

An Information Systems-Supported Strategy for Managing Tacit Knowledge in Organisations

Moritz Maximilian Rau¹ and Erik Perjons²

¹Department of Computer and Systems Sciences, Stockholm University, Vienna, Austria

²Department of Computer and Systems Sciences, Stockholm University, Stockholm, Sweden

moritz.rau39@gmail.com

perjons@dsv.su.se

Abstract: Tacit knowledge represents one of the most strategically significant yet poorly managed resources in knowledge-intensive organisations. Existing research has documented the limits of codification-oriented approaches and the persistence of tacit knowledge problems, but the field lacks an integrated, practice-oriented strategy that connects detection, description, and safeguarding of tacit knowledge into one operational framework supported by information systems. This paper addresses that gap. Drawing on eight semi-structured interviews with senior professionals in knowledge-intensive consulting roles, analysed through qualitative content analysis with abductive logic, the study identifies recurring problems across three core functions: detecting where critical expertise resides; describing tacit and experience-based knowledge in forms that others can understand and reuse; and safeguarding such knowledge when projects end or personnel change. The findings show that organisations do not primarily fail because of missing documentation. The central challenges concern the limited visibility of expertise, the difficulty of making experience-based knowledge communicable without losing its practical meaning, and the fragility of knowledge retention when it is tied to individuals rather than stable organisational structures. Information systems and artificial intelligence can support all three functions, but only when they are aligned with actual work practices and backed by clear governance and ownership. Based on these findings, and grounded in the Knowledge-Based View, Organisational Learning Theory, Sociotechnical Systems Theory, and a Practice-Based Perspective, the study develops a lightweight, information systems-supported knowledge management strategy organised around three conceptual building blocks: Knowledge Hubs, Knowledge Capsules, and workflow-based safeguarding mechanisms, all supported by an enabling digital, governance and motivation layer. The strategy does not aim for complete codification of tacit knowledge but rather for practical and structured support for its detection, description, and safeguarding in everyday organisational work. The paper contributes both an empirically grounded analytical framework and an operationalisable strategy for knowledge-intensive organisations.

Keywords: Tacit knowledge, Knowledge management strategy, Information systems, Detection, Safeguarding, Knowledge hubs

1. Introduction

In knowledge-intensive organisations, competitive advantage depends less on physical assets than on the expertise, judgement, and contextual understanding of employees (Grant, 1996; Davenport and Prusak, 1998). Yet organisations frequently struggle to manage the knowledge that matters most: the tacit, experience-embedded kind that resides in individuals, accumulates through practice, and resists full articulation in documents or systems (Polanyi, 1966; Nonaka and Takeuchi, 1995).

The consequences are well-recognised: critical expertise becomes concentrated in a small number of individuals, knowledge is lost when projects end or people leave, and accumulated insights are rebuilt from scratch each time. These are not marginal inefficiencies. They represent a structural vulnerability that compounds over time, particularly in consulting and professional services contexts where delivery quality depends directly on non-codifiable professional judgement.

Research on knowledge management has documented these problems extensively. What remains less developed is an integrated, practice-oriented strategy that connects the detection, description, and safeguarding of tacit knowledge into one operational framework supported by information systems (IS). This paper addresses that gap.

The study is guided by the following research question: How can organisations address tacit knowledge problems by designing a structured knowledge management strategy, supported by information systems, for the detection, description, and safeguarding of knowledge? To answer this question, the paper draws on eight semi-structured interviews with senior professionals in knowledge-intensive consulting roles, analysed through qualitative content analysis. The findings are translated into a lightweight IS-supported knowledge management strategy built around Knowledge Hubs, Knowledge Capsules, and workflow-based safeguarding, all enabled by a supporting digital, governance, and motivation layer.

The paper makes two contributions. First, it structures tacit knowledge problems around three analytically coherent functions - detection, description, and safeguarding - and shows empirically how each manifests in practice. Second, it translates these findings into a four-component IS-supported strategy comprising Knowledge Hubs, Knowledge Capsules, workflow-based safeguarding routines, and an enabling digital, governance, and motivation layer. Together, these constitute an operationalisable response to a persistent and structurally underaddressed organisational challenge.

2. Background and Theoretical Framework

2.1 Tacit Knowledge and the Limits of Codification

Tacit knowledge, as originally theorised by Polanyi (1966), is knowledge that cannot be fully articulated in formal language. Building on this foundation, Nonaka and Takeuchi (1995) proposed the SECI model - a cycle of socialisation, externalisation, combination, and internalisation - as the central mechanism of organisational knowledge creation, and established the tacit-explicit distinction as the cornerstone of the knowledge management field. In organisational contexts, tacit knowledge manifests as professional judgement, pattern recognition, contextual interpretation, and the practical ability to act appropriately in novel situations (Blackler, 1995; Tsoukas, 2003). It is learned through experience and embedded in practice rather than stored as discrete content.

