

Integrating Organizational Knowledge Sources into a Knowledge Management Portal

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Abstract: This paper presents a practical (non-academic) case study of organisational knowledge-resource sharing through the corporate knowledge management portal at Mobarakeh Steel Company in Isfahan, Iran. It explains how a structured portal was designed and implemented to integrate dispersed knowledge assets, improve access to organisational experience, and support learning across operational and managerial domains. In many industrial organisations, valuable knowledge is created through operations, maintenance and repair, projects, audits, training, and continuous improvement activities; however, retrieval and reuse are often difficult because knowledge artefacts are distributed across multiple units and information systems. The experience reported in this paper shows how the portal was developed as a pragmatic response to this dispersion challenge. The portal was designed to provide a single point of access to a portfolio of knowledge resources, while explicitly considering organisational structure, content ownership, and access-control policies. The initiative was informed by established knowledge management concepts as well as practical frameworks for assessing and developing knowledge management capabilities (Alavi and Leidner, 2001; Bhatt, 2001; Davenport and Prusak, 1998; APQC, 2025). The paper also describes how the organisational context influenced the portal's evolution. Prior experience in technology transfer, the implementation of management systems, the development of quality procedures and document control, training and empowerment mechanisms, and organisational excellence initiatives provided the foundation for more structured management of knowledge resources. Therefore, the portal emerged not as a standalone digital tool, but as part of a broader organisational effort to capture, reuse, and share knowledge. In this process, institutional standards and approaches, including ISO-based practices, contributed to structuring and consolidating the initiative (ISO, 2019).

Keywords: Knowledge management, Knowledge portal, Organisational knowledge sharing, Case study, Industrial organisation, Mobarakeh Steel Company

1. Introduction

Industrial organisations continuously generate valuable knowledge through daily operations, maintenance activities, improvement projects, audits, training programmes, and problem-solving routines. However, this knowledge often remains fragmented across departments, personal files, local databases, and heterogeneous enterprise systems. As a result, employees spend significant time searching for relevant experiences and documents, lessons learned are not consistently reused, and organisational learning becomes dependent on individuals rather than embedded organisational practices.

Mobarakeh Steel Company, as one of Iran's largest industrial companies, faced similar challenges regarding dispersed knowledge resources and inconsistent access pathways. In response, the company developed and implemented a corporate Knowledge Management (KM) Portal to provide a structured, organisation-wide mechanism for capturing, organising, and sharing knowledge resources. The portal aimed to (i) create a single point of access to knowledge assets, (ii) improve findability and reuse of organisational experience, and (iii) support learning for both operational and managerial decision-making.

"This paper reports a practical case study of that experience and describes how organisational context, governance considerations (e.g., content ownership and access control), and institutional frameworks shaped the portal's design and evolution. The work is informed by established KM perspectives (Alavi and Leidner, 2001; Bhatt, 2001; Davenport and Prusak, 1998) and capability-oriented approaches (APQC, 2025), while also acknowledging the role of ISO-based practices in structuring the overall initiative (ISO, 2019).

Methodologically, this study adopts a practical case-study approach grounded in the authors' direct involvement in the development and evolution of the portal. The analysis draws on internal project documentation, portal design records, content-ownership discussions, governance notes, and implementation artefacts. Where relevant, these materials were complemented by informal consultations with organisational stakeholders involved in content provision, review, and portal use. This approach is intended not to test a hypothesis, but to

document how organisational knowledge sources were identified, structured, and integrated into the portal over time.

2. Organisational Context and Background

The company's knowledge management journey did not begin with the portal. Rather, the roots of this journey can be traced to earlier organisational developments in which knowledge transfer, documentation, and process discipline played a key role. In the early stages of industrial growth and technology acquisition, technical and operational knowledge entered the organisation through external collaboration and technology transfer. Over time, these experiences contributed to greater organisational attention to technical learning, maintenance knowledge, and mechanisms for preserving and transferring experience.

Subsequently, the implementation of management systems such as ISO 9001, ISO 10015, and ISO 30401 strengthened formal approaches related to documentation, process stability, and knowledge retention. Mechanisms such as the suggestions system, document control, training, and managerial reporting procedures provided a context in which knowledge gradually came to be regarded as an organisational asset rather than remaining solely at the individual level (ISO, 2019).

At the same time, the development of information systems and managerial tools made organisational processes and data more visible. Systems related to management information and executive reporting indirectly reinforced the infrastructure required for presenting organisational knowledge and experience. In addition, excellence frameworks and organisational assessments created incentives for identifying, documenting, and showcasing successful experiences. Taken together, these factors contributed to the organisation's gradual movement from dispersed information resources towards more coherent knowledge management.

