



KNOWLEDGE MANAGEMENT PRACTICES IN THE OVERSIGHT OF OUTSOURCED SERVICE CONTRACTS: A DIAGNOSTIC STUDY AT IFSULDEMINAS

PRÁTICAS DE GESTÃO DO CONHECIMENTO NA FISCALIZAÇÃO DE CONTRATOS TERCEIRIZADOS: UM DIAGNÓSTICO NO IFSULDEMINAS

PRÁCTICAS DE GESTIÓN DEL CONOCIMIENTO EN LA SUPERVISIÓN DE CONTRATOS DE SERVICIOS TERCERIZADOS: UN ESTUDIO DIAGNÓSTICO EN EL IFSULDEMINAS

ABSTRACT

Objective: To identify the knowledge management (KM) practices most appropriate for the oversight of outsourced service contracts at IFSULDEMINAS, considering public servants' expectations and perceptions.

Context: The oversight of outsourced service contracts at IFSULDEMINAS continues to face challenges associated with process maturity and knowledge management, highlighting the need for practices that strengthen operational efficiency, organizational learning, and the quality of public administration.

Diagnosis: Although Brazilian Federal Higher Education Institutions (FHEIs) have adopted KM practices across different areas, their application to contract oversight remains limited, indicating opportunities to improve standardization, professional training, and knowledge sharing.

Limitations: The variables examined may not fully reflect the reality of other institutions. The study focuses specifically on the contract oversight process and does not address broader issues related to outsourcing.

Practical implications: Identifying the most relevant KM practices, together with an assessment of the difficulties faced by contract inspectors, provides a basis for actions to strengthen contract oversight, support decision-making, and improve efficiency in contract management.

Social implications: Strengthening contract oversight can enhance transparency, mitigate risks to public resources, and improve the quality of services delivered to society.

Theoretical implications: This study advances the understanding of KM in federal public administration by proposing a prioritized set of practices structured around the dimensions of people, processes, and technology. The findings provide a foundation for developing an institutional improvement plan for contract oversight.

Originality: The study highlights the relationship between KM practices and the different stages of the contract oversight process, linking these practices to the needs and institutional realities of Brazilian Federal Higher Education Institutions and to established approaches for implementing KM in public organizations.

Keywords: Contract Oversight. Knowledge Management Practices. Federal Higher Education Institutions.

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RESUMO

Objetivo: Identificar as práticas de gestão do conhecimento (GC) mais adequadas ao processo de fiscalização de contratos terceirizados no IFSULDEMINAS, considerando a expectativa e percepção dos servidores.

Contexto: A fiscalização de contratos terceirizados no IFSULDEMINAS ainda apresenta desafios relacionados ao amadurecimento dos processos e à gestão do conhecimento, tornando necessária a adoção de práticas que fortaleçam a eficiência, a aprendizagem organizacional e a qualidade da gestão pública.

Diagnóstico: Embora as Instituições Federais de Ensino Superior (IFES) utilizem práticas de GC em diferentes áreas, sua aplicação à fiscalização de contratos ainda é limitada, evidenciando oportunidades de aperfeiçoar a padronização, a capacitação e o compartilhamento do conhecimento.

Limitações: As variáveis podem não corresponder à realidade de outras instituições. Limita-se à avaliação do processo de fiscalização, não abordando aspectos relacionados à terceirização.

Implicações práticas: A identificação das práticas de GC mais relevantes, aliada ao levantamento das dificuldades enfrentadas pelos fiscais, subsidia ações para aprimorar a fiscalização, apoiar a tomada de decisão e promover maior eficiência na gestão contratual.

Implicações sociais: O fortalecimento da fiscalização contribui para ampliar a transparência, reduzir riscos ao erário e melhorar a qualidade dos serviços prestados à sociedade.

Implicações teóricas: O estudo amplia a compreensão da aplicação da GC na administração pública federal ao propor um conjunto priorizado de práticas organizadas nas dimensões pessoas, processos e tecnologia, oferecendo subsídios para a elaboração de um plano institucional de melhoria.

Originalidade: Evidencia a relação entre as práticas de GC e as etapas do processo de fiscalização, alinhada às demandas e realidades das IFES e de acordo com as melhores práticas das abordagens para a implantação da GC em instituições públicas.

Palavras-chave: Fiscalização de Contrato. Práticas de Gestão do Conhecimento. Instituição Federal de Ensino Superior.

RESUMEN

Objetivo: Identificar las prácticas de gestión del conocimiento (GC) más adecuadas para el proceso de supervisión de contratos de servicios tercerizados en el IFSULDEMINAS, considerando las expectativas y percepciones de los servidores públicos.

Contexto: La supervisión de contratos de servicios tercerizados en el IFSULDEMINAS aún presenta desafíos relacionados con la madurez de los procesos y la gestión del conocimiento, lo que hace necesaria la adopción de prácticas que fortalezcan la eficiencia, el aprendizaje organizacional y la calidad de la gestión pública.

Diagnóstico: Aunque las Instituciones Federales de Educación Superior (IFES) utilizan prácticas de GC en diferentes áreas, su aplicación a la supervisión de contratos sigue siendo limitada, lo que evidencia oportunidades para mejorar la estandarización, la capacitación y el intercambio de conocimientos.

Limitaciones: Las variables analizadas pueden no corresponder a la realidad de otras instituciones. El estudio se limita a la evaluación del proceso de supervisión de contratos y no aborda aspectos relacionados con la tercerización.

Implicaciones prácticas: La identificación de las prácticas de GC más relevantes, junto con el análisis de las dificultades enfrentadas por los supervisores de contratos, proporciona insumos para mejorar la supervisión, apoyar la toma de decisiones y promover una mayor eficiencia en la gestión contractual.

Implicaciones sociales: El fortalecimiento de la supervisión de contratos contribuye a ampliar la transparencia, reducir los riesgos para el erario público y mejorar la calidad de los servicios prestados a la sociedad.

Implicaciones teóricas: El estudio amplía la comprensión de la aplicación de la GC en la administración pública federal brasileña al proponer un conjunto priorizado de prácticas organizadas en las dimensiones de personas, procesos y tecnología, ofreciendo bases para la



elaboración de un plan institucional de mejora.

Originalidad: El estudio evidencia la relación entre las prácticas de GC y las etapas del proceso de supervisión de contratos, alineándolas con las demandas y realidades de las Instituciones Federales de Educación Superior y con las mejores prácticas para la implementación de la GC en instituciones públicas.

Palabras clave: Supervisión de Contratos. Prácticas de Gestión del Conocimiento. Institución Federal de Educación Superior.

INTRODUCTION

Like other public-sector organizations, Brazil's Federal Institutes outsource certain activities in accordance with legal requirements, seeking to manage resources more efficiently and provide better public services. These arrangements, however, entail complexities and challenges in monitoring contract performance, which is the responsibility of contract oversight.

Overseeing outsourced services is a complex activity because it requires knowledge of the regulations applicable to the subject matter of the contract, as well as the attitudes, skills, and experience needed to perform this role efficiently and effectively (Zucoloto, 2019).

Outsourced service contracts requiring exclusively assigned personnel (known in Portuguese by the acronym SDEMO) are particularly complex to oversee, account for a substantial share of institutional budgets, and are subject to scrutiny by internal and external control bodies.

The oversight of outsourced contracts requires public servants to apply technical and regulatory knowledge that falls outside their usual duties. Moreover, the lack of explicit information and documented knowledge about oversight practices can compromise the effective monitoring of contract performance.

Inadequate contract oversight is frequently identified as a source of financial loss, a problem compounded by difficulties in retaining qualified staff and by insufficient organizational support, thus reinforcing the need for improvement initiatives (Marinho et al.,

2018). Contract oversight requires continuous professional development because it entails both legal and technical responsibilities (Bedin et al., 2020). Knowledge management is central to organizational development, particularly to service improvement and decision-making (Adeinat & Abdulfatah, 2019).

The knowledge acquired by contract inspectors is often not disseminated and therefore remains with the individuals who developed it. Initiatives that promote knowledge conversion and organizational learning are therefore essential (Marinho et al., 2018).