A central distinction in knowledge management is between codification-oriented approaches, which aim to capture knowledge in reusable artefacts, and personalisation-oriented approaches, which focus on connecting people (Hansen, Nohria and Tierney, 1999). Research has consistently shown that tacit knowledge resists complete codification (Brown and Duguid, 2001; Orlikowski, 2002). Even when knowledge transfer occurs, it frequently encounters what Szulanski (1996) termed internal stickiness: the friction arising from motivational, relational, and absorptive barriers that make replication of best practice difficult even within the same organisation. The implication is that organisations require support mechanisms that go beyond documentation.

2.2 Theoretical Perspectives

This study is guided by four complementary theoretical perspectives. The Knowledge-Based View (Grant, 1996; Spender, 1996) treats knowledge as a strategically important organisational asset and highlights the risks of knowledge concentrated among a small number of individuals and remains difficult for others to identify or access. Organisational Learning Theory (Argyris and Schön, 1978; Crossan, Lane and White, 1999) explains how experience-based learning accumulates and why it remains fragile unless institutionalised through routines and reflection. Sociotechnical Systems Theory (Bostrom and Heinen, 1977) emphasises that organisational outcomes result from the interaction between social practices and information systems, not from technology alone. The Practice-Based Perspective (Orlikowski, 2002; Brown and Duguid, 2001) situates knowledge in action and warns against the assumption that documented knowledge automatically becomes useful.

Together, these perspectives support an analytical focus on detection - making expertise visible; description - representing experience-based knowledge in usable forms; and safeguarding - preserving critical knowledge over time. While individual facets of tacit knowledge management are well-theorised, an integrated IS-supported strategy linking all three functions in a single operational approach remains underdeveloped in the literature.

3. Research Design and Methodology

The study adopts a qualitative, exploratory approach suited to the experience-based and context-dependent nature of tacit knowledge. The empirical research strategy is an exploratory survey, interpreted not as a standardised questionnaire but as a design for identifying recurring patterns across multiple organisational contexts (Johannesson and Perjons, 2021). This approach was selected because the aim was to identify cross-organisational patterns in tacit knowledge problems rather than to examine one organisation in depth.

Data were collected through eight semi-structured interviews conducted in February 2026 via Zoom with experienced professionals knowledge-intensive consulting roles, ranging from consultants to senior leadership roles. Participants were recruited through professional networks on the basis of seniority and sustained experience with knowledge-intensive project work. All interviews were audio-recorded with informed consent, transcribed using Whisper (OpenAI), and anonymised prior to analysis. Interview duration ranged from 40 to 60 minutes. The interview guide was organised around five thematic areas: locating critical expertise; sharing

experience-based knowledge; knowledge loss across project transitions; the role of information systems and AI; and organisational conditions for knowledge sharing.

The transcripts were analysed using qualitative content analysis with abductive logic (Mayring and Brunner, 2010; Timmermans and Tavory, 2012). Abductive logic guided an iterative movement between the empirical material and existing theoretical frameworks: patterns identified in the data were compared with and refined by theory, while theory was in turn re-examined in light of what the data revealed. This approach avoids both pure induction and pure deduction. Meaning units were identified in the transcripts, condensed into codes, grouped into categories, and organised into five higher-order themes: (1) Visibility of critical knowledge and expertise; (2) Externalisation and practical transfer of experiential knowledge; (3) Safeguarding knowledge across projects and personnel change; (4) Organisational conditions for knowledge sharing and learning; and (5) Information systems and AI as knowledge management infrastructure. These themes were subsequently interpreted through the three core analytical functions of detection, description, and safeguarding, which structure the findings reported below.

4. Empirical Findings

4.1 Visibility of Critical Knowledge and Expertise

Across all eight interviews, participants described the limited visibility of critical expertise as a fundamental organisational challenge. Relevant know-how was present within the organisation but not sufficiently transparent beyond the individuals who held it. Employees regularly relied on informal contacts, prior experience, and personal networks to identify who knew what - consistent with transactive memory theory, which holds that in the absence of formal structures, individuals rely on shared meta-knowledge about who possesses what expertise (Wegner, 1987). Formal structures such as organisational charts or role descriptions were widely described as inadequate guides to actual expertise.