At the strategic level, attention to broader strategic directions, capability development, and the strengthening of organisational learning also created the necessary readiness for implementing portal-based solutions (Mobarakeh Steel Company, 2026). From an operational perspective, the portal emerged as a mechanism for connecting knowledge assets that already existed across different parts of the organisation, but for which integrated and user-centred access had not previously been available.

Accordingly, the main problem addressed by the project can be explained at three levels:

2.1 Dispersion of Knowledge Resources

The organisation's knowledge resources had been developed in the form of multiple systems and infrastructures. Each resource had its own structure, access path, and level of maturity. This dispersion prevented organisational knowledge from being viewed in an integrated manner.

2.2 Multiple Authentication Requirements and Difficult Access

The existence of separate authentication procedures across different resources meant that user access to information and knowledge became a time-consuming and multi-step process. This was a particularly serious limitation for operational staff, who typically have less time and patience to interact with complex systems.

2.3 Lack of Clear Evidence of the Effectiveness of Knowledge Sharing

Despite the existence of the portal and various knowledge resources, it was difficult to demonstrate that knowledge was actually being used across the organisation or that it was contributing to performance improvement. For this reason, one of the project's main objectives was to create a platform capable of making the use of knowledge and its impact as visible as possible.

On this basis, the need for a structured redesign emerged—a redesign that would focus both on the integration of resources and on respecting the organisation's operational constraints.

3. Conceptual Foundations and Influential Frameworks

Although this paper is practice-oriented, the experience of developing the portal can be explained within well-established knowledge management concepts. One common perspective views knowledge management as a set of processes for creating, storing, sharing, and applying knowledge in line with organisational objectives. Within this approach, technology is an enabler; however, its effectiveness will be limited without organisational processes, governance, and user participation (Alavi and Leidner, 2001).

From another perspective, knowledge management relates to an organisation's ability to connect people, processes, and systems in a coherent way so that knowledge can flow and create value. In this context, both explicit knowledge (embedded in documents and systems) and tacit knowledge (embodied in experts' experience and judgement) are important—particularly in industrial environments, where lessons learned and experience often emerge at the boundary between formal documentation and practical problem-solving (Bhatt, 2001; Davenport and Prusak, 1998).

Alongside these theoretical foundations, practical reference frameworks such as APQC have directly influenced the development of knowledge management capability in this project. APQC models and tools offer a process-oriented lens for capability assessment, helping organisations strengthen core components like governance, content management, accessibility, learning mechanisms, and reuse in a structured manner (APQC, 2025). In the case of our portal, APQC served as the main reference for organising portal functions around governance, content lifecycle, and knowledge reuse—leading to specific design choices such as structuring resources by ownership and type, defining review and approval responsibilities, and making retrieval pathways more transparent for end users. Similarly, ISO-based practices reinforced documentation discipline, competence development, and controlled access, all of which shaped the portal's rules for publishing, updating, and maintaining knowledge resources.

Furthermore, a standards-oriented environment and the organisation's experience in implementing ISO-based approaches across different domains have supported the discipline required for documentation, competence development, and the management of knowledge resources (ISO, 2019). Overall, the portal can be seen as a point of convergence between real business needs, reference frameworks, standards, and the organisation's operational logic.

4. Development of the Knowledge Management Portal

The knowledge management portal was designed with the aim of creating a central access point for the organisation's knowledge resources, which were dispersed across different units and functions. One of the main challenges in implementing the portal was that these knowledge assets had not been produced within a single architecture; rather, they existed in different formats and systems, with different ownership arrangements and uneven levels of maturity and quality. Therefore, in addition to displaying content, the portal needed to help create coherence and logical connections among heterogeneous resources.

To address this need, a modular design approach was adopted. This approach makes it possible to connect different knowledge domains and applications within an overall framework, while preserving the specific functions of each domain and its governance arrangements. Modularity also helps align the portal with the needs of different user groups, organisational levels, and operational contexts. Rather than imposing a single integrated repository, the portal plays the role of an "integrated gateway" that brings together access paths to multiple knowledge resources at one point.

The implementation of the portal required close interaction with the owners of knowledge resources, facilitators, and relevant stakeholders. In practice, this involved holding working sessions, clarifying the nature of the content, reviewing access boundaries, and determining how different types of knowledge should be presented and linked. Such interactions are essential, because the success of the portal is realised only when the system reflects the realities of organisational work and accommodates the responsibilities and constraints associated with content production and maintenance.