The practical gap addressed by this study is the lack of a structured assessment of the KM practices best suited to the oversight of outsourced contracts in Brazilian Federal Higher Education Institutions (FHEIs), taking public servants' expectations and perceptions into account.

Against this background, the study addresses the following research question: Which knowledge management practices can improve the oversight of outsourced contracts in Federal Higher Education Institutions and strengthen the factors that facilitate and enhance organizational knowledge?

Accordingly, this study aims to identify the KM practices best suited to the oversight of outsourced contracts at IFSULDEMINAS, based on public servants' expectations and perceptions. Its specific objectives are to: (a) identify critical success factors and KM best practices in Federal Higher Education Institutions; (b) investigate the principal challenges and difficulties affecting the work of inspectors responsible for SDEMO contracts at IFSULDEMINAS; and (c) compare expectations and perceptions regarding the use of KM practices in the oversight of outsourced contracts at IFSULDEMINAS.

CONTEXT AND SETTING OF THE STUDY

Established in 2008, IFSULDEMINAS is a federal autonomous entity under Brazil's Ministry of Education, comprising eight campuses and the Office of the Rector. It offers programs from upper-secondary through postgraduate education



and serves a population of approximately three million people across 178 municipalities. The institution has 558 tenured faculty members, 555 technical and administrative staff members, and 25,530 enrolled students (IFSULDEMINAS, 2020a, 2020b).

In January 2023, IFSULDEMINAS had 36 active SDEMO contracts covering 372 outsourced workers, at an annual cost of approximately BRL 18.4 million.

The unit of analysis comprised staff members who served as inspectors of SDEMO contracts between 2015 and 2022 or who were serving in that role at the time of the study, together with the institution's current contract managers, across all eight campuses and the Office of the Rector. Following Yin (2018), the research was designed as a single longitudinal case study.

The study followed the sequence proposed by Yin (2018): research design, preparation for data collection, pilot testing, data collection, analysis, and reporting. Data were triangulated through documentary research, a semi-structured questionnaire, in-depth interviews, and participant observation.

The instruments were validated following the procedures proposed by Torlig et al. (2022). The research project and data-collection instruments were approved by the Research Ethics Committee under protocol 64894822.8.

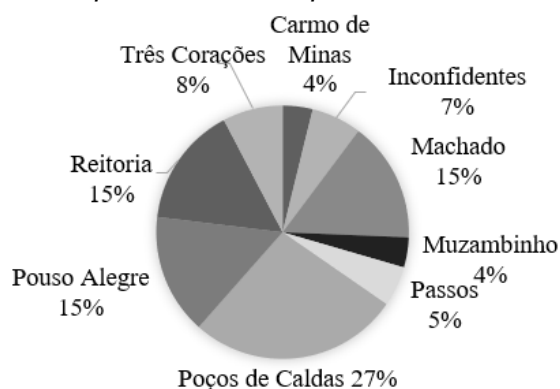
Of the 202 eligible staff members, 78 (38.42%) completed the questionnaire. Ten public servants were interviewed; on average, they had six years of experience and had managed five SDEMO contracts. These contracts account for an average of 50% of a unit's budget and, in some cases, as much as 85%.

Content analysis was used to examine the qualitative data obtained from the in-depth interviews and the questionnaire's open-ended questions (Bardin, 2011). The analysis involved pre-analysis; examination of the material through coding and thematic categorization; and interpretation of the results. Categories were developed a posteriori from the interviewees' statements. This procedure made it possible to identify patterns and convergences in staff perceptions, complementing the quantitative analysis and adding interpretive depth to the findings.

Respondent characteristics

Of the respondents, 7.7% were faculty members and 92.3% were technical and administrative education staff (TAEs). Figure 1 shows their distribution across the campuses. Most respondents (66.7%) had more than eight years of service. Managers and unit heads accounted for 28.21% of the sample; of these, 72.73% had worked at IFSULDEMINAS for more than eight years.

Figure 1
Campuses where respondents worked



Source: questionnaire data.

Documentary research showed that 89.60% of contract inspectors were TAEs. Given that faculty members and TAEs represented 50.13% and 49.87% of institutional staff, respectively,

this finding suggests an organizational tendency to assign contract oversight to TAEs because their work is more closely associated with administrative activities.

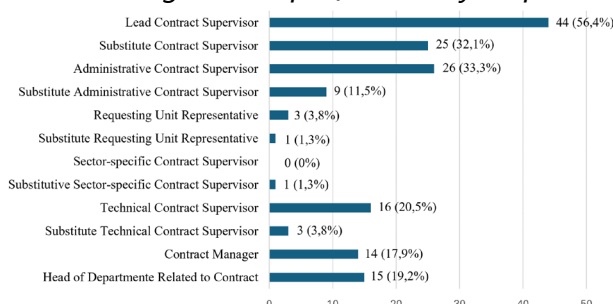


Activities involved in outsourced-contract oversight

Figure 2 presents the different contract oversight roles performed by respondents. Most respondents were serving or had served

as lead contract inspectors (56.4%). On average, respondents had performed 2.02 roles: 55.13% had performed one role, 19.23% had performed two, and 1.28% had performed as many as eight roles.

Figure 2
Contract oversight roles performed by respondents



Source: questionnaire data.

The predominance of lead contract inspectors reflects an organizational arrangement in which oversight duties are not distributed among a team. Given the difficulty of assembling such a team, units tend to retain an arrangement that is workable in their particular circumstances.

The interviews revealed difficulties in appointing inspectors and different strategies for addressing them: *'[...] finding one person is already difficult; imagine finding four'* (Interviewee 05).

The separation of oversight duties has become more common (37.58% of responses), indicating progress toward role differentiation; this arrangement was reported most often by staff with more than eight years of service (63.98%). The period examined also coincided with the consolidation of the legal framework, and newly executed contracts consequently became subject to the new legislation.

For technical oversight, units seek to appoint staff members whose work is related to the contracted service: *'[...] most of the time, it is the staff member who has daily contact with the service in some way'* (Interviewee 07). Administrative oversight, by contrast, is concentrated among administrative staff: *'Most of them are technical and administrative staff members'* (Interviewee 05).

Most contract inspectors had served in the role for up to two years (53.67%); 21.67% had served for two to four years, 10% for four to six years, 6% for six to eight years, and 8.67% for more than eight years.

Although staff rotation is consistent with the principle of segregation of duties, it is perceived as increasing workload: *'Many contract inspectors begin without knowing exactly what they are supposed to inspect. For that very reason, they are sometimes kept in the role, particularly administrative inspectors of outsourced contracts, because they are already familiar with the documentation'* (Interviewee 05). Rotation is also shaped by organizational culture, staff shortages, and the difficulties inherent in the role: *'Nobody wants to be a contract inspector because they are afraid that something will go wrong [...] because they lack training or knowledge, or sometimes simply because they do not want the role'* (Interviewee 05).

Units employ different strategies to retain contract inspectors and experience different levels of turnover. Cultural factors shape these decisions and further demonstrate the lack of standardization across units.

Contract inspectors do not ordinarily constitute a cohesive group with frequent opportunities for interaction, which makes engagement difficult. Their knowledge and experience are often not shared, creating a risk that accumulated expertise will be lost when an inspector leaves the role. Effective outsourcing requires organizational restructuring to accommodate this strategy, along with changes in staff practices through the adoption of new techniques, continuous knowledge development, and technological improvement (Tadeu & Guimarães, 2017).



Oversight of outsourced service contracts requiring exclusively assigned personnel in public institutions

Studies of public-sector outsourcing address a range of issues, including innovation (Guimarães et al., 2015), managers' responsibilities and challenges (Tadeu & Guimarães, 2017), precarious working conditions (Druck et al., 2018), successful experiences (Fernandes, 2019), and labor and social security risks (Guimarães et al., 2021).

The pursuit of public-sector efficiency has prompted the adoption of control practices for SDEMO contracts, particularly in response to labor and social security risks and to political and institutional interests (Guimarães et al., 2021).

