



*Knowledge Management Training Manual for
Protecting Lake Hawassa Project Partners*

In Collaboration With



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Session One: Basics of Knowledge Management

Session Objectives

After the completion of this specific training sessions, participants will be able to

- Define the basic concepts in Knowledge Management
- Differentiate between information management and knowledge management
- Appreciate the importance of Knowledge Management
- Understand the processes and cycles in Knowledge Management
- Identify the different types of Knowledge Management
- Understand the barriers to Knowledge Management

Session One: Basics of Knowledge Management

Session Topics

Session 1.1: Definition of Knowledge Management

Session 1.2 : Information Management versus Knowledge Management

Session 1.3: Importance of Knowledge Management

Session 1.4: Applications of Knowledge management


Session 1.5: Knowledge Management Processes


Session 1.6: Types of Knowledge Management System


Session 1.7: Knowledge Management Cycle

Session 1.8: Barriers to Knowledge Management

Supporting Materials







 **Training guide/manual**

 **Projector for Power point**

 **NRAF**

 **Resource Sheet: Key Thematic Areas Prioritization for Fundraising/Grant Proposal Preparation**

Session Objectives, Key points, Delivery Methods, Time Allocation, and Trainer Role

 Session Objectives	 Time allocated
<p>After the completion of this specific training session participants will be able to</p> <ul style="list-style-type: none"> • Define the basic concepts in Knowledge Management • Differentiate between information management and knowledge management • Appreciate the importance of Knowledge Management • Understand the processes and cycles in Knowledge Management • Identify the different types of Knowledge Management • Understand the barriers to Knowledge Management 	<p style="text-align: center;">6 hours</p>
 Contents and Key Points	Methodologies 
<ul style="list-style-type: none"> ☞ Definition of important concepts including knowledge management and information management ☞ Importance of KM ☞ Applications of KM in the context of NatuReS ☞ Processes involved in KM ☞ Types of KM ☞ Barriers to KM 	<ul style="list-style-type: none"> ➤ Brainstorming ➤ Lecture ➤ Group Discussions ➤ Presentation
 Material/Aids	 Trainer Roles
<ul style="list-style-type: none"> → Training Guide → Flip Chart → Marker → Power point Slides → Projector 	<ul style="list-style-type: none"> → Write each key word and concepts on flip charts/power point → Brainstorm participants understanding of the key terms and concepts → Explain the key concepts and terms by supplementing the prior knowledge of the participants → Narrate the cycles/process of KM

- | | |
|--|-------------------------------------------------------------------------------------------------------------------------|
| | <ul style="list-style-type: none">→ Engage participants through Q & A→ Summarize the session |
|--|-------------------------------------------------------------------------------------------------------------------------|

Unit 1: Basics of Knowledge Management

1.1. Definitions of Knowledge Management

Knowledge management is defined by United Nations (2016) as a deliberate and systematic coordination of the people, technology, processes and structure of an organization in order to add value through reuse and innovation. This is achieved through promoting the creation, sharing, and application of knowledge as well as through the feeding of valuable lessons learned and best practices into corporate memory. KM is the targeted coordination of knowledge as a factor of production and the management of the organizational environment to support individual knowledge transfer and subsequent creation of collective knowledge. Thus, knowledge becomes an essential organizational driver and a key factor in value creation through a learning process from others (colleagues, partners, and third parties) or by creating new knowledge applying innovations (Forum,, 2003).

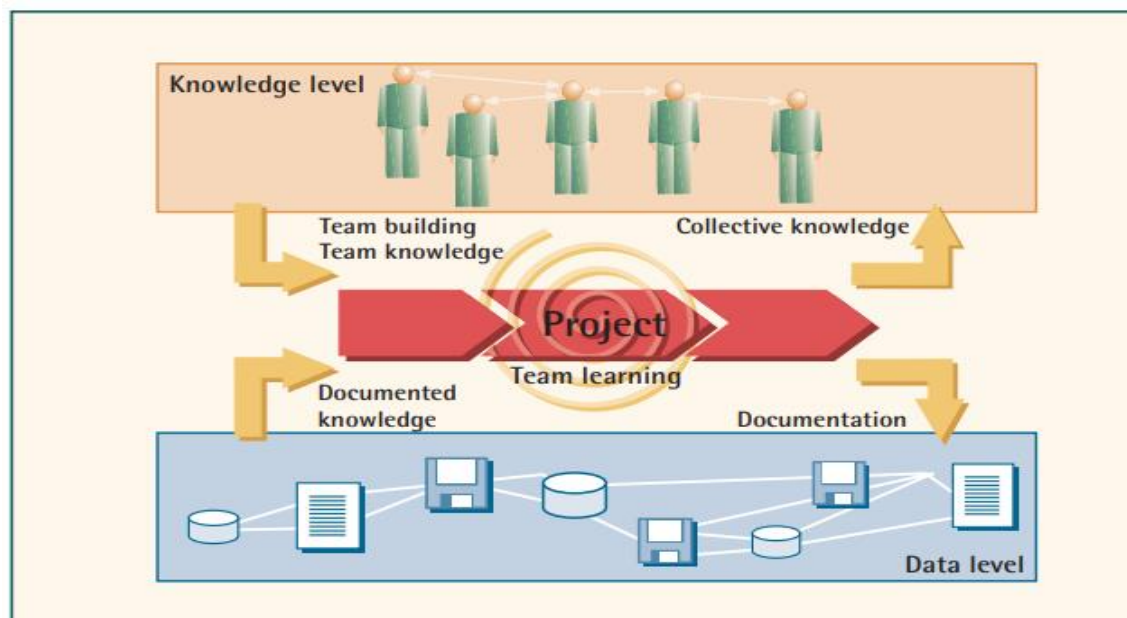


Figure 1: Project as a framework for Knowledge creation and application-

Source: Forum, (2003). "An illustrative guide to knowledge management.

<http://www.wm-forum.org>.

1.2. Concepts of KM: Information Management and Knowledge Management

“Knowledge Management (KM) is managing organization’s knowledge through a systematically & organizationally specified process for acquiring, organizing, sustaining, applying, sharing, renewing both the tacit and explicit knowledge of employees to enhance organizational performance and create value”. Knowledge management is about facilitating the processes by which knowledge is created, shared and used. It is about changing the way everyone works, which requires changing people’s behaviors and work patterns. Knowledge management is essentially about people - how they create, share and use knowledge, thus knowledge management programmes should have both a “collecting” and a “connecting” dimension. The collecting dimension involves linking people with information. It relates to the capturing and disseminating of explicit knowledge. The connecting dimension involves linking people with people - specifically people who need to know with those who do know, and so enhancing tacit knowledge flow through better human interaction and communication processes, so that knowledge is widely disseminated and not just held in the heads of a few.

Information Management versus Knowledge Management

This has always been a bit of a tricky subject, because knowledge and information are used interchangeably by so many people. Therefore, you will often find KM solutions even today which are essentially nothing more than information or document management systems, i.e. which handle data, information, or perhaps even explicit knowledge, but which do not touch the most essential part of KM - tacit knowledge. Below you can find an info-graphic of the main differences, with a short explanation below. Please keep in mind that IM in many ways is a useful tool for KM, in that information can help create and refine knowledge, but as a discipline it is a different one.

