University of the Philippines Los Baños

KNOWLEDGE MANAGEMENT SYSTEMS DEVELOPMENT

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1

KNOWLEDGE MANAGEMENT IN THEORY AND PRACTICE

Chapter 2: The Knowledge Management Cycle

Module Outline

Monday, 18 September 2023

- ❖ Major Approaches to the KM Cycle
- ❖ An Integrated KM Cycle
- ❖ Strategic Implications of the KM Cycle
- ❖ Practical Considerations for Managing Knowledge

Learning Objectives

At the end of this chapter, students will be able to:

1. Describe how valuable individual, group, and organizational knowledge is captured, created, codified, shared, accessed, applied, and reused throughout the knowledge management cycle;

2. Compare and contrast major KM life-cycle models, including the Zack, Bukowitz and Williams, McElroy, and Wiig life-cycle models;

3. Explain the key steps in each process of the KM cycle and provide concrete examples of each;

4. Identify the major challenges and benefits of each phase of the KM cycle; and

5. Discuss how the integrated KM cycle combines the advantages of other KM life-cycle models.

Introduction

- A knowledge information cycle can be regarded as the process that information follows to transform into a valuable strategic asset for the organization through the KM cycle.

- The KM cycle aims to identify and locate valuable knowledge and knowledge sources within the organization.

- Then, this valuable knowledge is converted into explicit form (i.e. codification of knowledge) for more widespread dissemination.

Introduction

- Networks, practices, and incentives are instituted to facilitate person-to-person knowledge transfer as well as person–knowledge content connections in problem-solving and decision-making activities.

- When the valuable knowledge is field-tested and transferred to a knowledge repository, it now becomes part of the "corporate memory" (sometimes referred to as the "ground truth")

Introduction

- In a KM cycle, different type of steps and terms are used in various context.

- To this end, four models were selected based on their ability to meet the following criteria:
    - The models are implemented and validated in real-world settings;
    - The models are comprehensive with respect to the different types of steps found in the KM literature; and
    - The models include detailed descriptions of the KM processes involved in each step.

- These four models are the Zack, from Meyer and Zack (1996), the Bukowitz and Williams (2000), the McElroy (2003), and the Wiig (1993) KM cycles.

Table 1. Comparison of key KM cycle processes from different KM life-cycle model which summarizes the major terms found in the KM literature.

Nickols (1999)	Wiig (1993)	McElroy (1999)	Rollet (2003)	Bukowitz & Williams (2003)	Zack (1996)
Acquisition	Creation	Individual and group learning	Planning	Get	Acquisition
Organization	Sourcing	Knowledge claim validation	Creating	Use	Refinement
Specialization	Compilation	Information acquisition	Integrating	Learn	Store/retrieve
Store/access	Transformation	Knowledge validation	Organizing	Contribute	Distribution
Retrieve	Dissemination	Knowledge integration	Transferring	Assess	Presentation
Distribution	Application		Maintaining	Build/sustain	
Conservation	Value realization		Assessing	Divest	
Disposal					

Major Approaches to the KM Cycle
The Zack KM Cycle

- The Zack KM cycle is based on work on the design and development of information products

- The network between each stage is designed to be logical and standardized.

- This approach presents the notion of a product platform (the knowledge repository) and the information process platform (the knowledge refinery) to emphasize the concept of value-added processing required to support the knowledge of an organization.

- The major developmental stages of a knowledge repository are analyzed and mapped to the stages of a KM cycle.

- The stages are acquisition, refinement, storage/retrieval, distribution, and presentation/use.

Major Approaches to the KM Cycle
The Zack KM Cycle

- **Acquisition** - deals with issues regarding origin of raw materials; guiding principle is the well- known proverb of "garbage in, garbage out" (highest quality source data is required, else the intellectual products produced downstream will be lower)

- **Refinement** - may be physical (e.g. migrating from one medium to another) or logical (e.g. restructuring, relabeling, indexing, and integrating.); also refers to cleaning up content and standardizing best practices/lessons learned

Major Approaches to the KM Cycle

The Zack KM Cycle

- **Storage Retrieval** - bridge between the upstream addition and refinement stages that feed the repository and downstream stages of product generation; can be physical (e.g. file folders, printed information) or digital (e.g. database, knowledge management software).

- **Distribution** – mode on how the product is to be delivered to the end-user (e.g. fax, print, email); also defines its timing, frequency, form, language, and etc.