Critical knowledge was consistently concentrated in a small number of people, particularly in specialised domains or thinly staffed areas. This concentration only became fully visible when disruptions occurred. The consequences were captured by one participant:

"No one remembers because it was never properly prepared."

From a Knowledge-Based View perspective, this reflects a structural risk, since organisational performance depends on the coordination of specialised knowledge that formal structures fail to surface (Grant, 1996).

4.2 Externalisation and Practical Transfer of Experiential Knowledge

All eight participants described tacit knowledge as inherently difficult to articulate in reusable form. Rather than following fixed procedures, their work required contextual judgement, pattern recognition, and situational adaptation - consistent with the limits of externalisation identified in the SECI model (Nonaka and Takeuchi, 1995) and with Szulanski's (1996) observation that the tacitness of the source is itself a primary source of knowledge transfer stickiness.

The interviews consistently pointed to practice-based transfer as the most effective learning mechanism. As one participant put it plainly:

"The rest is learning by doing."

When describing what could be shared, participants consistently preferred examples, heuristics, models, and demonstrations over abstract explanations. Documentation was seen as useful but limited when it lacked context, was outdated, or was fragmented across repositories.

4.3 Safeguarding Knowledge across Projects and Personnel Change

Project closure routines were repeatedly described as inadequate, inconsistent, or largely absent. Walsh and Ungson (1991) describe this as a failure of organisational memory: the inability to retain, retrieve, and apply experience accumulated through prior action. Seven out of eight participants reported that the departure or absence of a single individual had created visible disruptions. As one participant stated:

"When that person leaves, the knowledge leaves with them."

Existing safeguarding measures - archived materials, shared repositories, onboarding documents - were described as present but inconsistent in quality and heavily dependent on local initiative. The problem was not

that nothing was preserved, but that preserved knowledge was often hard to find, outdated, or disconnected from the work contexts in which it would be needed.

4.4 Information Systems and AI as Knowledge Management Infrastructure

Digital tools were described as necessary but insufficient. Repositories, SharePoint environments, and Teams folders were widespread, yet participants frequently bypassed formal systems in favour of informal workarounds. As Alavi and Leidner (2001) argue, information systems support knowledge management only when they are aligned with the knowledge processes they are intended to support. The core barrier was not missing technology but fragmentation, poor curation, and insufficient alignment with actual work practices (Bostrom and Heinen, 1977).

AI-supported tools were viewed with cautious optimism. One participant reflected:

"Perhaps AI will help us more in the future."

Organisational conditions - particularly time pressure, weak incentives, and unclear ownership of knowledge maintenance - were identified as pervasive and cross-cutting barriers that undermined detection, description, and safeguarding alike. The findings from the interviews are summarised in Table 1

Table 1: Summary of key findings by analytical function

Analytical function	Core finding
Detection	Expertise is invisible through formal structures; detection depends on informal networks and transactive memory.
Description	Critical knowledge is experience-based and resistant to codification; context-rich forms are most effective.
Safeguarding	Organisational memory is fragile; project closure and turnover routinely trigger knowledge loss.
IS and AI support	Systems are necessary but insufficient; fragmentation and misalignment undermine usefulness.
Organisational conditions	Time pressure, weak ownership, and limited incentives impair all three analytical functions.

5. The Proposed IS-Supported Knowledge Management Strategy

5.1 From Findings to Design Requirements

The empirical findings reveal that tacit knowledge problems cannot be resolved through better documentation alone. They require structured support for making expertise visible (detection), representing knowledge in forms that preserve practical meaning (description), and embedding knowledge in stable structures that outlast individual tenures and project cycles (safeguarding). Table 2 maps each analytical function to its corresponding design requirement.

Table 2: From empirical findings to design requirements

Analytical function	Core finding	Design requirement
Detection	Expertise invisible beyond personal networks	Structured, navigable expertise visibility across domains
Description	Tacit knowledge resists codification; context-rich forms preferred	Short, context-embedded knowledge artefacts with heuristics
Safeguarding	Knowledge lost at project closure and departure	Preservation embedded in predictable workflow transitions

Analytical function	Core finding	Design requirement
Cross-cutting	Fragmentation, weak incentives, unclear ownership	Governance layer, digital support, and participation incentives

5.2 Strategy Components

Figure 1 presents the proposed IS-supported knowledge management strategy as an integrated framework. The strategy is built around three operational components - Knowledge Hubs, Knowledge Capsules, and workflow-based safeguarding - each directly addressing one of the three core analytical functions, and all supported by a shared enabling layer.

