including digital technologies and dedicated physical and virtual spaces for knowledge exchange. Human resource strategies are closely aligned with institutional knowledge objectives, addressing capacity building, expertise retention, and succession planning issues. Furthermore, organisational routines are established to integrate knowledge-oriented practices into everyday operational activities.

By implementing these recommendations, tertiary educational institutions can increase their knowledge transparency, agility, and capacity for innovation. The DNA model guides the systematic development of internal knowledge processes and fosters a collaborative and resilient organisational culture that is aligned with the demands of modern tertiary education.

10. Limitations and future directions

Despite the insights gained, some limitations of the results should be noted. Firstly, the results are based on the information contained in the available documents in the form of transcripts and literature sources. It is possible that other relevant information or recent developments were not taken into account, which could influence the completeness of the results. Secondly, it should be noted that the discussions with the staff of the Centre for Continuing Education and the externally funded projects may provide a limited perspective. The results could be influenced by the individual experiences or opinions of those involved, which could limit the generalisability of the results. Thirdly, it should be noted that the effectiveness of a knowledge management model depends on various internal and external factors. The implementation and acceptance of the model can be influenced by organisational culture, resources and management support. It is therefore important to tailor the model to the specific needs and requirements of the centre and to continuously review and adapt it. Fourthly, it should be mentioned that the author is also part of the system at the Centre for Continuing Education and Third-Party Funded Projects at the School of Agricultural and Environmental Education. On the one hand, this enables a deeper understanding of the prevailing culture. On the other hand, it is not always possible to see or judge everything neutrally.

Even though a great deal of knowledge has been gained from the available information, the Centre for Continuing Education and initiatives with externally funded projects show further promising areas of research in the field of knowledge management. These areas can help to further deepen the understanding of how to design a sustainable

knowledge management model and maximise the practical benefits for the Centre. Some of these research areas are explained in more detail below:

Research area 1: Technology-enabled knowledge management: the integration of information technologies and digital platforms into the knowledge management of the educational institution could be a promising research area. The extent to which technologies such as AI-supported systems, knowledge databases or collaboration tools can support knowledge transfer and the generation of new knowledge could be investigated.

Research area 2: Learning strategies and critical thinking: An in-depth study of the learning strategies of learners in the educational institution could show how they organise their learning processes and how critical thinking is integrated into their learning activities. Research might be done to see how encouraging critical thinking can improve knowledge generation and use thereof.

Research area 3: Evaluation and effectiveness of the knowledge management model: An evaluation of the knowledge management model implemented in the educational institution would be necessary to assess its effectiveness and added value for the educational institution. Both qualitative and quantitative research methods could be used to measure the impact of the model on knowledge generation, knowledge utilisation and the overall performance.

Research area 4: Sustainability and social responsibility: Another interesting area of research concerns the integration of sustainability principles and social responsibility into the knowledge management model. Research could focus on how the institution can contribute to sustainable development through the targeted use of knowledge and how social responsibility can be integrated into knowledge management.

Author Statement

The authors declare that there is no conflict of interest.

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References

Adelsberger, H. H., Bick, M., & Hanke, T. (2002). Einführung und etablierung einer kultur des wissenteilens in organisationen. In M. Engelien & J. Homann (Eds.), *Virtuelle Organisation und neue Medien 2002, Workshop Gemeinschaften in Neuen Medien (GeNeMe)* (p. 529–552).

Afolayan, O. T. (2023). Knowledge management tools and practices for successful implementation in higher education instituti,ons in Nigeria. *Information Impact: Journal of Information and Knowledge Management, 13*(2), 1–14. https://doi.org/10.4314/iijikm.v13i2.1

