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## KNOWLEDGE MANAGEMENT SYSTEMS

### Introduction

All organizations—large and small, non-profit and profit-making—need knowledge management solutions and systems.

Most organizations have a de facto and informal system of knowledge management—a collection of policies, processes, and procedures, maybe a few videos, and an organizational “online library” which stores other “knowledge assets,” —but the most effective knowledge management systems are carefully planned and designed, purposeful, and integrated into the organizational culture.

Knowledge management solutions and systems don’t have to be elaborate or complicated to be effective and successful. The level of sophistication or simplicity of formally and intentionally designed knowledge management systems will vary, depending on the needs of the organization.

What is knowledge management, and why do all organizations and institutions need an integrated knowledge management system? How does an organization recognize the need and the benefits of implementing an integrated knowledge management solutions, and how does an organization design, develop, implement, and evaluate an effective and efficient knowledge management system?

These are the questions discussed and answered in this white paper.

### What is “Knowledge”?

**Knowledge** is simply the result of processed data and information.

Data are recorded facts or observations, such as data from statistical studies or process evaluations. Data evolve to become information, then knowledge. Information is analyzed data with some level of interpretation and context, such as documented policies, procedures, and processes. Knowledge, then, is the acquired and applied insights and observations derived from data and information, such as personal insights and observations applied to organizational operations.

Knowledge can be categorized to be explicit, tacit, or embedded.

**Explicit knowledge** is articulated knowledge, expressed and recorded as words, numbers, codes, mathematical and scientific formulae, and

musical notations. It is easy to communicate, store, and distribute and is the knowledge found in books, policies, procedures, process documentation, instruction and training, on the web, and other visual and oral means.

**Tacit knowledge** consists of cultural beliefs, values, attitudes, mental models, skills, capabilities, capacities, and expertise. It is a vast storehouse of unwritten, unspoken, and hidden knowledge held by practically every normal human being, and based on his or her emotions, experiences, insights, intuition, observations, and internalized information.

Tacit knowledge is integral to the entirety of a person's consciousness, is acquired largely through association with other people, and requires joint or shared activities to be imparted from one to another. It is also regarded as being the most valuable source of knowledge, and the most likely to lead to breakthroughs and innovation in the organization.

**Embedded knowledge** is locked in processes, products, culture, routines, artifacts, or structures, and is found in rules, processes, documentation, organizational culture, codes of conduct, ethics, and products. Knowledge is embedded either formally, such as through a management initiative to formalize a certain beneficial routine, or informally as the organization uses and applies the other two knowledge types.

While embedded knowledge can exist in explicit sources (i.e., a rule can be written in an HR handbook), the knowledge itself is not explicit, that is, it is not immediately apparent why doing something this way is beneficial to the organization. Due to the difficulty in effectively managing embedded knowledge, organizations that succeed may enjoy a significant competitive advantage.

### What is Knowledge Management?

"**Knowledge Management** is a discipline that promotes an integrated approach to identifying, capturing, evaluating, retrieving, and sharing an organization's information assets. These assets may include databases, documents, policies, procedures, formal instruction and training, and previously un-captured expertise and experience in individual workers." (Duhon, 1998)

Knowledge management is not more complicated than getting the right information to the right people at the right time – with the goal of enhancing and improving organizational performance.

Knowledge management promotes a collaborative and integrative approach to the identification, creation, capture, organization, access and use of “knowledge assets,” including the tacit, uncaptured knowledge of people and the embedded knowledge found in the organization.

The concepts of formal knowledge management systems have been around for decades.

### What are “Knowledge Assets”?

Organizations and institutions have always produced “knowledge assets” and used these assets to direct and manage operations.

**Knowledge assets** are the accumulated intellectual resources of an organization. They can be explicit, tacit, or embedded. They are the identified, collected, documented, and curated knowledge (processed data and information) possessed by any organization and its personnel in the form of information, ideas, learning, understanding, memory, insights, cognitive and technical skills, capacities, and capabilities.

The people in any organization—as well as the databases, documents, guides, policies, processes, procedures, software, and patents—are all sources of an organization’s knowledge assets.

Knowledge assets are the “know how” that an organization has available to use, to invest, and to grow. Crafting and controlling explicit, tacit, and embedded knowledge assets are key components for any organization to create value for stakeholders, to help foster innovation, and to sustain organizational performance.