Access policies were also a key consideration. In industrial organisations, not all information can be made available to all users. The portal therefore needed to support the application of access levels and the separation of responsibilities, while at the same time strengthening the overall objective of knowledge sharing as far as possible. Achieving a balance between "openness" and "control" is one of the enduring challenges of organisational knowledge systems.

The home page of the knowledge management portal plays an important role in the user experience. As the main gateway, it must guide users towards relevant content, simplify navigation, and increase the visibility of knowledge assets. From this perspective, the home page is not merely a technical interface; rather, it represents a practical expression of the organisation's philosophy of knowledge sharing and a means of day-to-day access to organisational memory.

5. Knowledge Resources and Portal Functions

A central objective of the knowledge management portal was to improve the accessibility, integration, and practical use of organisational knowledge resources. Prior to the development of the portal, knowledge existed across multiple repositories including departmental files, internal reports, technical documents, lessons learned records, and other knowledge artefacts distributed across organisational units. Although these resources contained valuable operational and managerial knowledge, their dispersion across different systems and locations significantly limited their discoverability and reuse. The portal was therefore designed as a unified access point through which diverse knowledge resources could be integrated, structured, and made more easily accessible to employees. The main categories of organisational knowledge resources currently integrated into the portal are presented in Table 1.

Table 1: Organisational Knowledge Resources Integrated into the Knowledge Management Portal

Knowledge resource	Approximate number	Software infrastructure	Audience within the organisation
Operational workflows and instructions	12000	In-house office automation software based on .NET infrastructure	Entire organisation (approximately 12,000 employees)
Lessons learned	130000	In-house "Transformation Cartable" software based on Oracle BPMS infrastructure	Entire organisation (approximately 12,000 employees)
Suggestions	6940052	In-house "Transformation Cartable" software based on Oracle BPMS infrastructure	Entire organisation (approximately 12,000 employees)
Improvement and transformation projects	17556	In-house "Transformation Cartable" software based on Oracle BPMS infrastructure	Entire organisation (approximately 12,000 employees)
Research projects conducted in collaboration with university centres	500	No specific software infrastructure	Entire organisation (approximately 12,000 employees)
Experts' knowledge booklets and knowledge packages	200	No specific software infrastructure	Entire organisation (approximately 12,000 employees)
Meetings and findings of specialist groups	143	No specific software infrastructure	Entire organisation (approximately 12,000 employees)
Minutes and reports of failure-analysis meetings	11111	In-house EIS software based on Oracle Forms infrastructure	All personnel in the company's maintenance areas (approximately 5,000 employees)
Organisational books, standards, and international resources related to the steel industry	200	No specific software infrastructure	Entire organisation (approximately 12,000 employees)
Employees' professional and knowledge profiles, including their educational and professional records	12000	No specific software infrastructure	Entire organisation (approximately 12,000 employees)

5.1 Improving Knowledge Discoverability

One of the primary functions of the portal is to enhance the discoverability of organisational knowledge. In many organisations, the challenge is not necessarily the absence of knowledge but the difficulty of locating relevant information at the moment it is needed. The portal addresses this challenge by providing a centralised interface through which users can search, browse, and access knowledge resources originating from different organisational sources. The main interface of the portal, which enables users to navigate and retrieve knowledge resources, is illustrated in **Figure 1**.