- **Presentation** – evaluation of the system's performance; concern about the continuous renewal of the repository and the refinery in order to avoid elimination; the notion of refinement is a crucial stage in the KM cycle and one that is often neglected
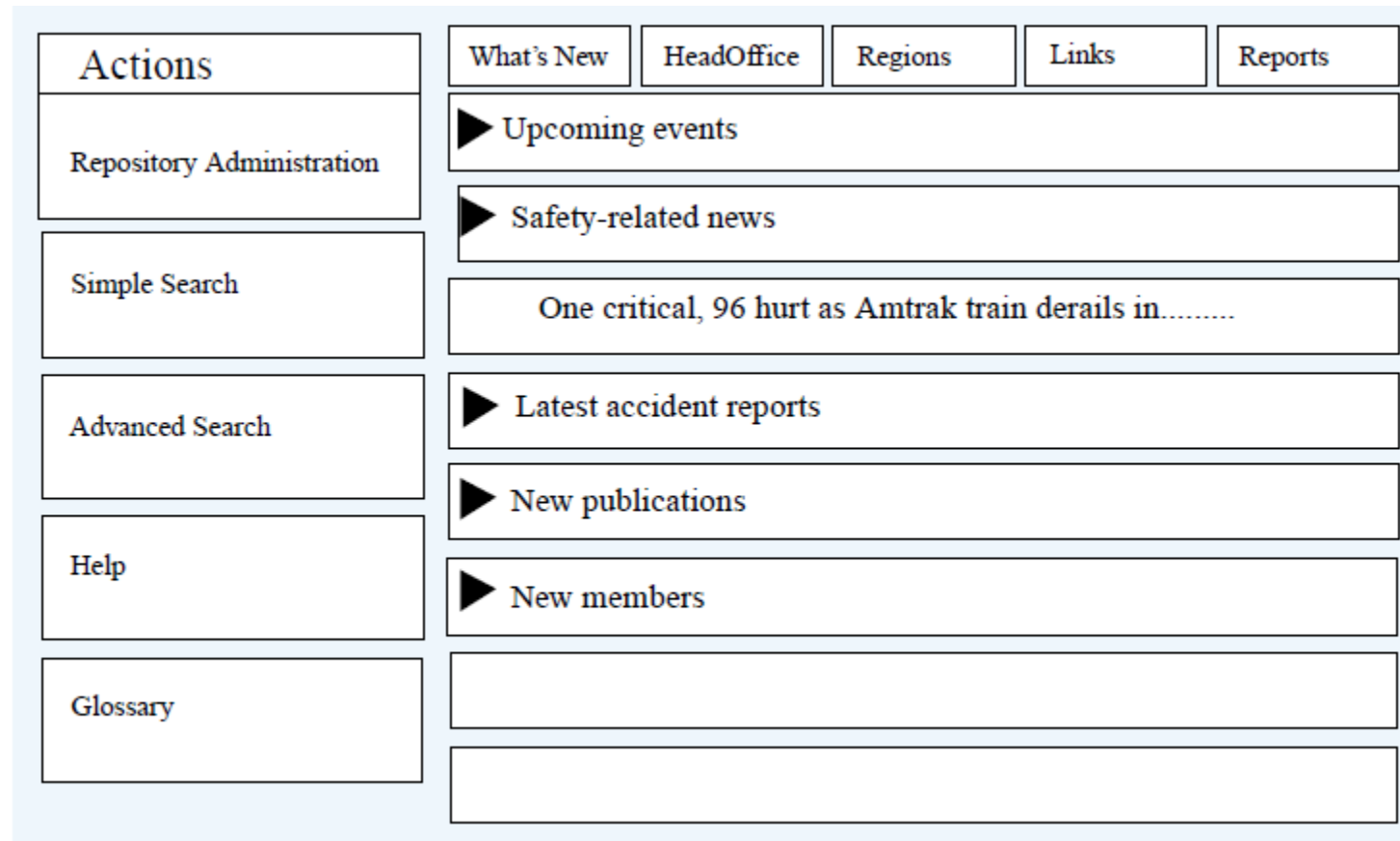
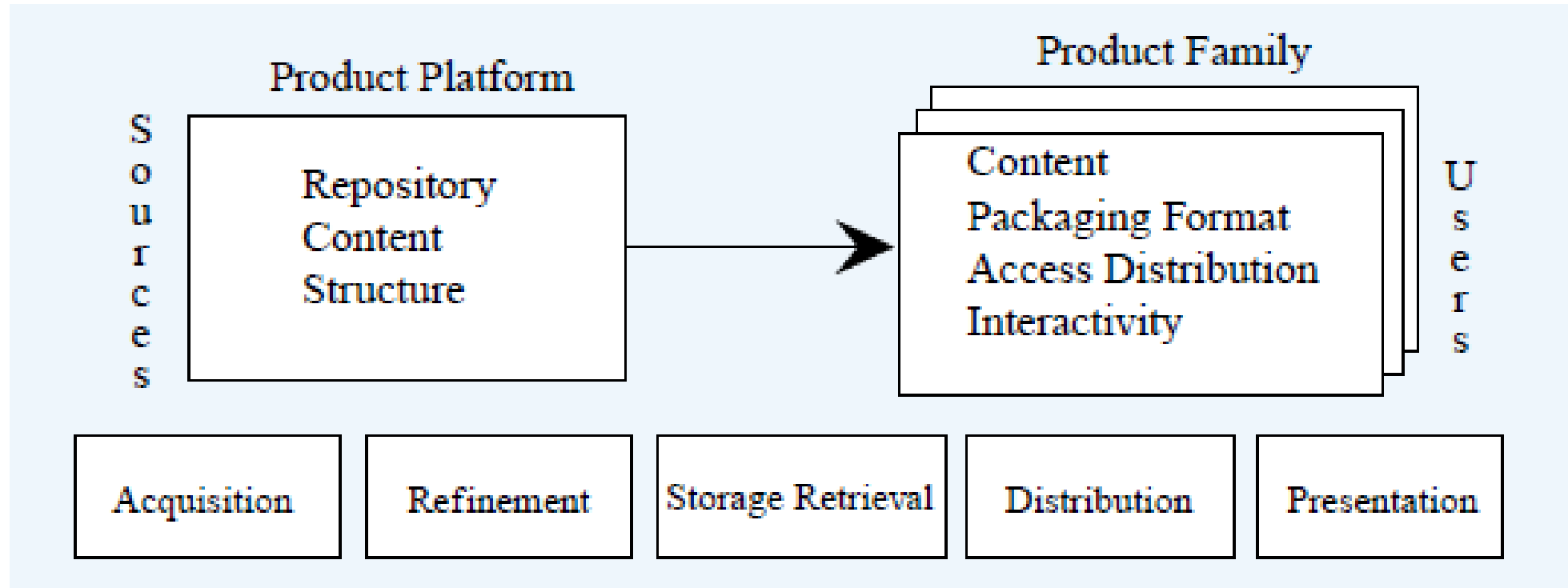Figure 1. Sample screenshot of the structure of a knowledge repository