Explicit knowledge assets are constructed by collecting data and information, which is then transformed into documentation, including: policies, procedures, protocols, processes, and the instruction or training used in the operations of an organization.

Tacit knowledge assets are created by the application of explicit knowledge and are manifested in the knowledge possessed by individuals within the organization—based on their own insights and

experience—that may not be documented but can still contribute to the operations of an organization.

Embedded knowledge assets are shaped by established practices, routines, structures, ethics, and culture of an organization.

Knowledge assets permit and expedite the transfer of knowledge from one time and place to another, and organizations that can effectively manage knowledge assets may enjoy a considerable innovative and competitive advantage.

### Knowledge Management System Frameworks

Many organizations have an informal system to manage the explicit, tacit, and embedded knowledge that exists within every group or business, but informal knowledge management systems are most often unorganized, difficult to access, and chaotic.

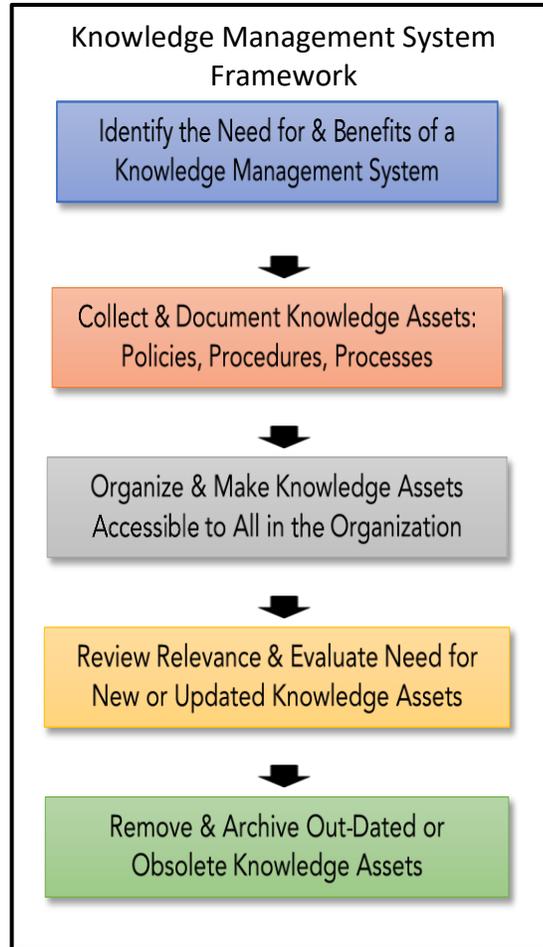
What is needed to effectively manage “knowledge” in an organization are smart, systematic, and systemic processes to identify, develop, and organize explicit, tacit, and embedded organizational knowledge assets to be accessible and beneficial to all within the organization.

Development of an integrated knowledge management system framework will ensure that the knowledge management system is structured, manageable, and effectively communicates an organization’s knowledge management strategies.

A smart, systemic, and systematic knowledge management system doesn’t have to be complex and intricate to be effective. The level of sophistication of an integrated knowledge management system will depend, in part, on the size, variety, and intricacy of an organization’s activities.

In small organizations, they can be simple (**Figure 1**), and larger, more complex, organizations usually have knowledge management system frameworks that are more complicated (**Figure 2**):