The principal regulation is Normative Instruction No. 5/2017, which distinguishes contract management from contract oversight. It requires prospective managers and inspectors to be notified in advance and stipulates that

appointments must consider compatibility with the employee's other duties and the complexity of the assignment (Brazil, 2017).

Law No. 14,133/2021 introduced additional requirements, including appropriate qualifications and mandatory support from legal counsel and internal control units. For SDEMO contracts, it reiterates the public administration's joint and several liability for social security contributions and subsidiary liability for labor obligations when oversight is deficient. It also requires monitoring of the contractor's obligations toward its employees (Brazil, 2021).

Decree No. 11,246/2022, which regulates the new law, emphasizes that preliminary technical studies should consider the development of competencies specifically required for contract oversight.

Figure 3 summarizes the activities involved in overseeing SDEMO contracts.

Figure 3
Activities performed by inspectors of SDEMO contracts

Step	Activities	Legal contribution
Planning contract oversight	Review the contract, terms of reference, applicable legislation, collective bargaining agreements (CBAs), cost breakdown sheets, and other relevant procurement documents. Understand the obligations of the contractor and the contracting authority, prohibited interference in the contractor's management, and the inspector's duties.	Articles 5 and 45 of IN 05/2017
	Participate in the contract kick-off meeting, handover meetings between outgoing and incoming inspectors, and periodic meetings between the contractor and the contracting authority.	Article 45 of IN 05/2017
Monitoring contract performance	Perform initial checks, including verification of the list of assigned workers, entries in their employment records, compliance with the collective bargaining agreement, provision and use of personal protective equipment (PPE) and uniforms, completion of pre-employment medical examinations, and provision of materials where required under the contract.	Annex VIII-B of IN 05/2017
	Monitor service delivery and assess compliance with contractual requirements, including, where necessary, the quantity, quality, timing, and manner of delivery. Recommend corrective action, verify outsourced workers' compliance with working hours, and request replacements for absent workers.	Articles 40, 47 and Annex VIII of IN 05/2017; Article 117 of Law 14.133/2021
	Routinely monitor the administrative aspects of the contract, including the contractor's documentation and its compliance with social security, tax, and labor obligations toward the assigned workforce.	Articles 17, 40 and Annex VIII of IN 05/2017; Articles 50 and 121 of Law 14.133/2021
	Verify payment of wage adjustments, benefits, vacation pay, the statutory thirteenth-month salary, and legally protected employment entitlements where applicable (including those relating to pregnancy, membership of the Internal Commission for Accident Prevention [CIPA], and occupational accidents).	Annex VIII of IN 05/2017
	Carry out the monthly provisional acceptance of services by preparing a detailed report and using the available oversight instruments.	Articles 40, 49 and Annex VIII of IN 05/2017; Article 140 of Law 14.133/2021
Comunicação dos resultados da fiscalização	Contact the contractor's designated representative and request corrective measures for any identified nonconformities.	Articles 44, 45 and Annex VIII of IN 05/2017; Article 117 of Law 14.133/2021
	Issue formal notice to the contractor in cases of noncompliance and, where necessary, refer matters requiring decisions or action beyond the contract inspector's authority to the appropriate higher authority.	Article 46 of IN 05/2017; Article 117 of Law 14.133/2021
	Prepare reports on contract renewals and monitor the corresponding proceedings, as well as amendments and price-renegotiation proceedings arising from changes in collective bargaining agreements or other contractual provisions.	Articles 51, 52, 53 and Annex VIII of IN 05/2017
	Monitor contract expiration, early termination, or completion; verify payment of the assigned workers' termination entitlements or evidence of their reassignment; determine whether the performance security should be released; and verify the balance of the escrow account, where applicable	Article 69 of IN 05/2017
	Participate in the team planning a new procurement for services previously overseen by the staff member, sharing lessons on needed improvements and successful practices that should be retained.	Articles 22 and 70 of IN 05/2017

Source: prepared by the authors.



Almeida (2019) identifies difficulties related to inadequate training, complex legislation, bureaucracy, the accumulation of contracts, excessive workloads, and a lack of standardization.

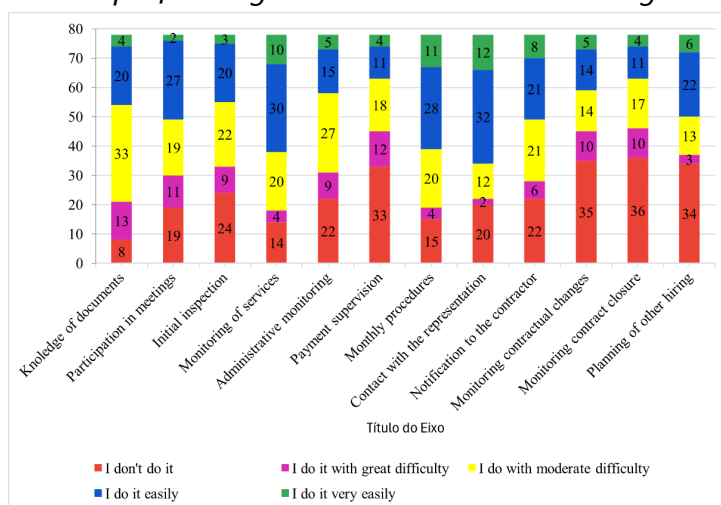
Experience with outsourced-contract oversight at IFSULDEMINAS

Contract oversight is regarded as both complex and essential: 'It is an essential activity because failures can lead to serious problems,

administrative proceedings, service interruption, or contract termination, all of which are detrimental to the public administration' (Interviewee 02).

Responses concerning routine oversight activities showed that 30.13% of respondents did not perform certain activities, 26.82% performed them without difficulty, and 25.21% performed them with moderate difficulty. Half of the activities assigned to lead contract inspectors were not performed.

Figure 4.
Experience in performing outsourced-contract oversight activities



Source: questionnaire data.

The main difficulties reported concerned vacation and other absences and the escrow account (Interviewee 03); formal notices and deadlines (Interviewee 04); conflicting guidance (Interviewee 09); payments (Interviewee 07); and collective bargaining agreements, legislation, and social security contributions (Interviewee 10). These issues correspond to the activities that respondents reported performing with moderate difficulty or not performing at all.

Respondents also reported difficulties involving contractors, including delayed or incomplete submission of documents (Interviewees 03, 07, 09, and 10), invoice calculations (Interviewees 03 and 10), inadequate service delivery (Interviewees 03 and 07), companies with no previous experience serving public-sector organizations (Interviewees 01, 04, and 06), communication problems (Interviewees 02, 05, 06, 07, 08, and 10), and delays in providing equipment and uniforms (Interviewee 07).

Interviewees associated these difficulties with insufficient knowledge and training: 'They report that they were not trained to perform contract oversight or that they do not have the appropriate profile' (Interviewee 01); 'The difficulties we observe usually arise because the service is highly complex and multidisciplinary' (Interviewee 07).

Improvement requires the development of new competencies, the structuring of routines, collaborative problem-solving, and the socialization of tacit knowledge (Gonzalez & Martins, 2017).

The findings reveal barriers and priority areas for training, while also identifying established activities in which contract inspectors possess expertise that can strengthen contract oversight and contribute to organizational learning.

In the questionnaire, respondents selected the measures shown in Table 1 as ways of improving their experience of contract oversight.



Table 1
Measures for improving the experience of outsourced-contract oversight

Item	Total frequency	Percentage
Training and professional development on contract oversight	53	67,9%
Standardization of procedures	49	62,8%
Knowledge of contract oversight activities	47	60,3%
Sufficient time to perform oversight activities	43	55,1%
Regular and effective communication among those involved	37	47,4%
Experience in contract oversight	35	44,9%
Institutional support	34	43,6%
A manageable number of contracts per inspector	30	38,5%
More decisive action and greater commitment from contractors	26	33,3%
Availability of clear information	25	32,1%
Less bureaucracy	23	29,5%
Improved procurement planning	22	28,2%
Contact with the previous contract inspector	21	26,9%
Ability to perform oversight without undue administrative interference	12	15,4%
Others	7	9%

Source: questionnaire data.