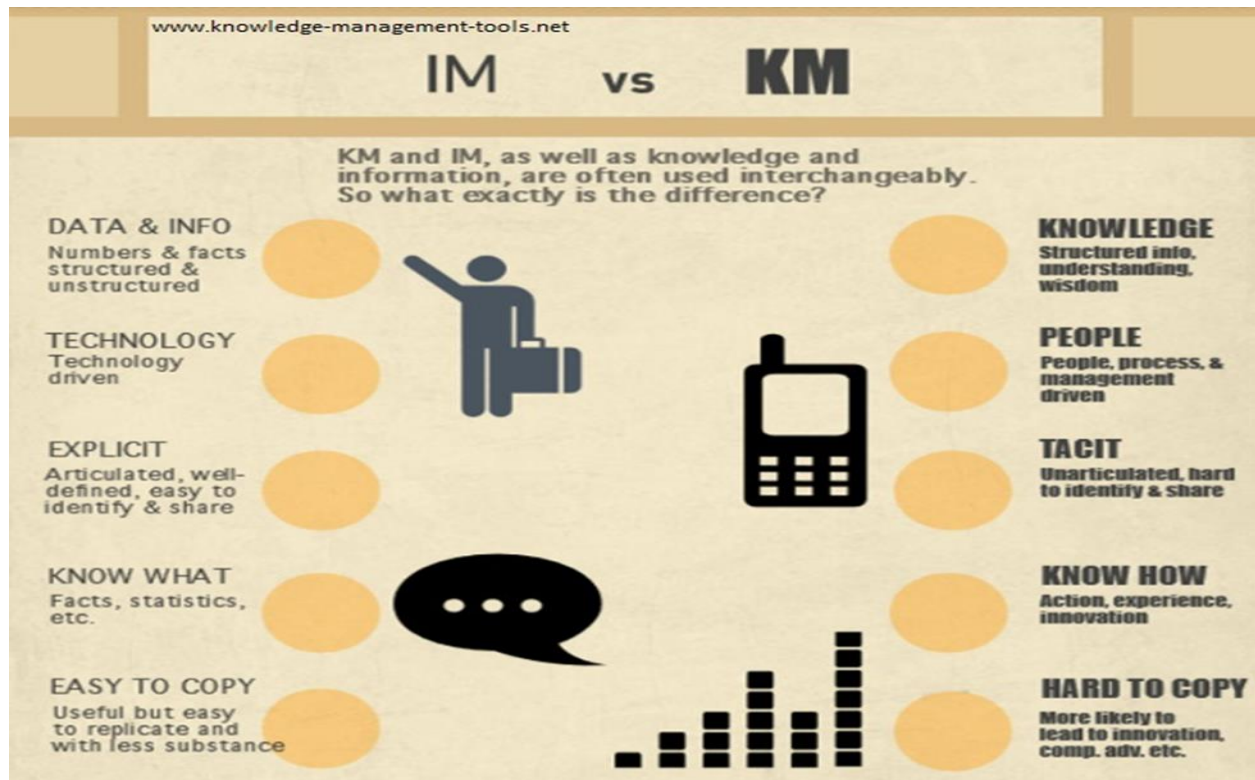


Figure 2: Information Management versus Knowledge Management

As indicated above, knowledge and information are actually quite different, as is tacit and explicit knowledge. So, while information and data management are certainly very useful, particularly as information sources are growing at exponential rates and with the new focus on big data, it is not synonymous with KM. The following explanations provide a vivid picture of the difference between IM and KM.

Information Management:

- Focus on data and information
- Deal with unstructured and structured facts and figures.
- Benefit greatly from technology, since the information being conveyed is already codified and in an easily transferrable form.
- Focus on organizing, analyzing, and retrieving - again due to the codified nature of the information.
- Is largely about know-what, i.e. it offers a fact that you can then use to help create useful knowledge, but in itself that fact does not convey a course of action (e.g. sales of product

x are up 25% last quarter or Partners of the NatuReS for PLH has increased by 15% in 2022).

- Is easy to copy - due to its codified and easily transferrable nature.

Knowledge Management:

- Focus on knowledge, understanding, and wisdom
- Deal with both codified and uncoded knowledge. Uncoded knowledge - the most valuable type of knowledge - is found in the minds of practitioners and is unarticulated, context-based, and experience-based.
- Technology is extremely useful, but KM's focus is on people and processes. IT is great for transferring explicit, codified knowledge, but its role in the transfer of deeper, internalized knowledge is more complex. Since this kind of knowledge is passed from person to person, through interaction, collaboration, mentoring, etc. and preferably in an unstructured environment, IT tools for KM have to support this function. They are therefore not merely passing on information, but also act as tools to bring people together, to enhance communication, to allow the storage and transfer of unstructured thoughts and notes, etc.
- Focus on locating, understanding, enabling, and encouraging - by creating environments, cultures, processes, etc. where knowledge is shared and created.
- Is largely about know-how, know-why, and know-who
- Is hard to copy - at least regarding the tacit elements. The connection to experience and context makes tacit knowledge extremely difficult to copy. This is why universities cannot produce seasoned practitioners - there are some things (the most important things) that you simply cannot teach from a textbook (or other codified source of information/explicit knowledge). These are learnt in the field and understood on an intuitive level. You cannot easily copy or even understand this intuition without the right experience, context, etc. - and it is this intuition that represents the most valuable organizational knowledge.

1.3. Importance: Why Knowledge Management?

Importance of KM: KM support innovation, encourages free flow of ideas, increases revenues, and reduces cost, increases efficiency and effectiveness. Knowledge Management can transform organizational new levels of effectiveness, efficiency, and scope of operation, using advanced technology, data and information are made available to users for effective productivity. Knowledge management is thus crucial to the progress of organizations, institutions and systems for harnessing its knowledge for possible gains. Knowledge management improves organization's performance through increased efficiency, productivity, quality and innovation. It enhances better decision-making, streamline process time, reduces re-work, Therefore, knowledge management is a vital element for the continuous existence and progression of that seek to ensure sustainable strategic competitive advantage (Ikenwe, 2018)

Why are knowledge management strategies useful?

According to (Dumitriu, 2016), KM bestows the following benefits for organizations

- A framework or strategy is essential to structuring and guiding the manner in which an organization channels its efforts to manage knowledge in order to achieve its goals. An organizational policy and a set of guidelines may further detail and transform such a strategy into concrete knowledge management processes and actions.
- **Knowledge management is not a technology-based concept.** Technology supports knowledge management, but it is not the driving force for action. Knowledge management is based on people who produce knowledge in the context of the organization's objectives, while technology comes with the available tools as an enabler. Successful knowledge management begins with a sound vision combined with the fostering of an organizational culture that enables and rewards the creation and dissemination of valuable knowledge.
- Such a comprehensive and coherent vision of the specific and general issues relating to knowledge management can be best achieved by means of strategies and guiding principles that aim to define operational procedures and objectives based on knowledge management practices. The expected outcome of a strategy is the establishment by the organization of a

system to leverage its knowledge assets so as to maximize impact and reduce waste of resources, including time.

- Once a knowledge management strategy is defined, institutional structure, attributions of responsibilities, human resources policies, benchmarking, as well as the enabling technology options, may be explored and put in place. The organization will have to develop a roadmap to identify the initiatives and tools that could best serve its long-term initiatives. A good strategy should at least reflect or result from an evaluation of the needs of the organization and provide the ways to meet the needs efficiently. On the governance side, a strategy should generate and confirm senior management commitment, increase awareness and understanding across the organization, and mobilize staff and resources for the implementation and scaling up of activities.
- The core of the strategy that should inspire concrete action and initiatives is the inventory of available knowledge resources in various forms, such as knowledge capital (tacit and explicit), know-how, expertise, experience, processes, producers, retention of knowledge in documents, social capital (culture, context, informal networks, awareness, trust and reciprocity) as well as the existing information and communications technology (ICT) platforms and the organizational structure (Kimiz, 2005).
- This review does not envisage a one-size-fits-all strategy outline. Moreover, the knowledge management strategies are not an end in themselves and do not exhaust all the related conceptual or practical aspects. Their contents may be customized in view of the specific priorities identified by each organization (Steffen, 2016).
- No matter what form it takes, a strategic vision is indispensable to creating operational coherence, raising awareness, stimulating synergies and elevating knowledge management as one of the conscious practices of an organization. Only a strategic vision and the systematic review of its implementation will help to infuse a knowledge management culture into the daily working routine of staff and into decision-making considerations. Such review should be based on periodic needs assessments and feedback from the process owners (Dumitriu, 2016).