**Figure 1 – A Simple Knowledge Management Framework**



**Figure 2 – A Complex Knowledge Management Framework**

CYCLES OF CONTINUOUS IMPROVEMENT				CALL TO ACTION	RESULT			
				Explore Business Value of KM Program	Identify Critical Knowledge	Align KM to Business Priorities and Functions	Get Buy-In	<ul style="list-style-type: none"> <li>Business Buy-in</li> <li>Value Proposition</li> <li>KM Direction</li> </ul>
				DEVELOP KM STRATEGY			RESULT	
				Determine Current State	Create Governance Framework	Scope and Prioritize Opportunities	Create Business Cases and Budgets	<ul style="list-style-type: none"> <li>KM Strategy</li> <li>KM Road Map</li> </ul>
				DESIGN AND IMPLEMENT KM CAPABILITIES			RESULT	
				Form Operational Design Teams	Design Knowledge Flow Process	Design Resource Model and Capabilities	Ratify Plans and Budgets	<ul style="list-style-type: none"> <li>Dynamic Plans for Project and Infrastructure</li> <li>Detailed Budget</li> <li>KM Implementation</li> </ul>
				Design KM Approaches		Develop Measures		
				EVOLVE AND SUSTAIN			RESULT	
				Evolve KM Capabilities	Ensure KM Alignment to Business Priorities	Sustain Awareness and Engagement	Expand KM Infrastructure to Meet Demand	<ul style="list-style-type: none"> <li>Dynamic KM Program: Valued and Embedded</li> </ul>

Source: APQC's Interactive Knowledge Management Strategy Framework

## Why Have an Integrated Knowledge Management System?

An integrated knowledge management system is useful because it places the focus on knowledge as an actual asset, rather than as something intangible. In so doing, it enables an organization to better protect and exploit what it knows, and to improve and focus its knowledge development efforts to match its needs.

In other words, an integrated knowledge management system will:

- Exploit existing knowledge assets by re-deploying them to areas where the organization stands to gain something, e.g., using knowledge from one department to improve or create a product in another department, or modifying knowledge from a past process to create a new solution.
- Promote a long-term focus on developing the right competencies and skills and removing obsolete knowledge.
- Help organizations learn from past mistakes and successes.
- Enhance an organization's ability to innovate.
- Augment an organization's capacities to protect key knowledge and competencies from being lost or copied.

An integrated knowledge management system prevents organizations from constantly reinventing the wheel, provides a baseline for progress measurement, reduces the burden of expert attrition, makes visual thinking tangible, and manages effectively large volumes of information to help organizations serve their clients better and more quickly.

As a fundamental organizational support, knowledge management systems help organizations to protect their intellectual capital and focus on their most important assets: their human capital. They will also help to re-orient organizational culture with knowledge sharing strategies to better link people within the organization by setting up collaborative methods.

The purpose of the knowledge management process is to enable the sharing of perspectives, ideas, experience and information; to ensure that these are available to the right people, in the right place, and at the right time to enable informed decisions; and to improve efficiency by reducing the need to rediscover or reinvent knowledge.

The objectives of an integrated knowledge management system are to:

- Improve the quality of management decision-making by ensuring that reliable and secure knowledge, information, and data is available to the right people, at the right time.
- Enable the organization to be more efficient and improve the quality of their operations and to shrink operational costs by reducing the need to rediscover or reinvent knowledge.
- Ensure that all personnel have a clear and common understanding of the value that their organization provides to their clients and the ways in which benefits are realized from the client's relationship with the organization.
- Maintain a knowledge management system that is organized and provides ready access to knowledge assets, information, and data.
- Gather, analyze, store, share, use and maintain knowledge, information, and data throughout the organization.

All organizations have a need to have access to their extensive pool of knowledge. The way an organization identifies, collects, documents, shares, and exploits this knowledge can be central to its innovation efforts and the ability for it grow and maintain its success.

### Establishing an Integrated Knowledge Management System

The main benefit of having a knowledge management system is that it helps to make learning a habit and routine for an organization and fosters a culture that is oriented toward self-assessment as well as self-improvement. The knowledge gained through the process of knowledge management systems makes use of experience to improve processes and streamline operations.

Managing knowledge routinely and actively with an integrated knowledge management system makes way for innovation and cultural change. It allows for the personnel within an organization to express their ideas and use their creativity to perform tasks. When personnel have access to knowledge through an integrated knowledge management system, they make better informed choices.

Without an integrated knowledge management system, an organization may waste resources and time on the re-discovery or re-invention of knowledge and spend too much time on location or identification of difficult to find information.

With technological advancements and the availability of high-speed networks, organizations have an opportunity to gather, store, share,

and use knowledge in a way never before imagined. A wide array of software products, processes and procedures enable a more effective implementation of knowledge management systems.

### Identify Organizational Issues

The first step to take toward implementation of an integrated knowledge management system is to identify various organizational issues of concern by conducting an internal analysis of the organization. Until an organization is aware of problem areas, it won't be able to align the knowledge management system with the organization's goals and objectives.