The most frequently selected measures were training (67.9%), procedure standardization (62.8%), and greater knowledge of oversight activities (60.3%).

The interviews supported these findings: *'More training needs to be provided'* (Interviewee 04). *'It is a very complicated cultural issue; sometimes management prefers not to involve other staff members'* (Interviewee 09).

A critical examination of how different organizations create competitive advantage can help identify the internal conditions required to strengthen knowledge management and develop organizational members' competencies and responsibilities, with particular attention to leadership (Souza et al., 2020).

Outsourced-contract oversight at IFSULDEMINAS

The interviews revealed differences across units in contract management, autonomy, organizational structure, the composition of oversight teams, and appointment criteria. Oversight arrangements were not standardized across the institution.

Interviewees reported difficulties related to guidance for contract inspectors (Interviewees 01 and 05), the initial stages of the assignment (Interviewee 03), non-routine events (Interviewees 06, 07, 08, and 09), the need for knowledge spanning several fields (Interviewee 08), and insufficient time (Interviewee 04).

Documentary research identified different approaches to recording the contract oversight process (Figure 5). Records relating to invoicing, certification of service delivery, and performance measurement varied across units.

Figure 5
Characteristics of records used in the contract oversight process

Documents	Features	
Monthly documentation from the contractor	Public (six units) Some restricted (three units)	Included by management (one unit) Uploaded by the contract oversight team (eight units)
Results Measurement Instrument (RMI)	Used by a unit	
Invoicing	Spreadsheet included by the contract inspector (five units) Spreadsheet included by the manager (one unit) Not included (three units)	
Contract inspector's certification	Technical and administrative contract inspector certifications (six units) Certification by one contract inspector (two units) Missing (one unit)	Standard SUAP template (five units) Custom template (four units)
Contract manager's attestation	Standard SUAP template (eight units) Custom model (one unit)	
Financial sector checklist	Used by a unit	
Performance measurement recorded in the SUAP contracts module	Performed by the contract inspector (one unit) Not performed (six units) Performed by the manager (two units)	

Source: documentary research.



The findings indicate the importance of the planning stage, particularly in units that use checklists and produce reports. Oversight procedures and communication within oversight teams are often unclear, while the reporting of results is largely confined to standardized templates.

These findings underscore the value of applying knowledge management practices to contract oversight. Within higher education institutions, recognition of KM has expanded beyond the academic sphere to include the management of organizational knowledge (Ojo, 2016).

DIAGNOSIS OF THE PROBLEM AND OPPORTUNITY FOR IMPROVEMENT

Knowledge management practices in higher education institutions

Research on knowledge management in higher education institutions has examined applications in libraries (Balagué, Duren, & Sarti, 2016), organizational performance (Ahmad et al., 2017), cultural and structural challenges (Kanwal, Nunes, & Arif, 2019), and improvements to KM tools (Zanuzzo et al., 2019).

Bertolazo, Sartori, and Tenório (2020) propose KM tools and techniques for transferring knowledge and developing organizational processes in universities. Their approach identifies critical points in organizational processes and links each KM process defined by the Asian Productivity Organization (APO) to a set of tools and techniques. Nawaz et al. (2020), in turn, compare institutional practices in knowledge awareness, acquisition, creation, sharing, dissemination, and retention.

Costa et al. (2021) argue that KM practices in public universities are multifactorial and often empirical. They encompass knowledge dissemination; competency development and

experiential learning; knowledge creation and development; documentation and sharing; the use of knowledge for societal benefit; knowledge socialization; and recognition of human capital in fulfilling the institution's social mission. The authors demonstrate the alignment between the objectives of KM practices and the characteristics of higher education institutions, reinforcing the need to tailor implementation to each institutional context.

In higher education institutions, KM supports knowledge creation in teaching, research, and community engagement (Ramjeawon & Rowley, 2018); knowledge capture in research activities (Ramjeawon & Rowley, 2018); knowledge development through staff development (Ramachandran et al., 2009) and competency building (Marques et al., 2020); knowledge storage in administrative and technological activities and decision-making processes (Vyas et al., 2020); and knowledge dissemination through seminars and conferences (Ali et al., 2016; Ramjeawon & Rowley, 2018).

Knowledge management encompasses three dimensions: (a) knowledge stock, referring to individuals' knowledge and experience, including relevant tacit knowledge; (b) a supportive environment, comprising technological support and social factors, such as trust, that foster learning and KM practices; and (c) knowledge practices, reflecting the maturity of knowledge-mapping and knowledge-sharing activities (Reich et al., 2014).

KM practices facilitate the flow of knowledge and contribute to organizational learning (Dagli et al., 2009). Aligning these practices with the characteristics of a higher education institution requires an implementation strategy tailored to its context (Costa et al., 2021). Figure 6 presents the principal KM practices discussed in the literature on higher education institutions.



Figure 6
Principal KM practices in higher education institutions

Practice	Description
Peer assistance	A technique in which peers assist one another in finding solutions to problems (Trevisan & Damian, 2018).
Benchmarking	An internal or external search for benchmarks based on process-performance comparisons, enabling process improvement and the development of reference models (Bertolazo et al., 2020).
Blog	A diary-like platform containing articles or brief accounts of relevant events (Trevisan & Damian, 2018).
Brainstorming	A spontaneous knowledge-sharing technique designed to generate ideas without initial evaluation or criticism (Zanuzzo et al., 2019).
Knowledge Café	A facilitated group practice for discussing, reflecting on, developing, and sharing ideas about a particular topic (Trevisan & Damian, 2018).
Community of practice	Groups whose members share knowledge, interests, and experience and focus on learning and disseminating organizational knowledge (Saputelli & Ungredda, 1999).
Conversation	Social settings that enable informal conversation without a predetermined discussion structure (Hoveida et al., 2008).
E-mail	A technological means that allows for the sharing of knowledge within an organization (Zanuzzo et al., 2019).
Discussion forum	A forum that promotes discussion and the sharing of information, ideas, and experience, thereby supporting competency development and the improvement of processes and activities (Trevisan & Damian, 2018).
Document management	An information-technology-supported practice for managing documents efficiently and ensuring that accurate information can be retrieved when needed (Trevisan & Damian, 2018).
Intranet	A collaborative tool that enables the dissemination of up-to-date and systematized information (Balagué et al., 2016).
Lessons learned	A technique for examining significant events to identify strengths, weaknesses, and opportunities for improvement and to record the lessons derived from them (Trevisan & Damian, 2018).
Manuals	Formalization of validated procedures relating to a task or problem solution (Batista, 2012).
Knowledge mapping	The identification and classification of an organization's knowledge assets (Trevisan & Damian, 2018).
Best practices	The identification and dissemination of validated procedures for performing a task or solving a problem in a particular context (Batista, 2012).
Social media	Online social systems that connect people who share interests and content (Trevisan & Damian, 2018).
Narratives	The practice of sharing experiences and lessons through simple narratives using words and images (Trevisan & Damian, 2018).
Portals	Environments used for presenting information, such as procedures, financial information, purchasing processes, human resources information, and records of institutional achievements (Raman et al., 2013).
Knowledge repositories	Structured collections of documents designed to capture internal experts' experience and perspectives on a particular subject (Hoveida et al., 2008).
Meetings	A practical tool for gaining knowledge directly from members of the organization, which can be virtual or in person (Zanuzzo et al., 2019).
Training	Structured learning sessions delivered by subject-matter experts to develop participants' knowledge and skills (Hoveida et al., 2008).
Wiki (Knowledge Base)	A structured internal collaboration tool used to retain and systematize organizational knowledge (Trevisan & Damian, 2018).

Source: adapted from Silva et al. (2022).

Organizations should establish policies, programs, and projects that promote knowledge creation and provide strategic direction for KM practices. Strategic policies should also be aligned with investment in KM implementation processes (Trevisan & Damian, 2018).