1.4. Applications of Knowledge Management

Organizations and partnerships operate in collaboration with several authorities and stakeholders. There is huge in and out flow of multifarious information and knowledge that often leads to information and knowledge overwhelming. Knowledge Management serves as one of the major response to the challenge of trying to handle this complex, information overloaded work environment. As such, Knowledge management is perhaps best clustered as a science of complexity. The following four are important key areas of Knowledge Management (KM):

- **Globalization of Business:** Organizations today are more universal i.e., they are operating in multiple sites, multilingual, and multicultural in nature.
- **Leaner Organizations:** Organizations are adopting to a lean strategy where they understand customer value and focus on key processes to continuously increase it. The ultimate goal is to provide perfect value to the customer through a perfect value creation process that has zero waste.
- **Corporate Amnesia:** We are freer as a workforce, which creates issues regarding knowledge continuity for the organization and places with continuous learning demands from knowledge worker. We no longer expect to spend our entire work life with the same organization.
- **Technological Advances:** The world is more connected with the advent of websites, smart phones and other latest gadgets. Advancements in technology has not only helped in better connectivity but also changed expectations. Companies are expected to have online presence round the clock providing required information as per the customer needs.

1.5. Knowledge Management Processes

Gonzalez and Martins (2017) indicated a KM process as a four stage which includes acquisition, storage, distribution, and use of knowledge. In the acquisition phase, there are organizational learning, knowledge inception, creative process and knowledge transformation. In the storage phase, it includes a person, an organization and information technology, while in the distribution phase concentrate in social contact themes, practice community and sharing via information technology. And, finally, in the use phase encompasses form of use dynamic, dynamic capacity and retrieval and knowledge transformation. The added that the knowledge classification as explicit refers to formalized knowledge, expressed in the form of data, formulas, specifications,

manuals and procedures. Tacit knowledge, on the other hand, includes as non-verbalized, intuitive knowledge. Within the field of knowledge management, two types of knowledge are widely accepted -tacit and explicit knowledge. Tacit knowledge is knowledge that is hard to encode and communicate. It is personal, context-specific and hard to formalize Tacit knowledge is un-codified and resides in people's mind which can be expertise, technical know-how, experience and skills. This can be transferred and shared via mentoring, face-to-face communication, training, group project/task execution among other forms of elicitation. While, explicit knowledge are codified and easy-to-transfer knowledge usually embedded in physical formats such as books, memos, database, electronic media among others, which can easily be acquired, captured, communicated, shared, leveraged or stored (Ikenwe, 2018).



Source: (Martins, 2017)

1.6. Types of KM System

The Knowledge Management system (KMS) is an on-going, persistent interaction among agents within a system that produces, maintains, and enhances the system's knowledge base. In saying that a system produces knowledge we are saying that the system (a) gathers information and (b) compares conceptual formulations describing and evaluating its experience, with its goals, objectives, expectations or past formulations of descriptions, or evaluations. Further, this comparison is conducted with reference to validation criteria. Through use of such criteria, intelligent systems distinguish competing descriptions and evaluations in terms of closeness to the truth, closeness to the legitimate, and closeness to the beautiful. Finally, in saying that a system

enhances its knowledge base, we are saying that a system adds new propositions and new models to its knowledge base, and also simplifies and increases the explanatory and predictive power of its older propositions and models. That is, one of the functions of the KMS is to provide for the growth of knowledge (Joseph, 1998).

According to (Ikenwe, 2018) Knowledge management systems or technologies which aid the implementation of KM, consist of a combination of hardware and software. Hardware technologies are very important for knowledge management system as they form the platform for software technologies to perform and the medium for storage and transfer of knowledge. There are some technologies/systems available for facilitating the creation, collaboration, sharing and dissemination of knowledge are;

Knowledge Portals: Portals as KM technology are web-based applications or websites that provides information across an entire organization or among some group of persons. Whereas, knowledge portals are dedicated websites that provides a single point of access to the tacit and explicit knowledge that supports members of an organization in meeting corporate goals. Knowledge portal enables multiple users to work together in a coordinated fashion over time (and space) in order to ensure organizational success by gathering, categorization, distributing, publishing and to personalize relevant knowledge required to solve problems.

Database management system (DBMS): Database (DB) is a collection of related files used to store and maintain data of an organization. DB is related data stored collectively in direct access storage on a computer using software such as Database Management Systems (DBMs). DBMS provides users and programmers with a systematic way to create, retrieve, update and manage data.

E-Mail: This is far the most commonly used collaborative tool for communication which expedites dissemination and sharing of information among individuals and organization. It helps to facilitate knowledge gathering, sharing and collaboration within members of an organization.

Group Wares: These are powerful collaboration software use to facilitate collaboration or cooperation, sharing knowledge and promotion of communication among group of individuals working together in an organization. This technology provides means to exchange ideas on a network to collaborate and communicate effectively and promote co-operation such as interactive conferencing, video conferencing, intranets, internet, E-mail e.t.c.

Data Warehouse: This is an organization central repository which houses and store pivotal data. This constitutes combined data from one or more inherently different sources. However, emphasis is on the capture of data from different sources for easy accessibility.

Content Management Systems (CMS): CMS is a computer application that supports the creation and modification of digital content. It is often used to support multiple users working in a collaborative environment. CMS is responsible for the creation, management, and distribution of content on the intranet, extranet, or a website. It also Improve the quality of explicit knowledge and, provide (though limited) support to tacit knowledge transfer by identifying content authors (i.e experts) and supporting collaborative projects.

1.7. Knowledge Management Cycle

Knowledge management cycle is a process of transforming information into knowledge within an organization. It explains how knowledge is captured, processed, and distributed in an organization. In this chapter, we will discuss the prominent models of knowledge management cycle. Knowledge management expresses a deliberate, systematic and synchronized approach to ensure the full utilization of the company's knowledge base, paired with the potential of individual skills, competencies, thoughts, innovations, and ideas to create a more efficient and effective company. In simple words, knowledge management incorporates both holding and storing of the knowledge perspective, with respect to the intellectual assets. It is the deliberate and systematic collaboration of an organization's people, technology, processes, style and structure in order to add value through reuse and innovation. Knowledge management is currently seen as a continuous cycle of three processes, namely:

- Knowledge creation and improvement
- Knowledge distribution and circulation
- Knowledge addition and application

1.8. Barriers to knowledge management

Studies indicated that unawareness of senior managers about knowledge management concepts, lack of proper competition among institution for attracting customers, lack of formation of

knowledge management team and lack of proper information interchange among institutions could hinder KM in implementation in an institution (Abdolshaha & Abdolshahb, 2011). Beside, Bartczak (2012) on identifying barriers to knowledge management in the United States military include leadership education and commitment, lack of resources, among others as barriers faced in KM implementation. Moreover, lack of monitoring or managing KM systems and focusing on an individual rather than a team approach are also some barriers to the implementation of knowledge management as proposed by Dooley (2013).

Frost (2012) gave some knowledge management casual failures which could be a barrier to the successful implementation of knowledge management to include:

- ✓ Lack of performance indicators and measurable benefits
- ✓ Inadequate management support
- ✓ Improper planning, design, coordination, and evaluation
- ✓ Inadequate skill of knowledge managers and workers
- ✓ Problems with organizational culture
- ✓ Improper organizational structure

Moreover, on the barriers to knowledge management, it is pertinent to consider the work of Disterer (2001) who stated the individual and social barriers to knowledge transfer. The individual factors include loss of knowledge power, poor revelation on knowledge sharing, uncertainty of the value of knowledge to be shared and lack of motivation. The following are some of the major challenges faced by knowledge management function:

Security: Accommodating the right level of security for knowledge management is key. Conscious information should be shielded from most users, while allowing easy access to those with the proper credentials.

Getting People Motivated: Overpowering organizational culture challenges and developing a culture that embraces learning, sharing, changing, improving can't be done with technology.

Keeping Up With Technology: Regulating how knowledge should be dispensed, transferring it quickly, and effectively is a huge challenge. Constantly changing structures mean learning how to be smart, quick, agile and responsive – all things a KM tool must be able to finish.

Measuring Knowledge: Knowledge is not something that can be easily quantified, and is far more complex because it is copied out of human relationships and experience. The focus should be on distributed purpose rather than results or efforts.

Overpowering Shared Leadership: As a knowledge leader, the concerned person has the responsibility to collaborate with fellow colleagues, persuade them to share their knowledge base for the benefit of the organization.

Keeping Accurate Data: It is also the basic function to keep basic data which is accurate and authentic in nature.

