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Designing a Soft Knowledge Acquisition System for Social Institutions

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Abstract

Purpose: This study aims to develop a knowledge acquisition system tailored to social institutions, addressing the strategic challenges associated with documenting and leveraging organizational knowledge and experiences in order to enhance institutional learning and performance.

Methodology: The research employed the Soft Systems Methodology (SSM) approach. Data were collected primarily through semi-structured interviews, supplemented by questionnaires. The study was conducted through six structured steps, including identification of key challenges, diagnosis of organizational systems, CATWOE analysis, development of a semantic cognitive map, performance-importance analysis, and the formulation of implementation recommendations.

Findings: The research identified 20 critical design variables for a knowledge acquisition system. These variables were categorized into four strategic decision areas based on the results of the performance-importance analysis and were subsequently ranked according to their final weights, enabling a comprehensive understanding of their relative significance.

Conclusion: By applying systematic methodologies, this study presents a robust framework for design and implementation of a knowledge acquisition system. The findings offer practical insights that can assist institutions in addressing strategic challenges, optimizing the use of cognitive resource, and fostering effective knowledge management practices.

Value: This research contributes a structured, step-by-step approach to institutional knowledge acquisition by integrating theoretical insights with actionable recommendations. It provides value for organizations seeking to enhance their learning capabilities and address strategic challenges through effective knowledge management systems.

Keywords: ***Knowledge Management, Tacit Knowledge, Social Institutions, Systemic Methodology, Systematization***

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Extended Abstract

Introduction: In the field of organizational knowledge management, knowledge is fundamentally created by individuals. The effective utilization of this knowledge requires systematic efforts to extract it through diverse approaches and to share it using various tools and mechanisms. Within this context, a central focus of all knowledge management methodologies is knowledge acquisition (KA) from experts. This process is particularly significant in environments where expert knowledge constitutes a cornerstone for decision-making and innovation. Social institutions, due to their distinctive characteristics, often face greater demands for intellectual asset management than commercial enterprises. Unlike businesses, which primarily seek profit maximization, institutions are value-driven, operate within complex social dynamics, and engage in continuous interactions with their environments. These interactions lead to the accumulation of unique, diverse, and strategic knowledge and lessons learned, which frequently remain underutilized.

Purpose: The study aims to explore how knowledge acquisition systems can be designed to address the specific needs of social institutions. It identifies the requirements, criteria, and components necessary for the efective development of such systems and provides insights into how institutional knowledge can be systematically acquired and shared.

Methodology: Social phenomena such as knowledge acquisition and management are inherently emergent and inductive. They evolve organically rather than being pre-structured or externally imposed. Their development depends on the presence of a supportive environment in which elements such as market forces, infrastructure, societal demands, regulatory support, financial resources, technology, cultural factors, and institutional structures coexist in a coordinated manner. Given these characteristics, rigid engineering approaches are insufficient for understanding and facilitating such phenomena. Accordingly, this study employs the Soft Systems Methodology (SSM), which emphasizes the creation of an enabling environment for the evolution and maturation of systems. SSM provides a seven-stage process that integrates analysis and problem-solving across both real-world and conceptual domains. Figure 1 presents a schematic representation of the stages involved in implementing Soft Systems Methodology in the real world and the systems thinking domain.

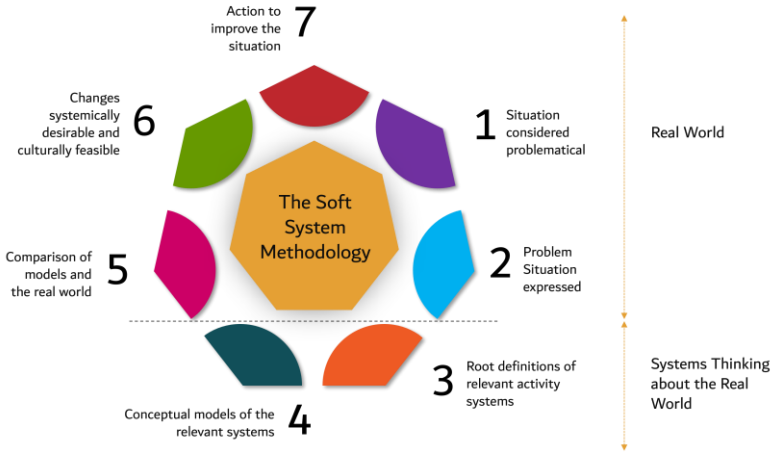

Figure 1. The Soft Systems Methodology Process

Real World: This domain refers to unstructured and ambiguous contexts in which problems emerge amid divergent and often conflicting stakeholder perceptions. It is characterized by complexity, uncertainty, and context-dependent *problematic situations* that lack clear or definitive solutions.

Systems Thinking World: This domain consists of abstract constructs developed through purposeful activity models and root definitions, including system boundaries, processes, and stakeholders, which are used to structure real-world issues. These models do not represent objective reflections of reality; rather, they serve as analytical tools to facilitate dialogue, reflection, and systemic improvement.