Barriers to the adoption and use of KM practices

Among the 78 participants, 44% reported barriers to adopting KM practices, totaling 89 occurrences categorized in Figure 7.

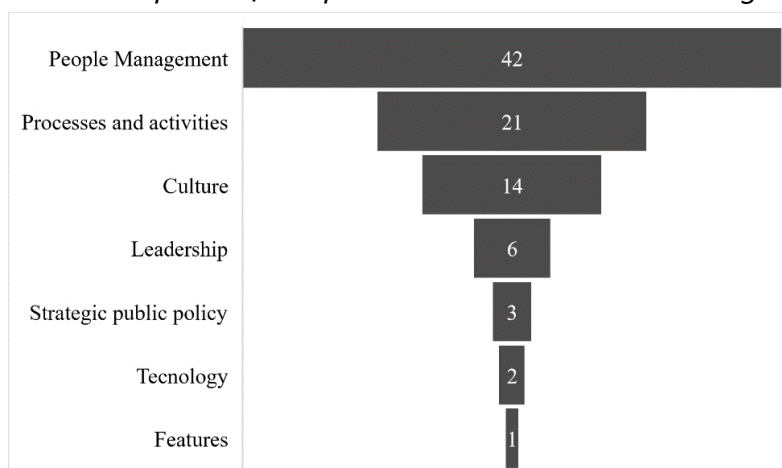


The principal barriers related to human resource management included a lack of professional updating (Participants 03, 15, 21, 34, 42, 47, 49, 53, 55, 59, and 63). Process-related barriers included the absence of process mapping and the failure to implement appropriate tools (Participants 10 and 30), as well as a lack of standardized documents (Participants 15, 17,

30, 34, and 77). Organizational-culture barriers included resistance to accepting oversight assignments (Participants 04 and 26), low engagement (Participant 65), the accumulation of duties (Participants 06, 15, 32, 58, 65, 67, 70, and 75), and the concentration of excessive workloads among a small number of staff members (Participants 41 and 51).

Figure 7

Barriers to the adoption of KM practices in the contract oversight process.



Source: data collection – questionnaire.

The interviews reinforced the need for standardization, training, and cultural change.

'Achieving comprehensive standardization overnight will be difficult, but I think we can begin by standardizing procedures and, especially, documents' (Interviewee 03).

'It is a management issue. First, the same staff members should not always be overburdened. We need a culture in which this is understood as a responsibility not only of administrative staff but of public servants in general. Management needs to address this cultural issue rather than simply accepting people's claims that they are overworked or do not know how to perform the role' (Interviewee 09).

Potential barriers to the appropriate adoption and implementation of KM practices in higher education institutions occur at the operational, tactical, and strategic levels.

At the tactical and operational levels, these barriers include: (a) withholding technical knowledge because of fear of competition; (b) reluctance to train successors in order to remain in key positions; (c) limited motivation to assume unpaid assignments; (d) participation in training without a commitment to transfer the knowledge

acquired or even to share information about training content that could benefit others; and (e) high turnover in the absence of succession planning, resulting in knowledge loss. Kumar, Sarukesi, and Uma (2012) emphasize that institutional policies incorporating KM practices can mitigate knowledge loss. Such policies can also foster knowledge dissemination and professional learning, both of which are essential in the rapidly changing environment of higher education institutions (Balagué, Duren, & Sarti, 2016).

At the strategic level, the barriers include: (a) the absence of continuous staff-development processes established by leadership and administrative discontinuity, with each new manager pursuing a different vision; and (b) efforts to 'mark territory' through changes to processes rather than preserving institutional continuity. These barriers may be cultural, such as the centralization of knowledge in one individual; procedural, such as nonstandard or undocumented processes; resource-related, such as an unwillingness or inability to share knowledge or to use tools that support sharing; or organizational, such as workloads being concentrated in particular units or individuals.



The findings therefore indicate that higher education institutions should establish mechanisms to formally recognize contract oversight duties, promote staff specialization, account for these duties in workload planning, and implement succession and training policies.

Costa et al. (2021, p. 16) similarly argue that '[...] identifying KM practices creates an opportunity for education managers to consider their implications for fulfilling the HEI's mission toward the market and society, while highlighting the need to develop practices that align intellectual knowledge with strategic requirements.'

The barriers identified demonstrate the need to further develop the contract oversight process and suggest that the appropriate use of KM practices can contribute to its success.

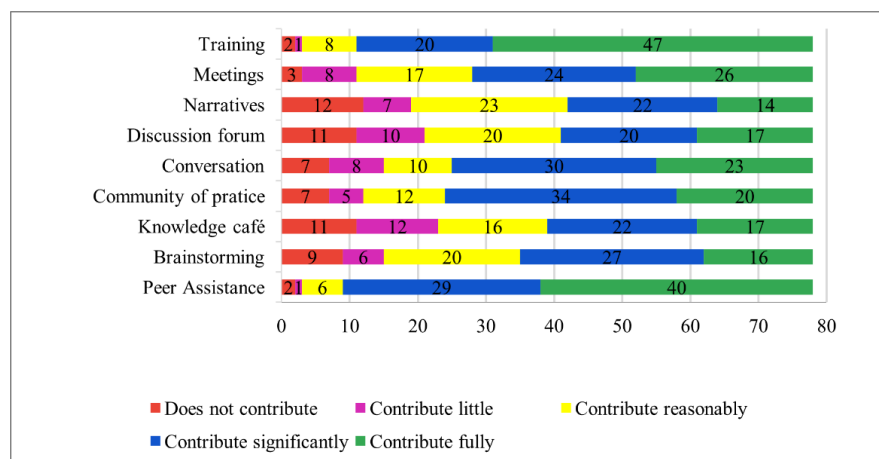
ANALYSIS OF THE PROBLEM AND PROPOSED INTERVENTIONS

Expected contributions of KM practices to outsourced-contract oversight

The KM practices presented in Table 4 were grouped into three dimensions: (a) human resource management, (b) organizational process structuring, and (c) technology and support. Participants then assessed the expected contribution of each practice to improving contract oversight. Internal consistency was evaluated using Cronbach's alpha. Based on the variance and covariance of items measured on the same scale, the coefficient was 0.94; values above 0.60 are considered satisfactory (Freitas & Rodrigues, 2005).

Figure 8 presents the expected contribution of KM practices associated with human resource management, based on the absolute frequency of responses.

Figure 8
Expected contributions of KM practices associated with human resource management



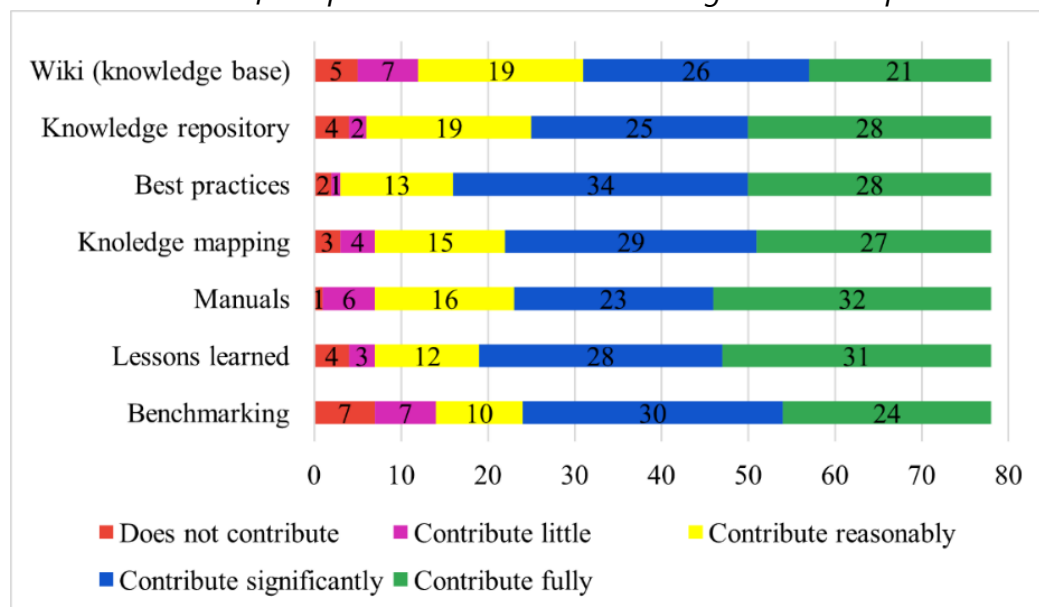
Source: data collection – questionnaire.