It is also necessary for organizations to evaluate and assess the variety and quantity of explicit knowledge assets stored in documentation, databases, on the web; the tacit knowledge assets that employees possess through their insight, experience, and knowledge; and the embedded knowledge assets found in the organization's rules, culture, code of conduct, products, and structure.

Organizations should conduct a cost-benefit analysis in order to evaluate the complexity of system structures, get to know training costs, security issues, updating costs, and analyze existing organizational practices.

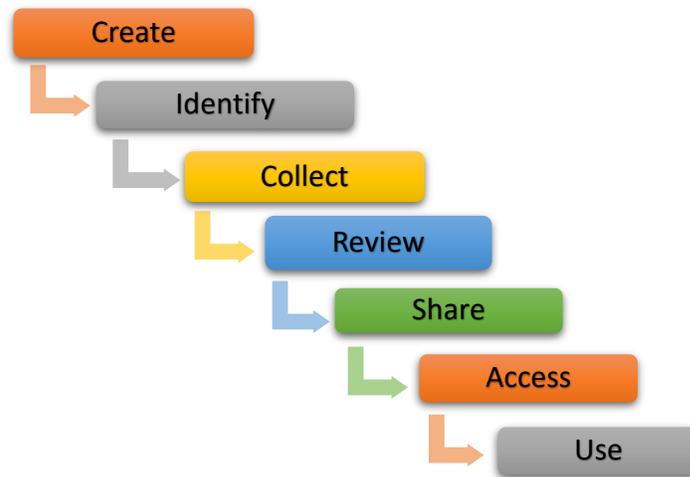
Many organizations have shied away from implementing an integrated knowledge management system because they fear the large amounts of information that need to be identified, developed, managed, and stored.

### Design Knowledge Flow Process

For knowledge to flow seamlessly through an organization, it must define how knowledge assets will be created, identified, captured, reviewed, shared, accessed, and used (Figure 3).

Tracking the flow of knowledge assets helps organizations to pinpoint key handoffs and to identify potential bottlenecks that may prevent knowledge from getting where it needs to go. This, in turn, provides a guide for how an organization will design its knowledge management approaches.

**Figure 3 – Knowledge Flow Process**



### Prepare for Transition

Once organizational issues of concern have been identified, the entire organization must prepare for the transition. The application and implementation of an integrated knowledge management system will necessarily cause a change in organizational culture and change how technology is used. Many personnel may try to resist changes or may even try to oppose a new way of working.

Much of the resistance to change can be avoided with a smart, systematic, and systemic approach to the implementation of an integrated knowledge management system. A measured and compassionate approach, coupled with timely training and professional development opportunities, will help personnel adapt to the new system.

Leaders within the organization must be committed to the new system and must demonstrate their commitment by “leading by example.” They must help all personnel within the organization to understand and embrace the importance, necessity, and benefits of an integrated knowledge management system.

### Put Together a Dedicated Team

A strong and dedicated team—with an experienced and enthusiastic team leader—is vital to the successful implementation of an integrated knowledge management system. Putting together a dedicated team, with a wide range of skills and experience, will help to make implementation more efficient and lead to a focused approach for reaching implementation objectives.

A committed leader provides direction, guidance and must possess strong project management skills, extensive experience, broad knowledge, and solid personnel management skills. Leadership must understand and be able to communicate the importance of knowledge management systems throughout the organization.

The team must develop a detailed implementation plan before beginning the processes involved with the execution of an integrated knowledge management system.

### Evaluate Technology Needs and Prioritize Them

Technology is key to an effective integrated knowledge management system.

Knowledge management system design and strategies should drive technology investment, not the other way around. Successful implantation plans avoid fads and opt for simple technology tools that fit into existing infrastructure and provide capabilities that align with the organization's knowledge management system needs. Technology tools and capabilities can be added, over time, as the scope of the knowledge management system expands.

In order to implement an effective, cost-efficient knowledge management system throughout the organization, it is important to know potential costs that will be incurred, and how to acquire the expertise and the technology tools that will be required for implementation. Identifying what is needed and evaluating what the organization already has, will help the implementation team to determine what is needed. There is no need to purchase expensive technology that is not part of the implementation plan.