Some critical KM challenges are to manage content effectively, facilitate collaboration, help knowledge workers connect, find experts, and help the organization to learn to make decisions based on complete, valid, and well-interpreted data, information, and knowledge. In order for knowledge management to succeed, it has to tap into what is important to knowledge workers, what is of value to them and to their professional practice as well as what the organization stands to gain. It is important to get the balance right. If the KM initiative is too big, it risks being too general, too abstract, too top-down, and far too remote to catalyze the requisite level of buy-in from individuals. If the KM initiative is too small, however, then it may not be enough to provide sufficient interaction between knowledge workers to generate synergy. The KM technology must be supportive and management must commit itself to putting into place the appropriate rewards and incentives for knowledge management activities. Last but not least, participants need to develop KM skills in order to participate effectively. These KM skills and competencies are quite diverse and varied, given the multidisciplinary nature of the field, but one particular link is often neglected, and that is the link between KM skills and information professionals' skills. KM has resulted in the emergence of new roles and responsibilities. Many of these new roles can benefit from a healthy foundation from not only information technology (IT) but also information science.

Session Two: Knowledge Management Ethics, Tools, and Strategies

Session Objectives

After the completion of this specific training sessions, participants will be able to

- Describe and appreciate the required behavior/ethics in KM
- Understand the KM Metrics

- Identify the various KM tools including Knowledge acquisition and application, codifying explicit knowledge, creation of tools, sharing and dissemination tools
- Appreciate the different Knowledge management strategies

Session Two: Knowledge Management Tools, Ethics, and Strategies

Session Topics


Session 2.1: Ethics in Knowledge Management


Session 2.2: Knowledge Management Metrics

Session 2.3: Knowledge Management Tools

Session 2.4: Knowledge Management Strategies



Supporting Materials





 Training guide/manual

 Projector for Power point

 Discussion guides

Session Objectives, Key points, Delivery Methods, Time Allocation, and Trainer Role

 Session Objectives	 Time allocated
<p>After the completion of this specific training session participants will be able to</p> <ul style="list-style-type: none"> • Describe and appreciate the required behavior/ethics in KM • Understand the KM Metrics • Identify the various KM tools including Knowledge acquisition and application, codifying explicit knowledge, creation of tools, sharing and dissemination tools 	<p>4 hours</p>

<ul style="list-style-type: none"> • Appreciate the different Knowledge management strategies 	
 Contents and Key Points	Methodologies 
<ul style="list-style-type: none"> ☞ Define what is ethics ☞ Ethics for KM ☞ Tools for KM ☞ Strategies for KM 	<ul style="list-style-type: none"> ➤ Q and A based Brainstorming ➤ Lecture ➤ Group Discussions ➤ Case study ➤ Presentation
 Material/Aids	 Trainer Roles
<ul style="list-style-type: none"> → Training Guide → Flip Chart → Marker → Power point Slides → Projector 	<ul style="list-style-type: none"> → Write each key word and concepts on flip charts/power point → Brainstorm participants understanding of the key terms and concepts → Engage participants in the case studies and discussion points → Explain the key concepts and terms by supplementing the prior knowledge of the participants → Engage participants through Q & A → Summarize the session

Unit 2: Knowledge Management Ethics, Tools, and Strategies

2.1. Ethics in knowledge management

KM processes and activities including its acquisition, sharing, and utilization should be guided by ethical procedures. Ethical theories are divided into three general subject areas:

Meta Ethics: Investigates where our ethical principles, standards come from and what they mean. Meta-ethical answers to questions on the issues related to universal truths, the will of God, the role of reason in ethical judgments, and the meaning of ethical terms themselves.

Normative Ethics: It takes on a more practical task, which is to reach at moral standards that regulate right and wrong conduct. This includes articulating the good habits that we should acquire, the duties that we should follow, or the consequences of our behavior for others.

Applied Ethics: It involves examining precise controversial issues, like environmental concerns and how whistleblowers will be treated.

Ethics in Knowledge Management comprises of valuing human beings. Ethics are also considered to be a simple matter, but that is a misconception. Much of ethics can be distilled down to boundaries that can help employees of an organization stay on the correct side of organizational policy and help clarify ethical issues.

Managing ethical liabilities involves four major processes:

- ❖ **Prevention:** using codes of conduct and standard operating practices, principles and providing landmarks, fences.
- ❖ **Detection:** using automated systems to accomplish and monitor ethical compliance and to verify appropriate use of company assets.
- ❖ **Reporting:** where employees are able to address unethical behaviors without suffering any retaliation.
- ❖ **Investigation:** which often needs outside assistance in order to be thorough, fair, and neutral.

2.2. Knowledge Management Metrics

Intellectual assets are generally categorized as human capital (like the know-how of knowledge workers that is “rented” by an organization), structural capital (like the policies, procedures, and applications that the organization “owns”), and customer or relationship capital (like the value of customer relationships and loyalty that has been built up over the years). A variety of fairly sophisticated KM measurement techniques are available now that can help assess how well an organization is progressing. These involve benchmarking, the balanced scorecard method, and the house of quality matrix. Before introducing any metric-based system, we have to be clear regarding what we want the metrics to answer. Metrics generally helps us to answer several questions, such as:

- Is Knowledge management working as required? And if not, what needs to be fixed?
- Is execution on track, and if not, what needs to be fixed?
- Are people doing what they are assigned to do? Who is doing well, who is not doing well?
- Are we delivering value? If we aren't, let's stop, or find a better way.

Measuring KM Implementation: The first thing to be done is probably wanting to measure, and how well we are managing to implement KM. When one run assessment at the start of KM implementation, there is a need to develop some baseline metrics which can measure the improvement against. A KM assessment protocol measures various aspects of knowledge flow within an organization, and allows you to identify blockers and obstacles to knowledge flow. Re-running the assessment later allows to measure progress.

Measuring KM Compliance: Let us assume that an employee named Elias has introduced a knowledge management framework to the organization, with some clear accountabilities and clear expectations in the form of KM policies and standards. At this stage, Elias might want to measure whether people are complying with these expectations, by using dashboard and analytical tools to track his project members in an organization. Similar dashboards will be required in other functions of an organization.

Measuring KM Activity: It is also useful to introduce some activity based metrics to track different elements of your Knowledge management system.

Measuring Business Outcome: It is generally believed that, knowledge management leads to continuous performance improvement. As knowledge improves, so does the efficiency and results of an organization. Therefore, the more we deploy these methods and implement them, the better will be business performance.

Benchmarking: Benchmarking is the hunt for industry wide best practices that leads to superior performance. It is a fairly straightforward Knowledge Management metric that represents a good starting point. Benchmarking basically consists of a study of similar companies to determine how things are done best in order to adapt these methods for their own use. This approach is best summed up by the Hindu proverb: “know the best to become the best.”

There are two general types of benchmarking:

- Internal benchmarking – Comparisons against other units within the same company or a comparison of a single unit over different time periods.
- External benchmarking – Comparison with other companies.

Balanced Scorecard: A Balanced Scorecard method (BSC) is a judgment and management system that enables enterprises to clarify their vision and strategy and which translates them into action. It offers feedback on both the internal business processes and external results in order to continuously improve strategic performance and results. Balanced Scorecard is a conceptual framework for converting an organization's vision into a set of performance indicators distributed among four dimensions:

- Financial Dimension – Involves measures such as operating income, return on capital employed, and economic value added.
- Customer Dimension – It is associated with such measures as customer satisfaction, retention, and market share in targeted segments.
- Internal Business Processes – Consists of measures such as cost, throughput, and quality.
- Learning and Growth – addresses measures such as worker's satisfaction, retention, and skill sets.

Through BSC, an enterprise can monitor both its current performance (finances, customer satisfaction, and business process results) and its efforts to improve processes, motivate and educate employees, and enhance information systems—its ability to learn and improve.

The balanced scorecard method is applicable to both profitable and non-profitable enterprises as well as to both private and public sector companies. It provides a number of significant advantages, including the translation of abstract goals into action items that can be continuously monitored. In addition, the balanced scorecard method provides objective measures of the current scenario, and helps initiate the changes required to move from the current to the desired future state of the company.