Checkland's Soft Systems Methodology (SSM) dynamically compares conceptual models with real-world situations in order to identify feasible options for improvement. This iterative process emphasizes stakeholder learning and shifts in perspective rather than direct problem-solving, thereby fostering adaptive understanding within complex human activity systems.

The statistical population of the study included managers and experts in fields such as management information systems, knowledge management, and organizational documentation, particularly individuals with professional experience in institutional settings. The research sample consisted of 10 highly qualified experts who were actively engaged in both academic and institutional contexts. Data collection was conducted using qualitative methods, primarily semi-structured in-depth interviews, supplemented by follow-up interviews and questionnaires to ensure comprehensive and reliable feedback. The collected data were analyzed using multiple analytical techniques to extract meaningful and insightful findings.

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Findings: The research findings are organized in accordance with the six stages of the Soft Systems Methodology (SSM) approach:

1. **Problem Situation Definition:** Using an open systems perspective, the study identified 19 key challenges in the domain of knowledge acquisition. These challenges constituted the initial foundation for subsequent stages of analysis.
2. **Problem Situation Expression:** Through the application of a comprehensive organizational diagnostic model, the problem situation was examined at the individual, group, and organizational levels. In this stage, 34 components influencing knowledge acquisition processes in institutional contexts were identified.
3. **Root Definitions of Relevant Systems:** A CATWOE analysis (Customers, Actors, Transformation processes, Worldviews, Owners, and Environmental constraints) was conducted to elucidate the dynamics of knowledge acquisition within institutions. This analysis clarified the roles, relationships, and interactions among key stakeholders.
4. **Conceptual Model Development:** Semantic cognitive mapping was employed to analyze the central concept of "knowledge acquisition systems in institutions." This process led to the identification of 15 main sub-concepts, which were further expanded into 185 interconnected components distributed across multiple hierarchical levels.
5. **Comparison with the Real World:** Importance–performance analysis (IPA) was used to assess 20 selected components. These components were ranked and positioned on a two-dimensional matrix comprising

four quadrants: focus, maintenance, waste, and low priority. The top 20 components are presented in Table 1.

Table 1. Top 20 Components of Knowledge Acquisition Systems in Institutions

No.	Component	No.	Component
1	Expert Motivation	11	Organizational Culture
2	Active Member Involvement	12	nowledge Management (KM) Training
3	Learning Cycles	13	Tools/Methods Selection
4	Valuing Knowledge Acquisition (KA)	14	Evaluation Alignment
5	Institutional Innovation	15	Self-Assessment
6	Cultural Belief in KA	16	owledge Acquisition Needs Assessment
7	Technological Infrastructure	17	Internal Relations
8	Knowledge Acquisition Discourse	18	Human Capital Alignment
9	Alignment with Research	19	IT Alignment
10	Alignment with Training	20	Low Formalization

Based on this analysis, the study proposed a set of systemic intervention strategies aligned with these components.

1. **Identification of Feasible and Desirable Changes:** The final stage of the SSM process focused on formulating practical and context-sensitive recommendations for institutions. These recommendations were articulated in the form of 20 actionable strategies designed to optimize knowledge acquisition systems and effectively address institutional challenges.

Conclusion: The findings underscore the necessity of a comprehensive approach to designing knowledge acquisition (KA) systems for institutions. Such systems should incorporate a combination of material and non-material incentives to encourage experts' participation in knowledge-sharing processes. For instance, experts may be engaged through specialized forums or encouraged to systematically document their experiences. Moreover, mechanisms should be established to involve all organizational members, from entry-level staff to senior management, in knowledge acquisition and sharing activities. Initiatives such as knowledge networks, knowledge cafés, and cultural reforms can help foster a collaborative environment that values shared learning. Institutions should also adopt and integrate learning organization models, particularly double-loop learning approaches that emphasize feedback and iterative improvement. Capacity-building programs, including training, mentorship, and advanced educational opportunities, are essential for sustaining a knowledge-driven culture. Additionally, institutions must remain proactive in addressing contemporary challenges, fostering innovation, and maintaining dynamism to ensure continuous knowledge flow and institutional growth. The success of KA systems in institutional contexts depends on achieving a balance between strategic imperatives, such as knowledge preservation, and environmental realities, including informal and dynamic interactions. By leveraging double-loop learning, decentralized networks, and voluntary participation, such systems can align with established theoretical frameworks while offering a localized strategy to mitigate the challenges associated with converting tacit knowledge into explicit knowledge.

Value: This study makes a novel contribution by focusing on social institutions and applying soft systems methodology (SSM) to analyze and address knowledge acquisition challenges within these organizations. The proposed step-by-step framework provides practical solutions for improving knowledge-based processes,

emphasizing the role of human motivation and cultural transformation. By integrating these dimensions, the study enhances the overall effectiveness and sustainability of knowledge acquisition systems in institutional settings.

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