Within the human resource management dimension, training, peer assistance, meetings, conversation, and communities of practice received the largest proportions of 'substantial contribution' and 'very substantial contribution' responses. Interviewees particularly emphasized training: *'More training could be offered from time to time'* (Interviewee 06). They also highlighted peer assistance: *'One staff member already had*

experience with oversight and became the person who passed on information and provided support' (Interviewee 09). Conversation was likewise regarded as essential: *'People need support—not merely the transfer of documentation, but a proper conversation'* (Interviewee 02). Figure 9 presents the expected contributions of KM practices related to organizational process structuring.

**Figure 9**

Expected contributions of KM practices associated with organizational process structuring



Source: data collection – questionnaire.

Teams can be developed by converting tacit knowledge into explicit knowledge through internal training tailored to organizational needs (TCU, 2022).

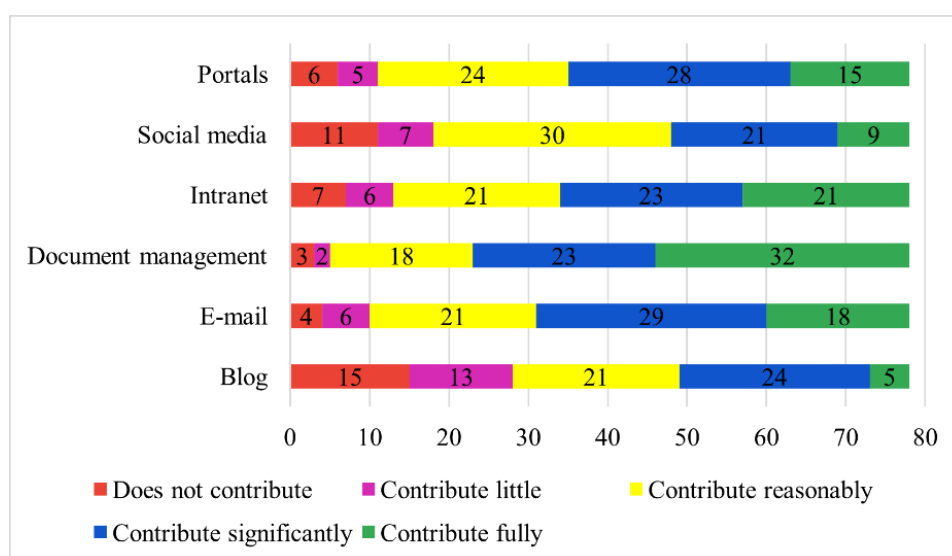
Within organizational process structuring, the practices with the highest expected contributions were best practices, lessons learned, knowledge mapping, manuals, and knowledge repositories. Figure 10 presents the expected

contributions of KM practices associated with technology and support.

Knowledge acquired by the organization should be embedded in its procedures by redesigning routines, strengthening problem-solving capabilities, and incorporating best practices and lessons learned (Gonzalez & Martins, 2017).

Figure 10

Expectativas das práticas de GC associadas a Tecnologia e Suporte



Source: data collection – questionnaire



Most practices in this dimension were expected to make a substantial or very substantial contribution, particularly document management, email, and portals.

Overall, contract inspectors believed that most KM practices could contribute substantially to contract oversight, particularly practices related to organizational process structuring and technology and support.

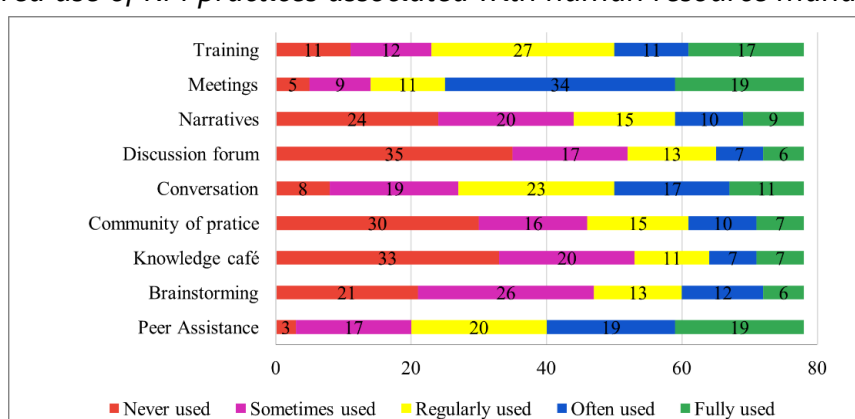
Perceived use of KM practices in outsourced-contract oversight

Perceived use refers to the extent to which staff members believed that each practice was being used at the time of the study. Cronbach's alpha for this stage was 0.96.

Within human resource management (Figure 11), discussion forums, Knowledge Cafés, and communities of practice were most frequently classified as 'never used,' in marked contrast to their expected contributions. Training was the practice most frequently identified as requiring improvement.

Figure 11

Perceived use of KM practices associated with human resource management



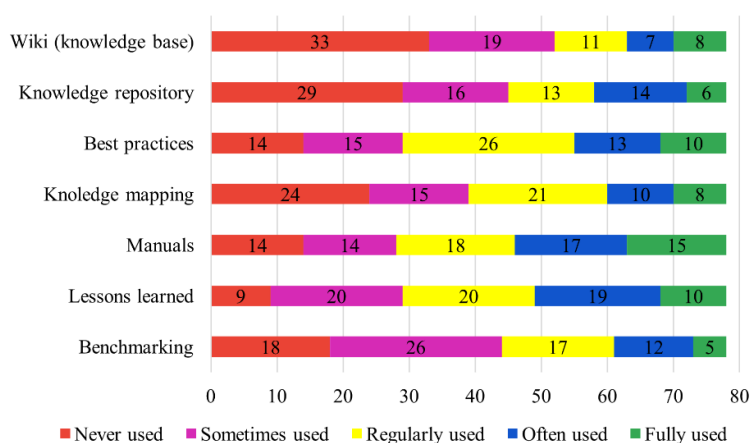
Source: data collection – questionnaire.

Conversation, one of the practices with the highest expected contributions, was used regularly. It mainly occurred between the contract inspector and the contract manager: '[...] we have a proper conversation during a meeting, and I give the person the documents, explain the responsibilities, and describe how the process works here' (Interviewee 02).

For organizational process structuring (Figure 12), wikis (knowledge bases) and knowledge repositories were most frequently classified as 'never used.' This finding is noteworthy because knowledge repositories had received high ratings for expected contribution. The lack of manuals was also a recurring theme in the interviews.

Figure 12

Perceived use of KM practices associated with organizational process structuring



Source: data collection – questionnaire.