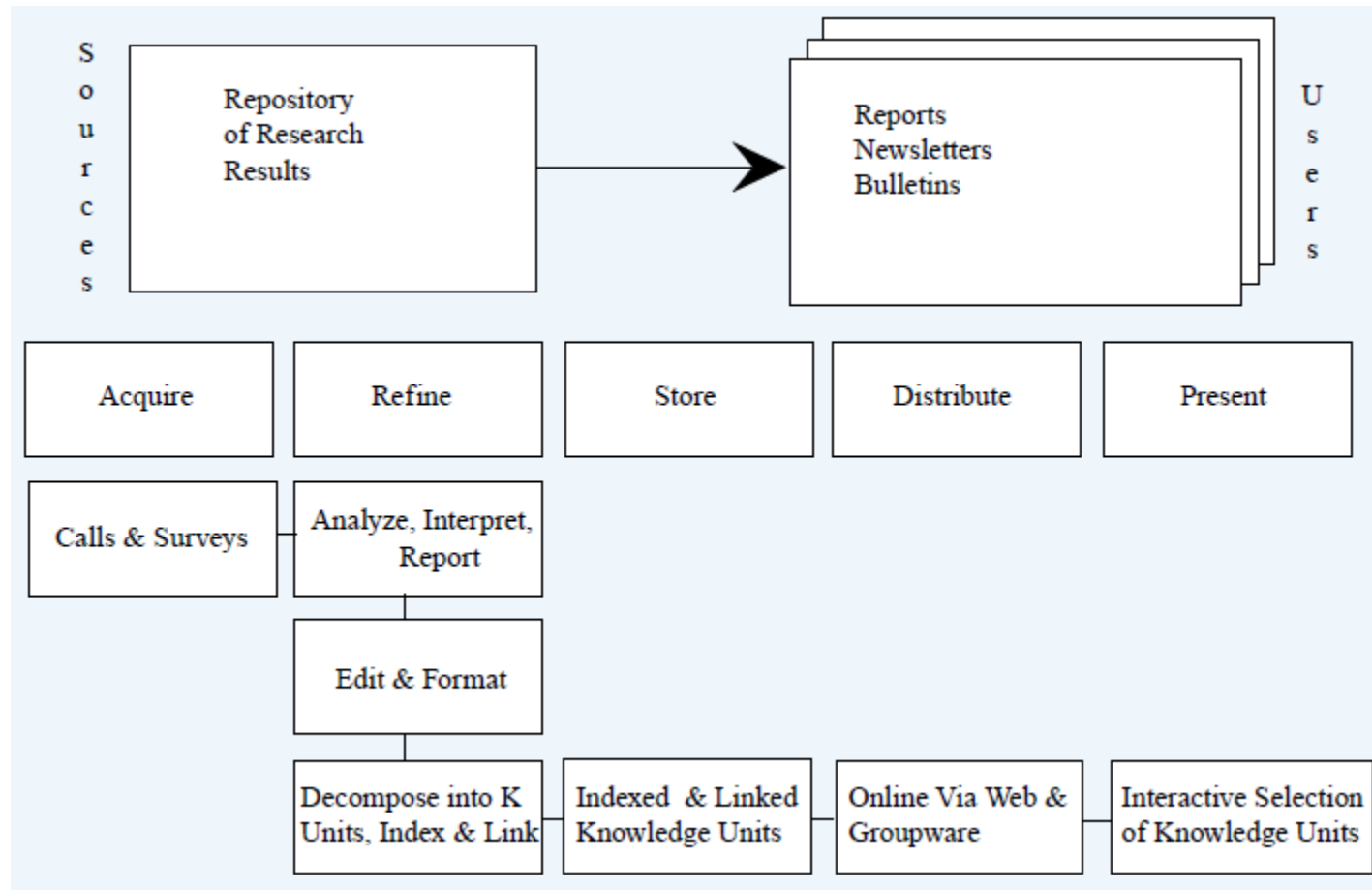Figure 2. High-level view of the Meyer and Zack KM cycle