The House of Quality Method: The house of quality method was discovered to show the links between true quality, quality characteristics, and process characteristics. This technique was also known as Quality Function Deployment (QFD), as it links the customer's needs with marketing,

design, development, engineering, manufacturing, and service functions. It can be used for service as well as software products.

QFD is the only comprehensive quality system that aims specifically at satisfying the customer. It concentrates on maximizing customer satisfaction (positive quality), measured by metrics, such as repeat business and market share. It focuses on delivering value by seeking out both spoken and unspoken needs, converting these into design targets, and communicating the targets throughout the organization. In addition to this, it allows customers to prioritize their requirements, tells us how we are doing compared to our competitors, and then directs us to optimize those features that will bring the greatest competitive advantage.

2.3. Knowledge Management Tools

2.3.1. Knowledge Acquisition and Application

Knowledge acquisition is the process used to describe the rules and ideologies required for a knowledge-based system. It is the process of extracting knowledge from experts and structuring this knowledge into a readable form. Some techniques used in the process of extracting information are Interviewing, Observations, Protocol Analysis, and Brainstorming. It is ideally driven by strategies – for example, an organization decides what knowledge is needed, what it has, and then fills in the gap by developing new knowledge or acquiring it. Knowledge acquisition has several applications that we will be discussing in this unit.

2.3.2. Codifying Explicit Knowledge

Converting unspoken knowledge to a categorical form by way of codifying, and to acquire this tacit knowledge as explicit meta-knowledge (knowledge about knowledge). This is basically a directory which knows what and how to contact them. The aim of the codification is to make it easy to organize, locate, share, store, and use the knowledge. Common material including codified knowledge are manuals, spreadsheets, decision support systems and procedures. Anyhow, the codification process is generally expensive and it is difficult to code for universal understanding too.

2.3.3. Creation of Tools

Knowledge creation is all about continuous transfer, combination, and conversion of the different types of knowledge, as users practice, interact, and learn. Content creation and management tools are essential to structure and organize knowledge content for each retrieval and maintenance. It consists of the following tools:

- **Authoring Tools**
- **Annotation Tools**
- **Data Mining and Knowledge Discovery**
- **Templates**
- **Blogs**

Authoring Tools: Authoring tools include the software that allow users to create web page or multimedia applications. These are tools by which various media elements are brought together to structure and flow. Authoring tools align with the aim of capturing the author's tacit knowledge and helping **structure that knowledge into an explicit form.**

Annotation Tools: Annotation tools help in addition of explanatory comments to a document after it has been created. The comments can be public as well as private. Tools like track changes in MS-Word is an example of annotation tools. This tool also helps with the goal of capturing tacit knowledge by allowing authors to connect their expertise to a certain document.

Data Mining and Knowledge Discovery: Data mining pioneers new or hidden patterns in data that resides in multiple databases. It includes statistical analysis to discover relations, correlation, and market related analysis. Various analysis tools are approached in data mining such as statistical analysis tools e.g. SAS, data mining suites, and data visualization tools. This tool accomplishes the goal of creating new knowledge by being able to analyze existing data and making something useful out of it. It also helps in predicting future occurrence and forecast expected outcomes.

Templates: It includes designing or patterning of an item that acts as a guide for designing or constructing similar items. This tool is helpful to organize knowledge in a systematic manner, by following an established design.

Blogs: These are webpages that typically focus on a specific subject. They can be like personal pages that are much like personal diaries which are periodically updated and accessible publicly.

This web tool fits with the aim to elicit knowledge, by authors being able to express their unique ideas and opinions.

2.3.4. Sharing and Dissemination Tools

It includes groupware and collaborative tools. These tools acts as enablers of knowledge flow and knowledge-sharing activities among personnel. Groupware invokes class of software (programs) that allows to work together while located remotely from each other. Here, collaboration is mainly referred as groupware, or work group productivity software. For example – LAN (Local Area Network)

Typically, a groupware supports the following operations:

- Password Protection of document
- Schedule meeting and allocate resources
- File distribution
- Electronic newsletter
- Email (Electronic mail)
- Group Calendars
- Collaborative writing system
- Video Communication System
- Chat Systems
- Wikis

2.4. Knowledge Management Strategy

KM strategy is a general, issue-based approach to define operational strategy and objectives with specialized KM principles and approaches. It helps in addressing questions like:

- Which knowledge management approach, or set of approaches, will bring the most value to the company?
- How can a company prioritize alternatives, when any one or several of the alternatives are appealing and resources are limited?

A good Knowledge Management strategy possesses the following components:

- A Stated Business Strategy and Objectives: It should have products or services, target customers, referred distribution or delivery channels, characterization of regulatory environment, mission or vision statement.
- Description of Knowledge-Based Business Issues: Need for collaboration, need to level performance variance, need for innovation, and need to address information overload.
- An Inventory of Available Knowledge Resources: Knowledge capital, social capital, infrastructure capital.
- An Analysis of Recommended Knowledge Leverage: Points that briefs what can be done with the above-identified knowledge and knowledge artifacts and lists Knowledge management projects that can be undertaken with the intent to maximize ROI and business value.

2.4.1. Knowledge Audit

A knowledge audit service marks the core information knowledge requirements and uses in an organization. It also outlines the gaps, duplications, and flows and how they contribute to business goals as well as the owners, users, uses, and key attributes of core knowledge assets. It produces the following types of results:

- ✓ Identification of core knowledge assets and flows like who creates, who uses.
- ✓ Identification of gaps in information and knowledge required to manage the business effectively.
- ✓ Areas of information policy and ownership that needs progress. Opportunities to minimize information-handling costs.
- ✓ Opportunities to improve coordination and access to commonly required information.
- ✓ A better understanding of the contribution of knowledge to business results.

2.4.2. GAP Analysis

This involves establishing the current and desired states of knowledge resources and KM levels. Specific projects further defined in order to address specific gaps that were identified and agreed upon as high-priority areas. A good gap analysis addresses the following points:

- The major differences between the current and desired KM states of the organization.

- Enlist barriers to KM implementation like culture where “knowledge is power” or where individual possession of knowledge is consistently rewarded.
- Enlist KM leverage points or enablers like existing initiatives that could be built upon.
- Identify opportunities to collaborate with other business initiatives like combine knowledge continuity goals with succession planning initiatives in Human Resources.
- Conduct a risk analysis like knowledge that will soon “walk out the door” due to imminent retirements or knowledge that is at risk because only a few individuals are competent in this area and very little of their expertise exists in coded or tangible knowledge assets.
- Redundancies within the organization like the case of the right hand not knowing what the left hand is doing.
- Presence of knowledge silos like groups, departments, or individuals that hoard knowledge or block fluid knowledge flows to other groups, departments, or colleagues. This analysis is further used to list and prioritize KM objectives to be addressed by the organization.

Session Three: Knowledge Management Digitalization

Session Objectives: After the completion of this specific training sessions, participants will be able to

- Understand the importance of digitalizing KM
- Appreciate the benefits of Digital KM
- Identify the different types of digital KM
- Describe the different components of digital KM system
- Develop a positive attitude to get started digital KM system

Session Topics

Session 3.1. Importance of digital KM



Session 3. 2. Benefits and challenges of digital KM

Session 3.3: Types of digital KM













Session 3 .4: Key components of digital KM

Session 3.5: Getting Started with Digital KM

Supporting Materials

 Training guide/manual
 Projector for Power point

Session Objectives, Key points, Delivery Methods, Time Allocation, and Trainer Role

 Session Objectives	 Time allocated
<p>After the completion of this specific training session participants will be able to</p> <ul style="list-style-type: none"> • Understand the importance of digitalizing KM • Appreciate the benefits of Digital KM • Identify the different types of digital KM • Describe the different components of digital KM system • Develop a positive attitude to get started digital KM system 	<p>4 hours</p>
 Contents and Key Points	Methodologies 
<ul style="list-style-type: none">  Define KM digitalization and its importance  Challenges of digital KM  Help participants to appreciate the benefits of digital KM  Components of digital KM  Types of digital KM systems  Getting started with digital KM 	<ul style="list-style-type: none"> ➤ Q and A based Brainstorming ➤ Lecture ➤ Group Discussions ➤ Case study ➤ Presentation
 Material/Aids	 Trainer Roles
<ul style="list-style-type: none"> → Training Guide → Flip Chart → Marker → Power point Slides → Projector 	<ul style="list-style-type: none"> → Write each key word and concepts on flip charts/power point → Brainstorm participants understanding of the key terms and concepts → Explain the key concepts and terms

	by supplementing the prior knowledge of the participants → Engage participants through Q & A → Summarize the session
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Unit 3: Knowledge Management Digitalization

3.1. Discussion on the importance of Knowledge Digitalization

Sharing knowledge is at the heart of communications. Organizational knowledge is a term for all of the information in an organization that can provide value for both customers and employees. It can include process and product knowledge, mission and goals, customer preferences and competitive research, just to give a few examples. It encompasses both hard data and lessons learned, along with the collective experience and skill sets of all of your staff. With such a large and expanding knowledge base available, as well as all the supporting resources tied to it, digital knowledge management is more important now than ever before.