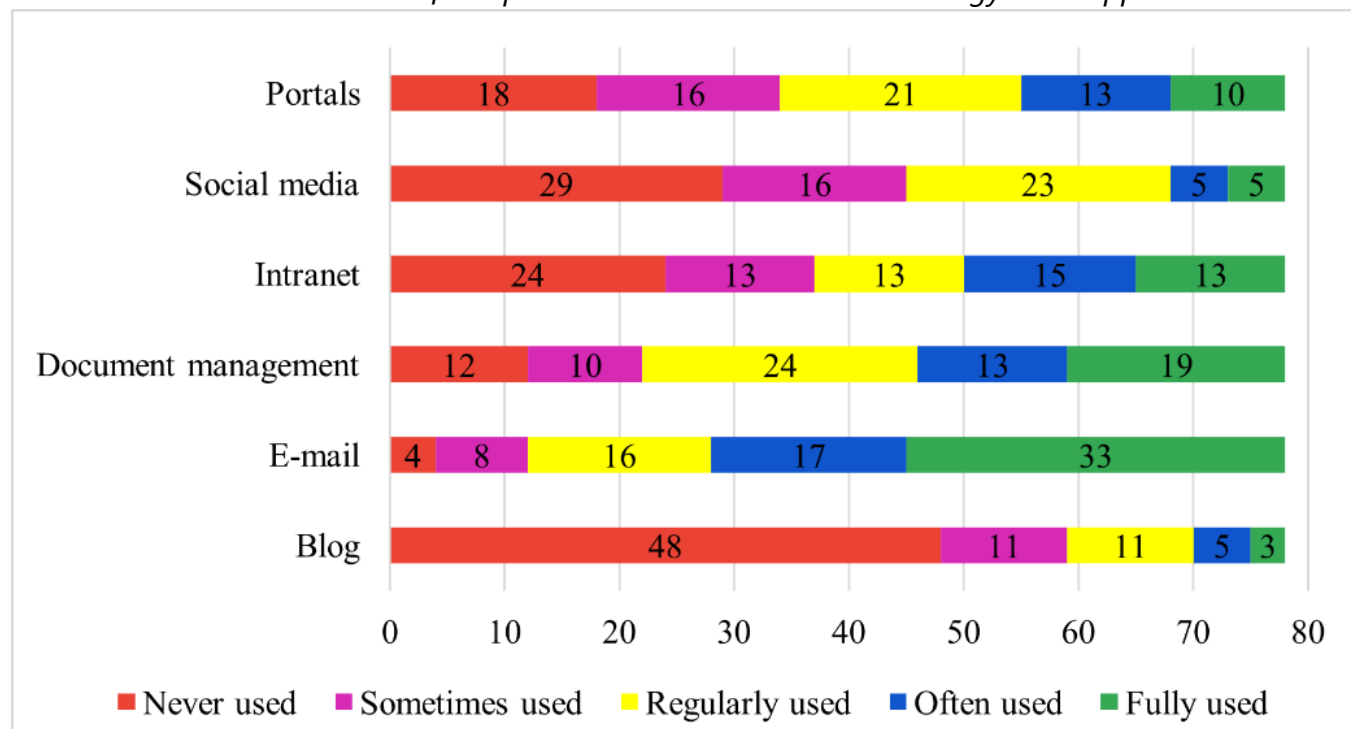


Interviewee 04 also referred to best practices: 'What happened in the past taught us how to work today.'

Figure 13 presents the perceived use of KM practices associated with technology and support.

Figure 13

Perceived use of KM practices associated with technology and support



Source: data collection – questionnaire.

Document management received the highest rating for expected contribution; however, email was perceived as the most widely used practice.

Participants expected substantial contributions from practices associated with organizational process structuring, particularly best practices and lessons learned; from technology and support, especially document management; and, to a lesser extent, from human resource management, particularly training.

PROPOSED SOLUTION

Based on an integrated analysis of the findings, the study proposes an action plan structured around three priority dimensions for implementing the KM practices best suited to outsourced-contract oversight at IFSULDEMINAS.

The plan addresses the identified gaps between expected contribution and perceived use and encompasses people management, organizational process structuring, and technology and support.

The analysis showed that 50% of the practices were expected to make a substantial contribution, 36% a very substantial contribution, and 14% a moderate contribution. Regarding perceived use, 45% of the practices were never used, 36% were used regularly, 9% occasionally, 5% frequently, and 5% extensively. Table 2 compares expected contribution and perceived use.

The gap for each practice was calculated as the mean perceived-use score minus the mean expected-contribution score ($P - E$). It therefore represents the difference between how much the practice was expected to contribute and the extent to which it was perceived to be used.



Table 2
Comparison of expected contribution and perceived use

PRACTICES	EXPECTATIONS (E)		PERCEPTIONS (P)		GAP (P-E)
	MEAN ($\bar{x}$)	STANDARD DEVIATION (σ)	MEAN ($\bar{x}$)	STANDARD DEVIATION (σ)	
	ASSOCIATED WITH HUMAN RESOURCES MANAGEMENT				
Peer assistance	4,33	0,88	3,44	1,19	- 0,89
Brainstorming	3,45	1,23	2,44	1,25	- 1,01
Knowledge Café	3,28	1,35	2,17	1,31	- 1,11
Community of practice	3,71	1,19	2,33	1,35	- 1,38
Conversation	3,69	1,25	3,05	1,20	- 0,64
Discussion forum	3,28	1,33	2,13	1,29	- 1,15
Narratives	3,24	1,29	2,49	1,36	- 0,75
Meetings	3,79	1,13	3,68	1,16	- 0,11
Training	4,40	0,92	3,14	1,32	- 1,26
	ORGANIZATIONAL PROCESS STRUCTURING				
Benchmarking	3,73	1,24	2,49	1,19	- 1,24
Lessons learned	4,01	1,09	3,01	1,22	- 1,00
Manuals	4,01	1,03	3,06	1,38	- 0,95
Knowledge mapping	3,94	1,05	2,53	1,33	- 1,41
Best practices	4,09	0,90	2,87	1,26	- 1,22
Knowledge repository	3,91	1,08	2,38	1,35	- 1,53
Wiki (knowledge base)	3,65	1,16	2,21	1,35	- 1,44
	TECHNOLOGY AND SUPPORT				
Blog	2,88	1,23	1,77	1,15	- 1,11
E-mail	3,65	1,08	3,86	1,22	0,21
Document management	4,01	1,05	3,22	1,36	- 0,79
Intranet	3,58	1,22	2,74	1,49	- 0,84
Social media	3,13	1,18	2,24	1,21	- 0,89
Portals	3,53	1,11	2,76	1,33	- 0,77

Source: data collection – questionnaire.

Negative gaps predominated, indicating that expected contributions exceeded perceived use and thus revealing opportunities for improvement. The largest negative gaps occurred among practices associated with organizational process structuring, suggesting that these practices constitute an appropriate starting point for strategic implementation plans.

The central problem therefore lies not only in a lack of individual knowledge, but also in the inadequate conversion of that knowledge into organizational memory. Although conversations, meetings, and email facilitate the immediate ex-

change of information, they do not ensure that knowledge is retained, updated, and reused. This finding helps explain the large gaps observed for knowledge mapping, repositories, manuals, and best practices.

Because the study included contract inspectors as well as managers and unit heads, expected contribution and perceived use were compared between these groups. Group 1 comprised contract inspectors, and Group 2 comprised managers and unit heads, as shown in Table 3.



Table 3
Comparison of expected contribution and perceived use by respondent group