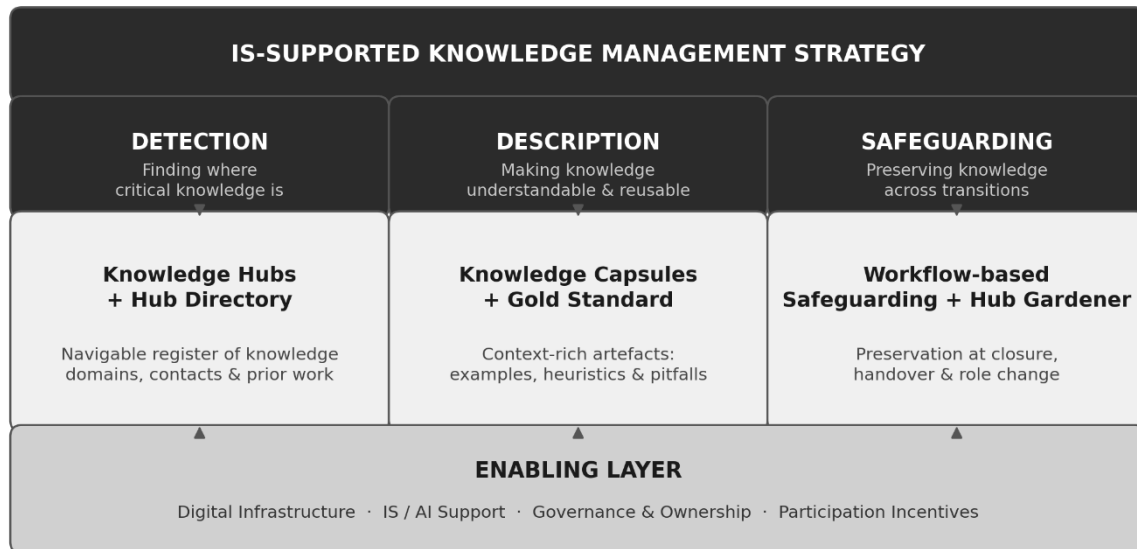


Figure 1: The proposed IS-supported knowledge management strategy

Knowledge Hubs are persistent, topic-based knowledge domains maintained within existing organisational systems. Each Hub covers an area of strategic relevance - for example, a specific service line, recurring project type, or high-dependency domain. Conceptually, the Knowledge Hub draws on the logic of communities of practice (Wenger, 1998): it creates a shared domain around which expertise and practice can be made visible and navigable. The Hub Directory offers a navigable overview across all active Hubs, reducing dependence on personal familiarity and informal networks. Each Hub is maintained by a designated Hub Gardener - a person responsible for keeping the domain current, removing outdated content, and linking new knowledge at key transition points.

Knowledge Capsules are short, structured knowledge objects designed to make experience-based knowledge communicable without reducing it to decontextualised documentation. Each Capsule follows a fixed template covering: the problem or situation context; the approach applied; key heuristics or rules of thumb; typical pitfalls; links to relevant artefacts or prior examples; and the person or role that can provide further clarification. A Gold Standard Capsule in each Hub serves as a reference example for new contributors.

Workflow-based safeguarding embeds knowledge preservation in the moments when knowledge is most at risk of being lost: project closure, handover, onboarding, role change, and departure. At these transition points, relevant Hubs and Capsules are reviewed, updated, and supplemented - making safeguarding a continuous organisational routine rather than a periodic initiative.

The enabling layer supports all three components through lightweight digital infrastructure - searchable Hub pages, AI-assisted retrieval and summarisation, structured Capsule templates - combined with clear governance through the Hub Gardener role and visible recognition of knowledge contributions.

Table 3: Strategy components and correspondence to design requirements

Component	Addresses
Knowledge Hubs + Hub Directory	Detection: making expertise and prior work visible across the organisation.
Knowledge Capsules + Gold Standard	Description: representing experience-based knowledge in usable, context-rich forms.
Workflow-based safeguarding + Hub Gardener	Safeguarding: preserving knowledge at moments of likely loss; maintaining usability over time.
Enabling digital, governance and motivation layer	Cross-cutting: digital infrastructure, AI support, role clarity, incentives, alignment with work routines.

5.3 Theoretical Position of the Strategy

The strategy integrates codification and personalisation logics rather than treating them as alternatives (Hansen, Nohria and Tierney, 1999). Knowledge Hubs reflect personalisation logic: their aim is not to codify exhaustively but to make expertise navigable. Knowledge Capsules represent selective codification: context-rich artefacts that capture enough practical meaning to support reuse, while acknowledging the limits of full formalisation (Tsoukas, 2003). Workflow-based safeguarding reflects the Organisational Learning perspective that knowledge becomes durable when embedded in routines and practices (Crossan, Lane and White, 1999). The enabling layer embodies a sociotechnical understanding in which digital infrastructure, governance, and participation must be aligned (Bostrom and Heinen, 1977).