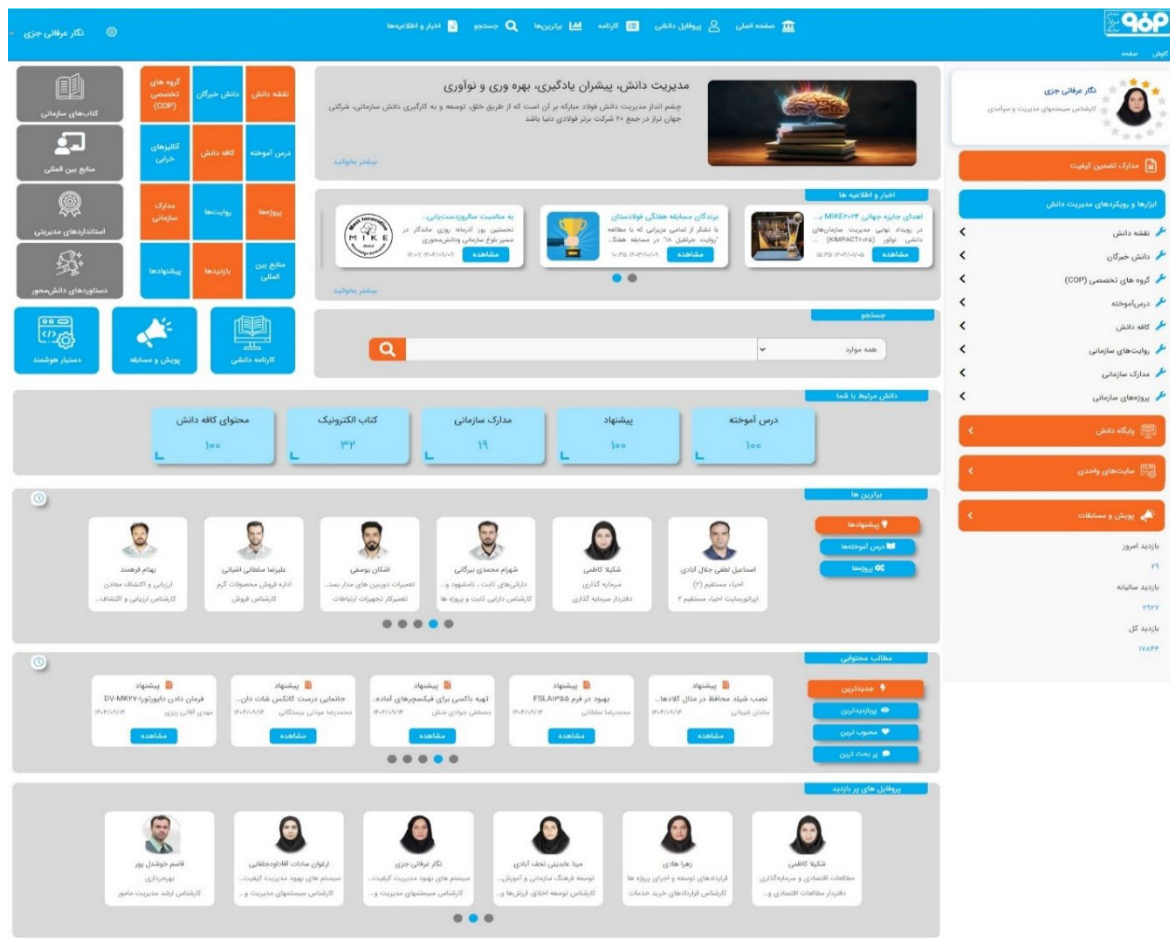


Figure 1: Main Interface of the Knowledge Management Portal

The proposed KMS architecture, (conceptualised in **Figure 1**), serves as the technological cornerstone of the organizational knowledge framework. It seamlessly integrates the three pillars of KM: it empowers **people** by providing personalized knowledge access, streamlines **processes** through structured workflows such as the CRA (Failure Analysis Groups) module, and leverages advanced **technology** to ensure the codification and retrieval of organizational learning. Consequently, this platform transforms fragmented operational data into a cohesive knowledge asset, enabling evidence-based decision-making across the enterprise.

By consolidating dispersed repositories into a single environment, the portal reduces fragmentation and improves the visibility of existing knowledge assets. Initial use of the portal has indicated a noticeable improvement in the retrieval of internal documents and knowledge resources. Users reported that materials previously scattered across different departments are now easier to locate, and that recurring operational problems can be resolved more quickly because earlier solutions and experiences are accessible through the portal. These observations suggest that the portal contributes to both improved knowledge findability and increased opportunities for knowledge reuse within the organisation.

5.2 Monitoring Knowledge Use Through Portal Indicators

In addition to integrating knowledge resources, the portal also enables the monitoring of how knowledge is accessed and used within the organisation. To support this objective, a set of standardised usage indicators has been defined for different types of knowledge resources available in the portal. These indicators include metrics such as views, user feedback, comments, and other forms of user interaction.

The introduction of these indicators makes it possible to observe patterns of knowledge use and engagement across different organisational units. Unlike the previously dispersed repositories, where no consistent evaluation criteria existed, the portal provides a unified analytical perspective that allows knowledge managers to monitor the relative visibility and utilisation of different knowledge resources. Over time, these usage indicators can support the identification of high-value knowledge assets, highlight areas where knowledge resources require improvement, and provide a basis for evidence-based refinement of the knowledge base.

5.3 Linking Lessons Learned with Organisational Procedures

An additional integration mechanism implemented through the portal concerns the systematic linkage between organisational lessons learned and the formal body of procedures and operational guidelines. Historically, lessons learned were collected within the organisation as a means of capturing experiential knowledge derived from operational activities. However, despite the accumulation of a large number of lessons learned, their practical utilisation in the revision of formal procedures and organisational documentation remained limited.