	GRUPO 01 – CONTRACT INSPECTORS					GRUPO 02 – MANAGERS/UNIT HEADS				
PRACTICES	EXPECTATIONS (E)		PERCEPTIONS (P)			EXPECTATIONS (E)		PERCEPTIONS (P)		
	MEAN ($\bar{x}$)	STANDARD DEVIATION (σ)	MEAN ($\bar{x}$)	STANDARD DEVIATION (σ)		MEAN ($\bar{x}$)	STANDARD DEVIATION (σ)	MEAN ($\bar{x}$)	STANDARD DEVIATION (σ)	
	ASSOCIATED WITH HUMAN RESOURCES MANAGEMENT									
Peer assistance	4,32	0,92	3,45	1,18	-0,87	4,38	0,72	3,38	1,26	-1,00
Brainstorming	3,45	1,21	2,50	1,26	-0,95	3,44	1,36	2,19	1,22	-1,25
Knowledge Café	3,44	1,34	2,29	1,34	-1,15	2,69	1,25	1,69	1,14	-1,00
Community of practice	3,84	1,18	2,45	1,39	-1,39	3,19	1,11	1,88	1,09	-1,31
Conversation	3,77	1,23	3,16	1,20	-0,61	3,38	1,31	2,63	1,15	-0,75
Discussion forum	3,35	1,34	2,21	1,34	-1,14	3,00	1,26	1,81	1,05	-1,19
Narratives	3,37	1,31	2,56	1,39	-0,81	2,75	1,13	2,19	1,22	-0,56
Meetings	3,77	1,12	3,60	1,19	-0,17	3,88	1,20	4,00	0,97	0,12
Training	4,44	0,90	3,10	1,38	-1,34	4,25	1,00	3,31	1,08	-0,94
	ORGANIZATIONAL PROCESS STRUCTURING									
Benchmarking	3,74	1,20	2,52	1,24	-1,22	3,69	1,45	2,38	1,02	-1,31
Lessons learned	4,06	1,08	3,02	1,21	-1,04	3,81	1,11	3,00	1,32	-0,81
Manuals	4,03	1,01	3,11	1,42	-0,92	3,94	1,12	2,88	1,26	-1,06
Knowledge mapping	3,90	1,05	2,52	1,35	-1,38	4,06	1,06	2,56	1,26	-1,50
Best practices	4,11	0,85	2,97	1,25	-1,14	4,00	1,10	2,50	1,26	-1,50
Knowledge repository	3,92	1,00	2,47	1,38	-1,45	3,88	1,41	2,06	1,24	-1,82
Wiki (knowledge base)	3,69	1,08	2,32	1,40	-1,37	3,50	1,46	1,75	1,06	-1,75
	TECHNOLOGY AND SUPPORT									
Blog	2,92	1,23	1,84	1,18	-1,08	2,75	1,24	1,50	1,03	-1,25
E-mail	3,65	1,07	3,79	1,23	0,14	3,69	1,14	4,13	1,20	0,44
Document management	3,98	1,03	3,23	1,36	-0,75	4,13	1,15	3,19	1,42	-0,94
Intranet	3,61	1,19	2,76	1,51	-0,85	3,44	1,36	2,69	1,45	-0,75
Social media	3,08	1,19	2,31	1,21	-0,77	3,31	1,14	2,00	1,21	-1,31
Portals	3,58	1,12	2,79	1,34	-0,79	3,31	1,08	2,63	1,31	-0,68

Source: data collection – questionnaire.

Negative gaps predominated in both respondent groups. This convergence of views may facilitate the development and implementation of improvement initiatives.

Based on the identified gaps, a roadmap was developed for the progressive implementation of KM practices in outsourced-contract oversight. The roadmap organizes actions into five sequential phases and three dimensions—people management, organizational processes, and

technology and support—enabling the institution to implement the practices systematically and in accordance with its operational capacity and level of KM maturity.

The first phase is diagnosis, comprising an analysis of the gaps identified in the study and the mapping of critical knowledge related to contract oversight. This phase informs the establishment of intervention priorities and action planning.



The second phase addresses the structuring of organizational processes. It focuses on standardizing oversight activities through manuals, checklists, and flowcharts covering planning, contract performance, and the reporting of oversight results. It also establishes mechanisms for recording best practices and lessons learned, thereby promoting the retention and dissemination of institutional knowledge.

The third phase, competency development, focuses on the people-management dimension. It includes a continuing training program for contract inspectors and managers, peer-support mechanisms, and communities of practice designed to promote tacit-knowledge sharing and strengthen the competencies required for contract oversight.

The fourth phase implements technological support. It consolidates integrated document management and establishes a Contract Oversight Portal that brings together legislation, templates, guidelines, a calendar of obligations, and contract information in a single environment

for consultation and operational support.

The fifth phase, evaluation and continuous improvement, integrates all three dimensions. Performance indicators are monitored, implemented practices are reviewed, and new lessons learned are incorporated, ensuring that organizational knowledge is continuously updated and the contract oversight process progressively improved.

The proposed roadmap is not a fixed technological artifact but an adaptable framework for the progressive implementation of KM practices based on a previously validated institutional diagnosis. It can be tailored to each organization's structure, resources, and level of KM maturity, consistent with the TCU's (2022) position that no single model can meet the needs of every organization.

Figure 14 summarizes the proposed intervention model: a roadmap for implementing KM practices in contract oversight.

Figure 14
Roadmap for implementing KM practices in contract oversight

Implementation phase	Contract oversight stage	Objective	KM Practices	Product	Expected result
1. Diagnosis (predominant axis: cross-cutting)	Planning	Identify gaps and set priorities.	Gap analysis; knowledge mapping	Institutional diagnosis and intervention priorities	Actions aligned with identified needs
2. Structuring (predominant focus: organizational processes)	Planning	Standardize contract oversight procedures	Manuals; checklists; flowcharts; best practices	Standardized contract oversight process	Greater consistency among contract inspectors and campuses
3. Development (predominant focus: people management)	Execution	Strengthen competencies and knowledge sharing	Training; peer support; communities of practice; meetings	Collaborative network to support contract inspectors	Reduced dependence on individual knowledge
4. Technological Support (predominant focus: technology and support)	Execution and communication of results	Provide integrated access to information	Document management; Contract Oversight Portal; Institutional email	Single environment for consultation and recordkeeping	Faster access to information and improved communication.
5. Evaluation and Continuous Improvement (predominant focus: integration of the three pillars)	Communication of results	Consolidate and reuse the knowledge produced.	Recording lessons learned; updating best practices; periodic review.	Updated institutional knowledge base	Organizational learning and continuous improvement in contract oversight.

Source: prepared by the authors.



Rather than merely listing practices, the roadmap directly relates them to stages of the contract oversight process and implementation priorities. It thereby enables institutional leaders to plan implementation in phases while taking resources, organizational culture, and operational capacity into account.

CONCLUSIONS AND PRACTICAL CONTRIBUTION

This study identified the KM practices best suited to the oversight of outsourced contracts at IFSULDEMINAS, based on public servants' expectations and perceptions.

The principal challenges were the concentration of oversight duties among technical and administrative staff, the assignment of multiple contracts to a single inspector, the lack of standardization, and high turnover. The main areas for improvement were training, institutional support, and the development of technical knowledge.

The highest expected contributions were associated with practices in organizational process structuring and technology and support, whereas perceived use was higher for practices in human resource management and technology and support.

The findings are consistent with Nonaka and Takeuchi's (1997) knowledge-conversion model, which addresses the interaction between tacit and explicit knowledge, and with Batista's (2012) model for the public administration, which emphasizes the institutionalization of KM through policies, people, and processes. The empirical findings underscore the procedural dimension of KM—particularly knowledge mapping, lessons learned, and knowledge repositories—as a foundation for organizational learning and institutional maturity. These aspects have received limited attention in the contract oversight literature. The integration of people management, process structuring, and technology and support is consistent with the existing literature and contributes to adapting KM models to Brazilian Federal Higher Education Institutions.

The study's principal practical contribution is an institutional roadmap comprising five phases

and three dimensions, intended for the units responsible for contract management, people management, and information technology. Implementation begins with gap identification and proceeds through process standardization, competency development, technological support, and continuous monitoring.

From an academic perspective, the study applies and integrates established KM dimensions within a specific and still underexplored administrative process: outsourced-contract oversight in Federal Education Institutions. From a practical perspective, it supports public management by identifying gaps between the expected contribution and perceived use of KM practices and translating the findings into concrete guidance for contract managers and inspectors. The recommendations may improve efficiency and transparency in contract performance, reinforcing the study's applied value for public education institutions.

The findings reinforce the importance of institutional KM policies for reducing knowledge asymmetries among public servants, improving decision-making, and increasing transparency in contract management. At the societal level, adopting these practices may reduce the risk of losses to public funds, help ensure continuity in public service delivery, and support public servants by providing more appropriate working conditions and opportunities for professional development.

Potential limitations include response bias because all participants belonged to the same institutional context and may have expressed views shaped by organizational or personal expectations. Moreover, although non-probability sampling is appropriate for qualitative and exploratory research, it limits the statistical generalizability of the findings. These limitations do not compromise the study's internal validity, but they require caution when extrapolating the results to other institutional settings. The findings should therefore be treated as analytical references that can inform hypothesis development and comparative model building.

Future research should apply and validate the proposed roadmap at IFSULDEMINAS and at other Federal Higher Education Institutions.



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