In this age of digital literacy, people are used to finding and evaluating information in digital formats on their own. But the amount of information, and the number and type of platforms, have exploded in recent years. Organizations are forever expanding the number of devices, apps and digital services they offer to employees, clients and visitors. And with the rise of IoT, many information streams that weren't digital in the past are coming online. This makes it more important than ever to organize and deliver information in efficient and searchable ways. If people can't find they need quickly and easily, that information is going to waste.

What is Digital Knowledge Management? Digital knowledge management (DKM) is the process by which an enterprise identifies, collects, documents, organizes and shares its organizational knowledge in digital form for internal or customer-facing use. Its purpose is to share information, ideas and experience in easily accessible formats and locations to enable better decision making and increase efficiencies. This is accomplished by:

- identifying, gathering and recording knowledge in easily-understandable formats

- organizing resources in a system that is intuitive, searchable and accessible
- sharing knowledge with everyone who can benefit from it
- evolving knowledge collection processes and technologies with user input
- promoting the generation and sharing of new organizational knowledge for growth

Basically, DKM aims to put the right information in front of people when they need it, without them having to relearn what's already been explored. It captures knowledge so it isn't lost over time and breaks down silos by making more information available across teams. The following points neatly outline some objectives of knowledge management:

- Improve the quality of decision-making by ensuring that reliable and secure knowledge, information and data are available through the service lifecycle
- Enable the organization to be more efficient and improve quality of service, increase satisfaction and reduce the cost of service by reducing the need to rediscover knowledge
- Ensure that staff have a clear and common understanding of the value that their services provide to customers and the ways in which benefits are realized from the use of those services
- Maintain a knowledge management system that provides controlled access to knowledge, information and data that is appropriate for each audience
- Gather, analyze, store, share, use and maintain knowledge, information and data throughout the organization

3.2. Benefits of Digital Knowledge Management

By sharing more knowledge, you can reduce operating costs, increase productivity, and improve employee and customer satisfaction. Some of the benefits of digital knowledge management include:

- Faster and easier access to information
- Less time relearning and retraining
- Fewer mistakes through duplication
- Standardized and streamlined processes

- Increased collaboration within and across teams
- Better and faster decision making and problem solving
- Faster innovation to meet recognized trends
- Better communication
- More transparency and visibility
- More employee growth and development
- Increased productivity and profits

Instead of creating a top-down hierarchy of information trickling out when requested, DKM sets up a culture of collaboration and information sharing with more experience and knowledge available for everyone to draw upon and contribute to.

3.3. Challenges of Digital Knowledge Management

There are also some challenges to implementing and maintaining a well-used and well-fed DKM system. A lot of these depend on the organizational culture and flexibility of the enterprise:

- Developing knowledge capture and sharing systems
- Integrating DKM systems into existing processes and platforms
- Aligning knowledge sharing with business strategies
- Breaking down silos between management and employees
- Persuading experts to share their skills and knowledge
- Motivating people to share and apply knowledge consistently
- Keeping pace with DKM technologies
- Maintaining security and user permissions
- Keeping information current (revising or replacing aging resources)

In order to overcome these hurdles, you should spend time outlining your objectives and processes for DKM before deciding on any technology solution. You'll need to have clear goals and motivators in place, which may require a shift in your corporate culture and some change

management techniques. However, if you can clearly show the benefits of DKM to all stakeholders, the process should be seen as an opportunity seized versus a problem to be tackled.

3.4. Types of Digital Knowledge Management

3.4.1. Internal-Facing Digital Knowledge Management

You may have different strategies for knowledge management, based on who's accessing and using that information. Employees will most likely have access to both internal and customer-facing knowledge, but here we'll focus on information that's only available to your workforce in this section. Internal knowledge is your most important asset. The experience and skills that your employees bring to your organization allows it to function, thrive or fail. It also informs your culture and your competitive differentiators, so there's no downside to improving knowledge efficiencies and access for your staff. Some examples of internal-facing knowledge are:

- Your organization's mission, values and goals
- Documented process and procedures
- Employee directories with contact information
- Sales, customer service and support resources
- Templated responses for internal or external FAQs
- KPIs, analytics and progress to goals
- Client relationship management resources
- Competitive metrics and industry trends
- HR and benefits information
- Training and professional development tools

As you develop your DKM systems and processes, it's essential that you ask for employee input. The first step in a knowledge sharing culture is inclusion. Representatives from all teams and skill sets should provide feedback throughout the planning process. You may find that a single platform may work as a centralized storehouse for knowledge, but that various systems are needed for searching and sharing. Employees will have their own preferences on how and where they want to

receive information. You may need to centralize knowledge in a DKM platform, but then deliver supporting content over intranets, digital signage systems, social media and more. Regardless of how you house and share organizational knowledge, by organizing the information that employees need to perform tasks and solve problems, you'll free them up from repetitive processes and duplication of efforts, so they have more time for creativity, collaboration and customer service. And, by fostering a culture of knowledge sharing, you'll improve the employee experience, reduce turnover, and retain the experience and skill sets those people contribute.

3.4.2. Customer-Facing Digital Knowledge Management

Why this is more important to NatuReS than other areas?

Customers today want to know a lot about the brands they interact with. As such, external-facing knowledge management is more important than ever. If you present incomplete, confusing or disorganized information to your audience, it can degrade the customer experience and damage your brand permanently. Some basic examples of customer-facing knowledge are:

- Contacts for demos, buying, support and services
- Location information and accessibility details
- Product and services offered (in detail)
- Transaction, delivery and return options
- Brand mission, values and community actions
- Hiring policies and employee satisfaction
- Industry standing, awards and certifications
- Customer reviews and peer comments

It's essential to be responsive to customer needs and preferences when managing digital knowledge that's available to them. Be proactive, find out what the most frequently asked questions are, and answer them before they're asked. You also need to research which channels your customers prefer to interact with your brand on. Don't just post YouTube videos because it's a popular platform – make sure it's where your clients go for information from your brand. A big

part of digital knowledge management is analyzing customer behavior to understand the kind of content they want and where they want to access it.

- Look at various waypoints along the customer experience with your brand and determine what knowledge they need when
- Create content that communicates key concepts or information in an easily understandable format
- Deliver knowledge across different channels in different ways that are appropriate to that audience

It's all about engaging the client and keeping them engaged throughout their entire relationship with your brand or organization. If potential customers search for information and can't find it, they're likely to move on to someone else.

3.5. Key Components of Digital Knowledge Management

As you start to plan your knowledge management program, you need to consider the following core components:

Strategy: Like any other business system, digital knowledge management needs a purpose. Outline, in detail, what value you think DKM will bring to your partnership. Document your strategy, set S.M.A.R.T. goals and monitor progress against those goals.

People: The entire point of DKM is to give more people access and agency within your organization. Include stakeholders from various parts of the organization in the planning and rollout of the program. You'll need experts to contribute knowledge, trainers to cover the access and use of information, and champions to continuously motivate sharing and advancements.

Processes: You'll be including best practices and resources, so be sure those are optimized before you begin sharing. You'll also need to put processes in place for identifying, collecting, documenting and sharing knowledge in the future.