One of the main reasons for this limitation was the absence of a structured connection between the two domains. Lessons learned were managed through a knowledge management process, while the revision of procedures and operational guidelines was conducted by specialised teams within organisational units. Because these processes operated largely independently, there was no systematic mechanism to demonstrate how experiential knowledge could inform the revision of formal documents.

To address this challenge, the knowledge portal introduced a structured linkage between lessons learned and organisational procedures. When submitting a new lesson learned, contributors can identify the specific procedures or operational guidelines that may potentially benefit from the knowledge captured. During subsequent reviews of these documents by the responsible organisational units, the system automatically presents the lessons learned that have been associated with the relevant document. This enables subject-matter experts to examine these insights and, where appropriate, incorporate them into the revision of procedures and operational guidelines.

Through this mechanism, the portal establishes a systematic bridge between informal experiential knowledge and the organisation's formal documentation system. In addition, a dedicated indicator has been defined to monitor the extent to which lessons learned are utilised during the revision of organisational documents. This indicator enables organisational units to track the practical application of captured knowledge and provides evidence of how operational experience contributes to the continuous improvement of organisational practices.

This approach also supports the practical implementation of recognised knowledge management frameworks. In particular, it aligns with the principles of ISO 30401, which emphasise the systematic application of organisational knowledge in operational processes and decision-making. By connecting lessons learned with the revision of formal procedures, the portal helps ensure that experiential knowledge is not only captured but also embedded within organisational practices. Similarly, the mechanism reflects the process-oriented perspective of the APQC knowledge management framework, which highlights the role of organisational learning in the continuous improvement of organisational processes.

6. Implementation Challenges and Lessons Learned

The development of a knowledge management portal in a large industrial company highlights several key lessons. First, the success of the portal depends less on the *presence of technology* and more on the *alignment of users, content, governance, and organisational processes*. A purely technical portal will not create sustained value if it is not connected to users' real work practices.

Second, stakeholder engagement is critical. Knowledge resources are typically produced and maintained by different organisational actors, each with distinct language, priorities, and documentation standards. Coordinating these actors requires facilitation, negotiation, and trust-building. The organisation's experience indicates that continuous interaction with resource owners and facilitators was essential in moving from dispersed content towards an integrated system.

Third, modularity is an advantage. In many organisations, attempts to fully centralise all knowledge into a single repository fail because functional diversity is overlooked. A modular architecture provides a more realistic route to integration: knowledge domains can retain relative autonomy while becoming accessible through a shared gateway.

Fourth, access control is a determining issue. Organisational knowledge sharing is always constrained by practical requirements relating to confidentiality, accountability, and organisational policies. The goal is not to remove all boundaries, but to design a system in which appropriate knowledge can flow effectively without weakening organisational governance. This case suggests that successful approaches require a combination of *targeted openness* and *structured control*.

Fifth, knowledge management maturity is cumulative in nature. This initiative benefited from the organisation's prior investments in quality systems, training structures, documentation practices, information systems, and

organisational assessments. For this reason, the portal should be seen as the outcome of a trajectory of organisational development, rather than its starting point. This lesson is important for other organisations: effective knowledge portals are typically built on existing managerial infrastructures.

7. Conclusion

This paper presented a practical case study of sharing organisational knowledge resources through the corporate knowledge management portal of Mobarakeh Steel Company. The initiative demonstrates how an organisation can overcome dispersed knowledge by moving towards an integrated, user-centred environment. A key lesson is that KM maturity develops cumulatively; the portal's success was not an isolated technological achievement, but the result of sustained investment in documentation, training, and governance.

The portal serves as a manifestation of this progressive development, informed by frameworks such as APQC and ISO 30401. It underscores that sustainable KM depends on the alignment of processes, governance, and organisational learning. For similar industrial entities, this experience offers a blueprint for moving beyond fragmented initiatives, proving that modular design and process alignment are critical enablers for embedding knowledge sharing into everyday infrastructure.

Ultimately, this study provides a significant contribution by demonstrating how traditional KM frameworks can be operationalised within a large-scale industrial context. By integrating diverse resources into a unified KMS architecture, this research highlights the transition from reactive problem-solving to proactive knowledge codification. This approach offers a scalable, replicable model for heavy industries to mitigate operational risks by embedding tacit knowledge management directly into daily workflows, thereby enhancing organisational resilience in complex environments.

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AI Declaration: Artificial intelligence tools were used solely for language translation and to improve the clarity and academic tone of the manuscript. The authors did not use AI tools to generate research content, analyze data, or develop the core arguments of the paper. All research, findings, and conclusions presented herein are the result of the authors' own work.

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