Figure 3. High-level view of the Meyer and Zack KM cycle (continued)

Major Approaches to the KM Cycle
The Bukowitz and Williams KM Cycle

- A KM process framework on *"how organizations generate, maintain and expand a strategically correct stock of knowledge to create value"*.

- In this framework, *"knowledge"* refers to knowledge repositories, relationships, information technologies, communications infrastructure, functional skill sets, process know-how, environmental responsiveness, organizational intelligence, and external sources.

Major Approaches to the KM Cycle
The Bukowitz and Williams KM Cycle

The 4 stages of this KM cycle aim on more long-range processes of matching intellectual capital to strategic needs:

1. **Get Stage** consists of seeking out information required in order to make decisions, solve problems, or innovate.

2. **Use Stage** deals with how to combine and reinvent information to foster organizational innovation; highlights the involvement of individuals and groups.

3. **Learn Stage** is a formal process of learning from experiences as a means of creating competitive gain; this stage is important because it serves the transition step between the application of ideas and the generation of new ones.

4. **Contribute Stage** deals with encouraging employees to post what they have learnt to the communal knowledge base (e.g. a repository like Community of Practice); this can make individual knowledge more visible and available to the entire organization, where and when appropriate.
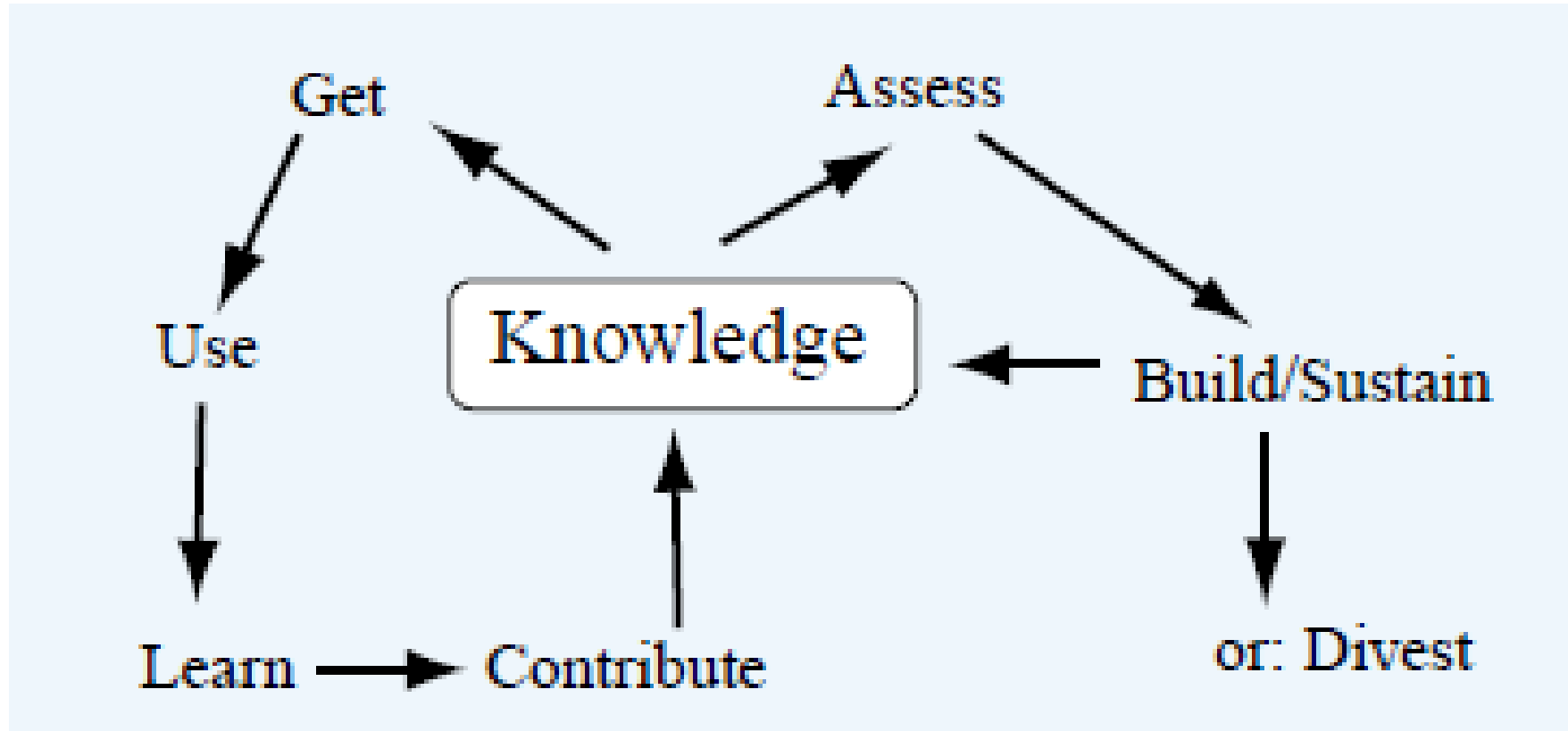
Figure 4. The Bukowitz and Williams KM cycle

Major Approaches to the KM Cycle
The Bukowitz and Williams KM Cycle

- Introduces two new critical phases:

  a. The learning of knowledge content;

  b. The decision as to whether to maintain this knowledge or divest the organization of this knowledge content.

- More comprehensive than the Meyer and Zack cycle because the notion of tacit as well as explicit knowledge management has been incorporated.

Major Approaches to the KM Cycle
The McElroy KM Cycle

- A knowledge life cycle that consists of the knowledge production and knowledge integration processes, with a series of feedback loops to organizational memory, beliefs, and claims and the business-processing environment.

1. **Problem claim formulation** attempts to learn and state the specific nature of the detected knowledge gap.

2. **Knowledge claim formulation** responds to approved problem claims via information acquisition and individual/group learning.

3. **New knowledge claims** are tested and examined through knowledge claim evaluation processes.

4. **Evaluation of knowledge claims** results in surviving knowledge claims that will be integrated as new organizational knowledge or falsified/undecided knowledge claims.

Major Approaches to the KM Cycle
The McElroy KM Cycle

- Experience gained from the application of knowledge in the organizational knowledge base leads to new claims and resulting beliefs that trigger the cycle to begin all over again.

- In knowledge production, the primary processes are: Individual and group learning; Knowledge claim formulation; Information acquisition; Codified knowledge claim; and Knowledge claim evaluation.