Technology: Make sure the technology you choose supports your goals for knowledge sharing. Don't conform to the tool because of budget or IT limitations. Be sure you have the ability to grow your knowledge base, categories and sharing systems in the future.

Content: All knowledge will need to be delivered in some content format. Creating that content in engaging, understandable formats will be critical, or the knowledge will not transfer. Be sure you choose the best content formats for various types of knowledge and put a process in place to streamline content creation and delivery.

Culture: It's essential that you break down barriers within your organization, whether they be management hierarchies, team silos, or political or social cliques. Your culture should encourage information sharing across job titles, departments and disciplines, with a focus on benefits for both individuals and the organization as a whole. Knowledge sharing should be cultivated and nurtured just like any other part of your company culture.

3.6. Getting Started with Digital Knowledge Management

Having knowledge isn't useful. It's the strategic use and management of your organizational knowledge that leads to success. There are many articles out there about how to launch a DKM program, but the basic steps are:

1. Identify useful information for your audience(s)
2. Collect knowledge from a broad range of sources
3. Determine the best content vehicles for information
4. Create content tools and document knowledge
5. Organize knowledge into intuitive groups
6. Publish resources to a DKM platform
7. Provide training on using and sharing information
8. Share knowledge on a searchable platform
9. Refresh or revise content as needed
10. Continuously motivate and promote knowledge sharing

Of course, budget will play a factor for the digital platforms you plan to put into place, but don't forget about time for information collection, content creation, getting the system and resources online, and training. It's best to consider this a system and not a project, with the same timelines and resource allocation that implies. However, digital knowledge management doesn't have to be a huge undertaking. If you have an intranet with a resource library, you're already doing it. It's not the system itself that matters. It's the culture of knowledge sharing and collaboration, the timesaving tools, and the benefits to the organization, employees and customers that make DKM so important and worthwhile.

Session Four: Some Open Access Knowledge Management Solutions

Session Objectives: After the completion of this specific training sessions, participants will be able to

- Understand the concepts in open access Knowledge Management Solutions/platforms
- Know the different types of open access KM solutions
- Understand the features of each open access KM solutions
- Weigh the different open access KM solutions in relation to the purpose participants want to achieve
- Populate the available knowledge to a preferred open access KM solution





Session Topics

Session 4.1. Concepts in Open Access KM solutions



Session 4. 2. Best Open Access KM Solutions





Session 4.3: Populate documents to Selected Open Access KM solution

Supporting Materials

	Training guide/manual
	Projector for Power point
	Wifi
	Documents to be populated

Session Objectives, Key points, Delivery Methods, Time Allocation, and Trainer Role

	Session Objectives		Time allocated
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<p>After the completion of this specific training session participants will be able to</p> <ul style="list-style-type: none"> • Understand the concepts in open access Knowledge Management Solutions/platforms • Know the different types of open access KM solutions • Understand the features of each open access KM solutions • Weigh the different open access KM solutions in relation to the purpose participants want to achieve • Populate the available knowledge to a preferred open access KM solution 	<p>8 hours</p>
 <p>Contents and Key Points</p>	<p>Methodologies</p> 
<ul style="list-style-type: none"> ☞ Define concepts including open access and knowledge base ☞ Discussion on best open access KM solutions ☞ Discussion on the features of each open access KM solution ☞ Scan documents to be populated ☞ Populate documents 	<ul style="list-style-type: none"> ➤ Q and A based Brainstorming ➤ Lecture ➤ Demonstrations ➤ Presentation
 <p>Material/Aids</p>	 <p>Trainer Roles</p>
<ul style="list-style-type: none"> → Wifi → Training Guide → Flip Chart → Marker → Power point Slides → Projector 	<ul style="list-style-type: none"> → Write each key word and concepts on flip charts/power point → Brainstorm participants understanding of the key terms and concepts → Engage participants through Q & A → Allow participants to bring scanned documents → Assist participants to populate scanned documents on one of the open access KM solutions → Coach in the process of populating documents → Summarize the session

Unit 4. Some Open Access Knowledge Management Solutions

There are several open access knowledge management platforms/software. In this training we will list down some of the most important source and discuss their features so that participants could weigh each of them based on the nature of the project activities they are implementing or aspires to implement. At the end of the training, participants will be able to populate their documents and activities on the KM platform that they prefer.

4.1. Concepts of Open Source KM

Before making a choice about an open source knowledge base software for your project, it is essential to have a common understanding of the term itself. Let's start with defining common terms:

Knowledge base: A knowledge base is a central place that allows structured storage of information where users can search for and access this information. Knowledge base software should be the key tool that helps make this process seamless, simplified, and efficient. Knowledge base software is designed to help you create and manage your knowledge base to the best of your ability. This usually includes setting up the knowledge base architecture, creating and editing documentation, searching, and analyzing your knowledge base, and more. Ideally, this is the irreplaceable piece of the puzzle that operates your entire knowledge management system that helps orchestrate, manage, and optimize the flow of knowledge within your partnership.

Open source: This simply refers to original source code that is freely and readily available and modifiable as developers and business owners see fit. Typically, when businesses want to create a knowledge management portal that allows customers to troubleshoot their issues, they look to create a knowledge base and open source solutions can be a potential solution due to pricing (typically free) and ability to customize.

4.2. The Best Open Source Knowledge Base Solutions

Here we will simply list down the best Open Source Knowledge base solutions so that participants will choose one or two of them. Before choosing the open source KM solution or platform, it is essential to highlight the characteristics of each of them as presented below. Finally, participants will be able to populate their documents on the preferred platforms.

1. **Bookstack:** BookStack is a phenomenal example of an easy-to-use, comprehensive, self-hosted solution that users like to use as an alternative to Confluence. This is best for organizing and storing documents. BookStack's free open-source knowledge base software and is released under the MIT License. Functionally, it's created to replicate the idea of a book, allowing you to break documents into chapters and pages, making it easy to organize information in a readable, comprehensive way.

Features: Built with ease-of-use in mind, BookStack uses a simple WYSIWYG interface and allows content to be broken into three simple groups: books, chapters, and pages. Diagrams.net drawing capability built-in allows users to easily draw diagrams within any documentation that's being created. Integrated authentication via social providers like GitHub, Google, Slack, AzureAD, and others. You can grab this fully open code via GitHub

2. **OpenKM:** One of the most well-known, open-source knowledge base software options out there, OpenKM is a tiered solution that offers lots of helpful features for free in its Community version. Mostly designed for corporate companies, Open KM acts primarily as an internal knowledge base system and is best used for internal collaboration and documentation. The free version is available for full modification, but unlike its paid tiers, does not offer any structure or support, should you need it. As a bonus, there's lots of helpful chatter, guidance, and forum support online should you run into issues.

Features:

- Secure and centralized repository for storing and sharing documents, files, and other types of digital content.
 - Audit trail allows you to have documentary evidence any time a knowledge base article is edited.
 - OpenKM can be integrated with email systems to enable email archiving and management.
 - Pricing: Community Edition is free while Cloud & Professional editions are quote-based
3. **myBase:** is a largely unique database that's free-form and built with customizable in mind. This platform allows the entry of unstructured content, webpages emails, text, and more— all in any length or format you prefer. Known for its highly customizable functionality,

myBase is best used as a product knowledge base and is not always suitable for cross-team collaboration.

4. eXo: Built with JavaScript, eXo is open source knowledge management software that's best used by larger teams looking to collaborate digitally. Like every option on this list, it's open source, but that doesn't mean it's actually free. Like other options on this list (we're looking at you, OpenKM), the eXo community edition is free but won't offer you tech support so your developers will need to manage this in-house to ensure everything is running smoothly. The eXo Platform comes with multiple features including the ability to create a knowledge base that comes with advanced search, news features, tutorials to help with adaptable use, lifecycle task capabilities, analytics, and more.

Features:

- Ability to broadcast notifications when relevant knowledge base articles are created.
- Social collaboration features within their digital platform like video calls, chats, and forums.
- Pricing: eXo's Professional Plan starts at \$5 per user per month and eXo's Enterprise and Ultimate plans are quote based. To get a look at the code, check out the eXo Platform repository on GitHub.