Once the team has made purchasing decisions for the technology needed, they should compare prices, quality, and brands in order to purchase the most cost-efficient technology that meets the needs for implementation of the knowledge management system.

### Determine the Major Attributes of Knowledge Management System

In order to ensure that the technology an organization acquires—as part of its implementation of an integrated knowledge management system—will address the new system's needs, the major aspects and

attributes of the integrated knowledge management system must be determined.

The key features of knowledge management systems to consider include:

- **Open** – Open systems enable personnel to have access to any information from their current location.
- **Distributed** – Distributed systems components are well distributed across various servers and enable access of knowledge to various offices of the organization around the globe.
- **Measurable** – The system must be able to measure what information was accessed and the location from which it was accessed. Measurable systems ensure better management and analysis of the effectiveness of the overall knowledge management within the organization.
- **Customizable** – The system must be extremely customizable and flexible in order to ensure that it provides a superior user experience.
- **Secure** – Knowledge management systems must be secure from the threat of loss of information, the threat of duplication, and other security issues.

### Link Knowledge to People

When an organization is faced with certain business problems, the support of their knowledge databases may be needed. These databases should not be just records and reports of existing information, the data bases should also be able to direct personnel to the people within the organization who hold the solutions or knowledge they may be seeking.

Searching for answers can time consuming, it is more efficient to link knowledge to people as a part of the implementation of an integrated knowledge management system. There are two ways this can be accomplished:

- **Develop a knowledge directory:** A knowledge directory assists personnel in an organization to locate subject-specific experts within the organization who can then share the knowledge they possess. The directory acts as a platform for users to create a list of the experts within the organization who may be most able to assist with a specific question or problem. This link between people and human knowledge assets makes an integrated

knowledge management system different from other applications that manage explicit knowledge.

- **Employ content managers:** Content management is also a vital part of an integrated knowledge management system and another way to link people with organizational knowledge. Content managers are responsible for gathering knowledge assets, curating and updating it, and ensuring that the collected assets are valuable and accurate. Maintaining knowledge assets is critically important when personnel are seeking answers to their questions, or solutions for problems.

### Launch the KM System

With the help of the sufficient amount of funding as well as important resources, the implementation of knowledge management systems can be achieved. Now that you know what your goal is and now that you have addressed the cultural issues and met technology needs, it is time to launch the program. Once the program is launched, you may come across certain problems, issues and gaps that you need to address as you move forward.

### Measure and Constantly Improve Your KM System

Only after launching or implementing company-wide knowledge management system will you come to know the areas that are not working as per your expectations. Formulate ways to measure the effectiveness of the program and then make efforts to fill the gaps and make required improvements. After making the improvements, compare old results with the new ones and measure the difference. See how your performance has improved and continue to incorporate these improvements as you go ahead. Do not be too quick to dismiss the program because it takes time and efforts for expected results to show.

### Wrapping It All Up

For an organization to develop and exploit its knowledge assets in the most useful and cost-effective manner, the organization must have a system that can identify and collect these assets, and then: document them, organize them, store them, share them, and manage them effectively and efficiently.

Knowledge assets include databases, reports, documents, files, procedures, policies, instruction, and the insights, capacities,

capabilities, and experience of its personnel. An integrated knowledge management system's processes and practices direct the arrangement and administration of these knowledge assets.

 offers knowledge management system design, development, and implementation support. We provide knowledge management systems solutions that enable organizations to:

- Design and develop a knowledge management system framework crafted to meet specific needs and goals.
- Identify, collect, document, organize, and share knowledge assets.
- Implement integrated knowledge management processes that make knowledge assets accessible to all personnel throughout the organization.
- Design and conduct training to support the implementation of knowledge management processes and practices.
- Develop assessment tools that support the evaluation and renovation of your knowledge management system.

Every organization possesses vast amounts of information, data, knowledge, and expertise and the amount keeps increasing every day.

Despite the widely acknowledged effectiveness and importance of knowledge management systems in flourishing and productive organizations, most organizations do not have formalized strategies, processes, or practices to employ knowledge management solutions or systems to their benefit.

Carefully planned and designed—and effectively implemented—integrated knowledge management systems are essential for organizations of any size to become successful, innovate, grow, or maintain a significant competitive advantage.

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