Amelingmeyer, J. (2004). *Wissensmanagement: Analyse und gestaltung der wissensbasis*

von unternehmen (3rd ed.). Dt. Univ.-Verl.
Argyris, C., & Schön, D. A. (2008). *Die lernende organisation: Grundlagen, methode, praxis*. Schäffer-Poeschel Verlag.
Askangela, M. L., Asih, R., & Widodo, E. (2025). The relationship between learners' perceptions of community of inquiry and their motivation to learn in an online English course. *Knowledge Management & E-Learning, 17*(2), 278–296. https://doi.org/10.34105/j.kmel.2025.17.013
Biggs, J. (1996). Enhancing teaching through constructive alignment. *Higher Education, 32*(3), 347–364. https://doi.org/10.1007/BF00138871
Burkhard, R. A. (2005). *Knowledge visualization: The use of complementary visual representations for the transfer of knowledge. A model, a framework, and four new approaches*. Doctoral dissertation, ETH Zürich.
Callejas R, L. E. (2024). Integración de la gestión del conocimiento y el talento humano en educación. *GACETA DE PEDAGOGÍA, 48*, 207–216. https://doi.org/10.56219/rgp.vi48.2449
Chakraborty, D., & Biswas, W. (2019). Evaluating the impact of human resource planning programs in addressing the strategic goal of the firm: An organizational perspective. *Journal of Advances in Management Research, 16*(5), 659–682. https://doi.org/10.1108/JAMR-01-2019-0007
Chan, C. K. K., & Chan, Y.-Y. (2011). Students' views of collaboration and online participation in Knowledge Forum. *Computers & Education, 57*(1), 1445–1457. https://doi.org/10.1016/j.compedu.2010.09.003
Desouza, K. C. (2011). An introduction to knowledge management. In K. C. Desouza & S. Paquette (Eds.), *Knowledge Management: An Introduction* (p. 3–34). Neal-Schuman Publishers, Inc.
Döring, N., & Bortz, J. (2016). *Forschungsmethoden und evaluation in den sozial-und humanwissenschaften* (5th ed.). Springer. https://doi.org/10.1007/978-3-642-41089-5
Ell, F., Hill, M., & Grudnoff, L. (2012). Finding out more about teacher candidates' prior knowledge: Implications for teacher educators. *Asia-Pacific Journal of Teacher Education, 40*(1), 55–65. https://doi.org/10.1080/1359866X.2011.643760
Fadel, C., Bialik, M., Trilling, B., & Schleicher, A. (2017). *Die vier dimensionen der bildung: Was schülerinnen und schüler im 21*. Verlag ZLL21 e.V.
Fišer, Z., & Pongračić, L. (2025). The effect of online learning setting on motivation to learn EFL among students of child education profession. *Knowledge Management & E-Learning, 17*(2), 225–239. https://doi.org/10.34105/j.kmel.2025.17.010
Haqani, E. A., & Ahlan, A. R. (2015). Review of knowledge management in higher education. *International Journal of Science and Research (IJSR), 4*(11), 2062–2065. https://doi.org/10.21275/v4i11.nov151609
Harteis, C., & Fischer, C. (2020). Wissensmanagement unter bedingungen von arbeit 4.0. In G. W. Maier, G. Engels, & E. Steffen (Eds.), *Handbuch Gestaltung digitaler und vernetzter Arbeitswelten* (p. 267–284). Springer.
Jones, C. (2006). Constructive alignment: A journey for new eyes. *Journal of Enterprising Culture, 14*(04), 291–306. https://doi.org/10.1142/S0218495806000179
Karim, D. N., & Majid, A. H. A. (2019). Barriers to knowledge sharing among academics in tertiary institutions. In *Proceedings of the First International Conference on Materials Engineering and Management - Management Section (ICMEMm 2018)* (p. 93–98). https://doi.org/10.2991/icmemm-18.2019.1
Kidwell, J. J., Vander Linde, V., & Johnson, S. L. (2000). Applying corporate knowledge management practices in higher education. *Educase Quarterly, 32*(4), 28–33.
Kuckartz, U. (2018). *Qualitative inhaltsanalyse: Methoden, praxis, computerunterstützung* (4th ed.). Beltz Juventa.
López-Vargas, O., Garavito-Martínez, L., & Valencia-Vallejo, N. (2025). Effect of

motivational scaffolding on self-efficacy, procrastination, and learning achievement in students of different cognitive styles. *Knowledge Management & E-Learning, 17*(1), 49–70. https://doi.org/10.34105/j.kmel.2025.17.002

Lozoya-Santos, J. D. J., Guajardo-Leal, B. E., Vargas-Martinez, A., Molina-Gaytan, I. E., Roman-Flores, A., Ramirez-Mendoza, R., & Morales-Menendez, R. (2019). Knowledge generation in higher education institutions. In *Proceedings of the 2019 IEEE Global Engineering Education Conference (EDUCON)* (p. 628–633). https://doi.org/10.1109/EDUCON.2019.8725273