5. PHPKB: What makes PHPKB a fairly unique open source solution?

You'll have the option to host it yourself or install it as a SaaS—it gives you the best of both worlds, all depending on your preferences. Also, unlike some of the other open source choices on this list that are more suited towards creating a customer-facing knowledge base, PHPKB is well suited for creating an internal knowledge base.

The downfall here? The source code is publicly available, but that doesn't mean it's free—you'll have to pay close to \$300 for your license to get even the most basic plan. Still, it does have a completely open source code, so you can customize it to your heart's content.

Features:

- A web-based application that's responsive and mobile-friendly ensures end users can access the knowledge base from any device without installing any special software.
- Multi-language support allows you to create a knowledge base as well as search it in multiple languages.
- API availability (only in Enterprise Edition) allows you to easily integrate PHPKB with your other software.

- Pricing: Standard Edition starts from \$285 and Enterprise Edition starts from \$515
 - Check Out the Code: An Open Source Project License is available for both editions, however for this type of license to be issued, your business will need to meet a few requirements which you can learn about [here](#).
6. Documize: Blend together a unique mix of wiki software and documentation and you'll have a pretty good idea of what Documize is all about. This open source software is described as an "Intelligent Document Environment" that is mostly designed to improve documentation, how it's accessed, and how it's shared. As such, it's a phenomenal resource for internal and technical documentation. Documize always offers modifiable and open source plans along with free pricing—that means you can develop the software to your heart's content and grant access to up to ten users without paying a dime. Users can choose to do a self-hosted installation, make use of Documize's services for a cloud-based installation, or do a hybrid install that allows a user to host the database while Documize host's the application.

Features:

- Ability to self-host your knowledge base as well as do a hybrid model or cloud-based model.
 - Open sourced connectors to Trello, Jira and others.
 - Predefined templates to help with document creation.
 - Pricing: Documize's Team Edition is free, regardless of the number of users, however this plan has limited features and limited support. Documize's Enterprise Edition is fully unlocked and has a more robust support network. Pricing starts at free for up to 10 users. After 10 users, you will need to pay - the cost depends on the number of users as well as how you plan on hosting (cloud hosted versus self-hosted)
 - Check Out the Code: You can take a look at Documize's code by checking out their repository on [GitHub](#).
7. DocuWiki: With an emphasis on simplicity and versatility, DocuWiki specializes in plain text files—that means there's no need for a database to get started. It's lightweight, easy to use, and super customizable, but won't offer you as many benefits and features as other

options (like MediaWiki, for example). Another important note about DocuWiki is that it's written in PHP programming language and is licensed under GPLv2.

8. **phpMyFAQ:** What do we love about phpMyFAQ? It's mobile-friendly, it's actually free, and it's totally open source under the Mozilla Public License Version 2.0. In other words, it's easy to customize, won't cost a cent, and is incredibly streamlined if you build it as such. Further, this self hosted knowledge base software is very popular, so there's plenty of guidance on forums if needed. It also includes a long list of features built-in that you'd expect on a SaaS platform, like user permission, search engines, back-end analytics, content management systems, and more.
 - **Highlights:** Easy to create content with their WYSIWYG editor that's based on TinyMCE. And LDAP and HTTP authentication with SSO support along with Active Directory Support.
9. **MediaWiki:** MediaWiki is used by thousands of companies and organizations and powers arguably the most well-known wiki in the world—Wikipedia. MediaWiki is a powerful, multilingual, free, and open-source knowledge base software that is extensible, customizable, and, you guessed it, totally free of charge. According to the site, it's currently used by tens of thousands of websites and thousands of companies and organizations—that should tell you something about the popularity of this platform.
10. **XWiki:** A totally free software platform written in Java, XWiki offers a powerful development platform that focuses on customizability and extensibility. With features like WYSIWYG editing, OpenDocument-based import and export, advanced permissions management, and more, this platform offers a no-fuss, no-frills approach to knowledge management and access. Additionally, it has a responsive skin, advanced search features, a unique set of built-in applications, strong rights management, and open-sourcing so you can customize at will.
11. **TWiki:** Meet the Perl-based structured wiki application that's primarily used to run collaboration platforms, document management, and team portals. With TWiki, you're able to leverage a flexible, powerful, and easy-to-use enterprise wiki that functions as a web-application platform and project development space. Another no-frills platform,

TWiki allows users fully customizable options, extended functionality with Plugins, and an easy-to-use system that even those without programming skills can figure out.

Features:

- ☞ TWiki's WYSIWYG editor makes it easy to format and style your content using familiar tools.
- ☞ Comes with a robust access control system that allows you to restrict access to pages and content based on user roles and permissions.
- ☞ TWiki allows for collaborative editing, allowing multiple users to work on the same page simultaneously.
- ☞ You can create custom templates for different types of content, making it easy to maintain a consistent look and feel throughout your knowledge base.
- ☞ Pricing: Free
- ☞ Check Out the Code: You can take a look at TWiki's code by checking out their repository on GitHub.

12. TiddlyWiki: is a unique non-linear note-taking tool and personal wiki software that is contained entirely within a single HTML file, making it highly portable and easily shareable via email, web server, or USB stick. TiddlyWiki was designed to work around the way your brain processes information, making it easier to manage and organize even the most complex ideas. At the heart of TiddlyWiki is the concept of "tiddlers" – small, semantically meaningful chunks of information that can be linked, tagged, and formatted using WikiText notation. By breaking information down into these smaller components, TiddlyWiki allows you to create and then structure as well as organize your knowledge base in a way that makes sense to you. Tiddlers can be aggregated and composed into longer narratives, creating a fluid interface that adapts to your unique way of thinking. TiddlyWiki's WikiText notation is concise yet powerful, allowing you to represent a wide range of text formatting and hypertext features. And with the ability to add links, tags, lists, and macros to your tiddlers, you can easily create a dynamic, interconnected web of knowledge that is both accessible and easy to navigate. Furthermore, with its vast array of plugins and a dedicated worldwide user community, TiddlyWiki is an ideal choice for

anyone looking for free knowledge base software that can be customized to their specific needs.

Features:

- ☞ TiddlyWiki allows you to create and organize your notes in a non-linear fashion, making it easy to find and connect related information.
- ☞ You can format your notes using markdown syntax, making it easy to create rich content without needing to know HTML.
- ☞ You can create custom templates for different types of content, making it easy to create consistent-looking notes throughout your knowledge base.
- ☞ TiddlyWiki allows you to add tags and other metadata to your notes, making it easy to find related content and create dynamic views of your knowledge base
- ☞ Pricing: Free
- ☞ Check Out the Code: You can take a look at TiddlyWiki's code by checking out their repository on GitHub.

References

Dumitriu, P., 2016. *Knowledge Management in the United Nations System*, s.l.: s.n.

Ikenwe, M., 2018. *Knowledge Management: Processes and systems*.
<https://www.researchgate.net/publication/323323869>, s.l.: s.n.

Kimiz, D., 2005. *Knowledge Management in Theory and Practice*, United Kingdom, London: Oxford, Elsevier.

Martins, R., 2017. *Knowledge Management Process: A theoretical Conceptual Report*.
<http://dx.doi.org/10.1590/0104-530X0893-15>, s.l.: s.n.

Steffen, S. J., 2016. *Becoming a Knowledge - Sharing Organization: A Handbook for Scaling Up Solutions through Knowledge Capturing and Sharing*, Washington, DC: World Bank.

Disterer, G. (2001). Individual and social barriers to knowledge transfer. Proceedings of the 34th Hawaii International Conference on System Sciences – 2001, IEEE
<https://www.computer.org/csdl/proceedings/hicss/2001/0981/08/09818025.pdf>

Forum, W. m. (2003). "An illustrative guide to knowledge management. <http://www.wm-forum.org>.

Frost, A. (2012). A synthesis of knowledge management failure factors. Available at:
www.knowledge-management-tools.net/failure.html

<https://www.researchgate.net/publication/280490126> KNOWLEDGE MANAGEMENT A REVIEW

Ltd., T. P. I. P. (2022). "Knowledge management, Tutorials point - Simply easy learning.
www.tutorialspoint.com.