6. Discussion

The findings and the proposed strategy converge on a key insight: the central challenge in managing tacit knowledge is not that knowledge is absent, but that it is insufficiently visible, communicable, and durable in organisational terms. This reframes the problem away from documentation gaps toward structural and sociotechnical conditions that shape whether critical knowledge can be found, shared, and retained across transitions.

From the perspective of the Knowledge-Based View, the strategy responds to the risk that specialised, unevenly distributed knowledge creates: by making knowledge domains and key expertise more navigable, it reduces the vulnerability associated with knowledge concentration (Grant, 1996). From an Organisational Learning perspective, workflow-based safeguarding operationalises the institutionalisation of experience in a way that does not depend on exceptional individual initiative (Argyris and Schön, 1978; Crossan, Lane and White, 1999). The Practice-Based Perspective justifies the design of Capsules as context-rich rather than comprehensive artefacts (Orlikowski, 2002). The Sociotechnical perspective underpins the enabling layer: technology alone does not resolve tacit knowledge problems; governance, ownership, and practical fit are equally necessary (Bostrom and Heinen, 1977).

The role of AI in this strategy is deliberately bounded. AI-assisted search, retrieval, and summarisation can strengthen detection and support initial Capsule drafting. However, the interpretation of experience-based knowledge, the curation of Hubs, and the judgement required to determine what is worth preserving remain human responsibilities. This is consistent with the empirical finding that participants viewed AI as a promising but not yet mature support tool.

The strategy has practical implications beyond consulting contexts. Knowledge-intensive work - characterised by distributed expertise, project-based delivery, and time pressure - is increasingly prevalent across sectors including professional services, public administration, research, and technology. The three-function framework and the strategy components are sufficiently generic to be adapted across these settings, provided that governance mechanisms are calibrated to the specific organisational conditions encountered.

7. Conclusions and Future Research

This paper has argued that tacit knowledge management in organisations requires more than better documentation. It requires structured support for detecting where critical expertise resides, describing it in forms that preserve practical meaning, and safeguarding it across the transitions that characterise knowledge-

intensive work. The proposed IS-supported strategy - built around Knowledge Hubs, Knowledge Capsules, and workflow-based safeguarding - is grounded in eight qualitative interviews and in four complementary theoretical perspectives. It offers a lightweight, operationalisable response to a persistent organisational challenge.

The study has limitations. The empirical basis is a focused qualitative sample from consulting-oriented contexts. The strategy has not yet been implemented and tested. The findings cannot be generalised statistically, though they support analytical transferability to similar knowledge-intensive settings.

Future research could test the strategy in organisational practice and examine its effects on knowledge continuity, onboarding effectiveness, and reuse over time. A particularly promising direction concerns the role of AI in supporting expert location, contextual retrieval, and reconstruction of fragmented project knowledge. Further work could also investigate how the relative importance of detection, description, and safeguarding varies across different organisational types and scales.

Acknowledgements

The authors would like to thank all interview participants for their time and candour. This paper is derived from a Master's thesis submitted to the Department of Computer and Systems Sciences, Stockholm University, in May 2026.

Ethics Declaration: This study involved semi-structured interviews with professionals in knowledge-intensive roles. Informed consent was obtained verbally prior to each interview, and participants were informed of their rights, including the right to withdraw at any time without consequence. All recordings and transcripts were anonymised and stored with restricted access on the researcher's local device. No personally identifying information appears in this paper. Ethical clearance was not formally required under the guidelines of Stockholm University for this type of qualitative research, but all procedures followed the core principles of voluntary participation, confidentiality, and responsible data handling. Data will be deleted following assessment.

AI Declaration: AI-based tools were used in a supporting capacity during the preparation of this paper. Interview transcription was performed using Whisper (OpenAI). Language refinement and structural consistency checks during the thesis writing phase were supported by ChatGPT (OpenAI), DeepL, and Microsoft Copilot. The adaptation of thesis content into this conference paper, including the development of arguments, interpretation of empirical findings, and design of the proposed strategy, was carried out by the first author. All AI-generated suggestions were reviewed and revised against the empirical material and the manually developed analytical structure. Claude (Anthropic) was used as an AI tool to assist in the formatting and drafting of this conference paper version, under the first author's direction and oversight.

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