Mannetje, J., Heijne-Penninga, M., Mastenbroek, N., Wolfensberger, M., & Jaarsma, D. (2021). Personal resources conducive to educational success: High achieving students' perspectives. *Journal of the European Honors Council, 5*(1): 2. https://doi.org/10.31378/jehc.147

Mertins, K., Kohl, I., & Orth, R. (2016). Ein referenzmodell für wissensmanagement. In H. Kohl, K. Mertins, & H. Seidel (Eds.), *Wissensmanagement im Mittelstand: Grundlagen—Lösungen—Praxisbeispiele* (p. 31–40). Springer. https://doi.org/10.1007/978-3-662-49220-8_4

Merton, R. K., Lowenthal, M. F., & Kendall, P. L. (1990). *The focused interview: A manual of problems and procedures* (2nd ed). Free Pree.

Meusburger, G. (2021). *Erfolg mit wissensmanagement: Wissensorientiertes management aus der Praxis − ein Leitfaden für kleine und große Organisationen* (3rd ed.). Meusburger Guntram GmbH.

Mohammadi, M., & Amini Faskhodi, A. (2022). Modeling the dynamics of knowledge management in educational institutes: A system dynamics approach. *Education and Self Development, 17*(2), 86–104.

North, K., & Maier, R. (2018). Wissen 4.0 – Wissensmanagement im digitalen wandel. *HMD Praxis der Wirtschaftsinformatik, 55*(4), 665–681. https://doi.org/10.1365/s40702-018-0426-6

Ostate, P., Pace, B., & Zhukov, Y. (2021). The power of knowledge management in tertiary sector. *Rere Āwhio - The Journal of Applied Research and Practice, 2021*(1), 14–21. https://doi.org/10.34074/rere.00102

Pawlowsky, P. (1998). Integratives wissensmanagement. In P. Pawlowsky (Ed.), *Wissensmanagement: Erfahrungen und Perspektiven* (p. 9–46). Gabler.

Pérez Gamboa, A. J., Gómez Cano, C. A., & Sánchez Castillo, V. (2023). Decision making in university contexts based on knowledge management systems. *Data and Metadata, 1*: 92. https://doi.org/10.56294/dm202292

Probst, G., Raub, S., & Romhardt, K. (2012). *Wissen managen: Wie unternehmen ihre wertvollste ressource optimal nutzen*. Gabler Verlag. https://doi.org/10.1007/978-3-8349-4563-1

Putri, N. K. S., Permatasari, D., Susanto, R., Lee, C. K., & Kurniawan, Y. (2023). Knowledge management evaluation using digital capability maturity model in higher education institution. *Electronic Journal of Knowledge Management, 21*(2), 140–157. https://doi.org/10.34190/ejkm.21.2.3009

Reinmann-Rothmeier, G. (2001). *Wissen managen: Das Münchener modell*. Ludwig-Maximilians-Universität. Retrieved from https://epub.ub.uni-muenchen.de/239/1/FB_131.pdf

Rowley, J. (2000). Is higher education ready for knowledge management? *International Journal of Educational Management, 14*(7), 325–333. https://doi.org/10.1108/09513540010378978

Rudančić, A., Mišević, P., & Tomašević, D. (2021). Knowledge management as a business strategy of a learning organisation. *Tehnički glasnik, 15*(2), 191–198. https://doi.org/10.31803/tg-20210113152513

Santos, E., Carvalho, M., & Martins, S. (2024). Sustainable enablers of knowledge

management strategies in a higher education institution. *Sustainability, 16*(12): 5078. https://doi.org/10.3390/su16125078

Sharma, M. K., & Kaur, M. (2016). Knowledge management in higher education institutions. *IRA-International Journal of Management & Social Sciences, 4*(3), 548–555. https://doi.org/10.21013/jmss.v4.n3.p4

Vollmar, G. (2015). Der wissensgarten – oder: Knowledge enabling framework. *Wissensmanagement–Das Magazin für Führungskräfte, 2015*(1), 34–36.

von Loh, G. S. (2009). *Evidenzbasiertes wissensmanagement*. Springer-Verlag.