- These knowledge production processes can be briefed as the following:
  1. **Individual and group learning** – first step in organizational learning.
  2. **Knowledge claim validation** - codification at an organizational level.
  3. **A formalized procedure** - essential for the receipt and codification of individual and group innovations.
  4. **Information addition** - process by which an organization deliberately or unknowingly acquires knowledge claims or information produced by others that is external to the company; this stage plays a basic role in formulating new knowledge claims at the organizational level.

Major Approaches to the KM Cycle
The McElroy KM Cycle

- **Knowledge integration** - organization announces new knowledge claims to its operating environment and retires old ones; includes all knowledge transmission (e.g. teaching, knowledge sharing, and other social activities) that either connects an understanding of previously produced organizational knowledge to knowledge workers or accommodate newly-produced knowledge.

- **Advantage** – a clear description of how knowledge is examined and a conscious decision is made as to whether or not it will be included into the organizational memory; authorization of knowledge is a step that clearly differentiates knowledge management from document management

- **Objective of the KM cycle** - to identify knowledge content that is of value to the organization and its employees
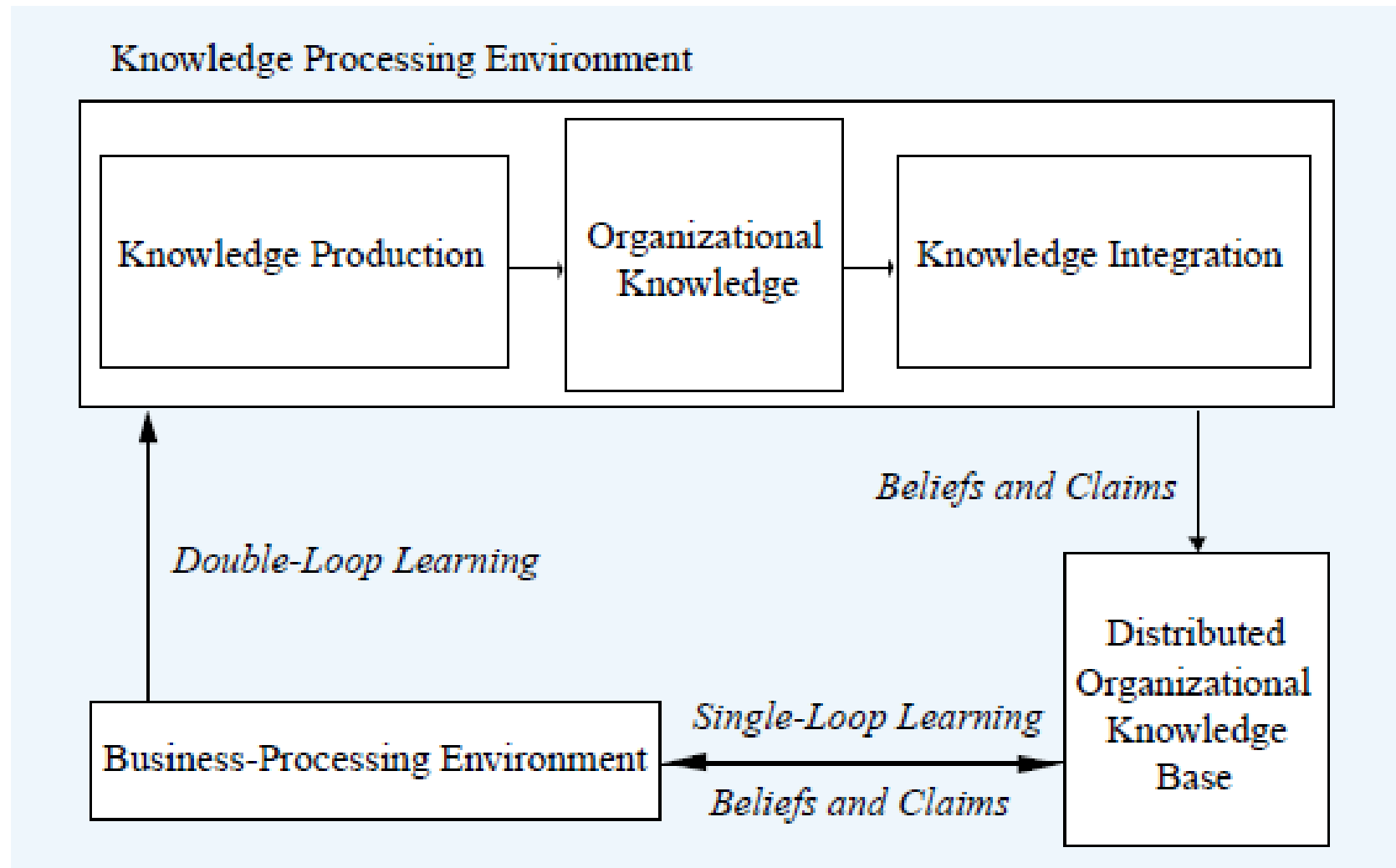
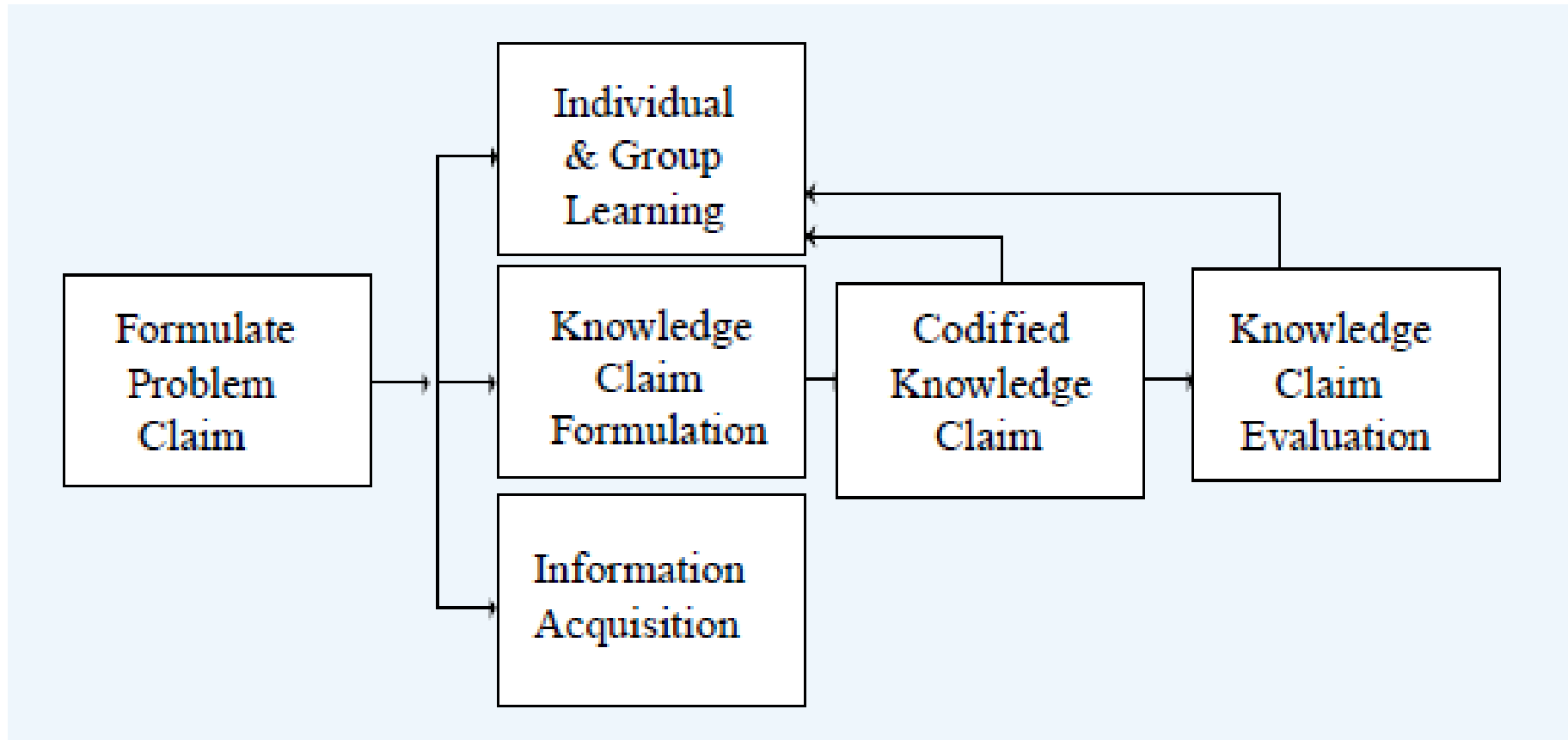Figure 5. High-level processes in the McElroy KM cycle

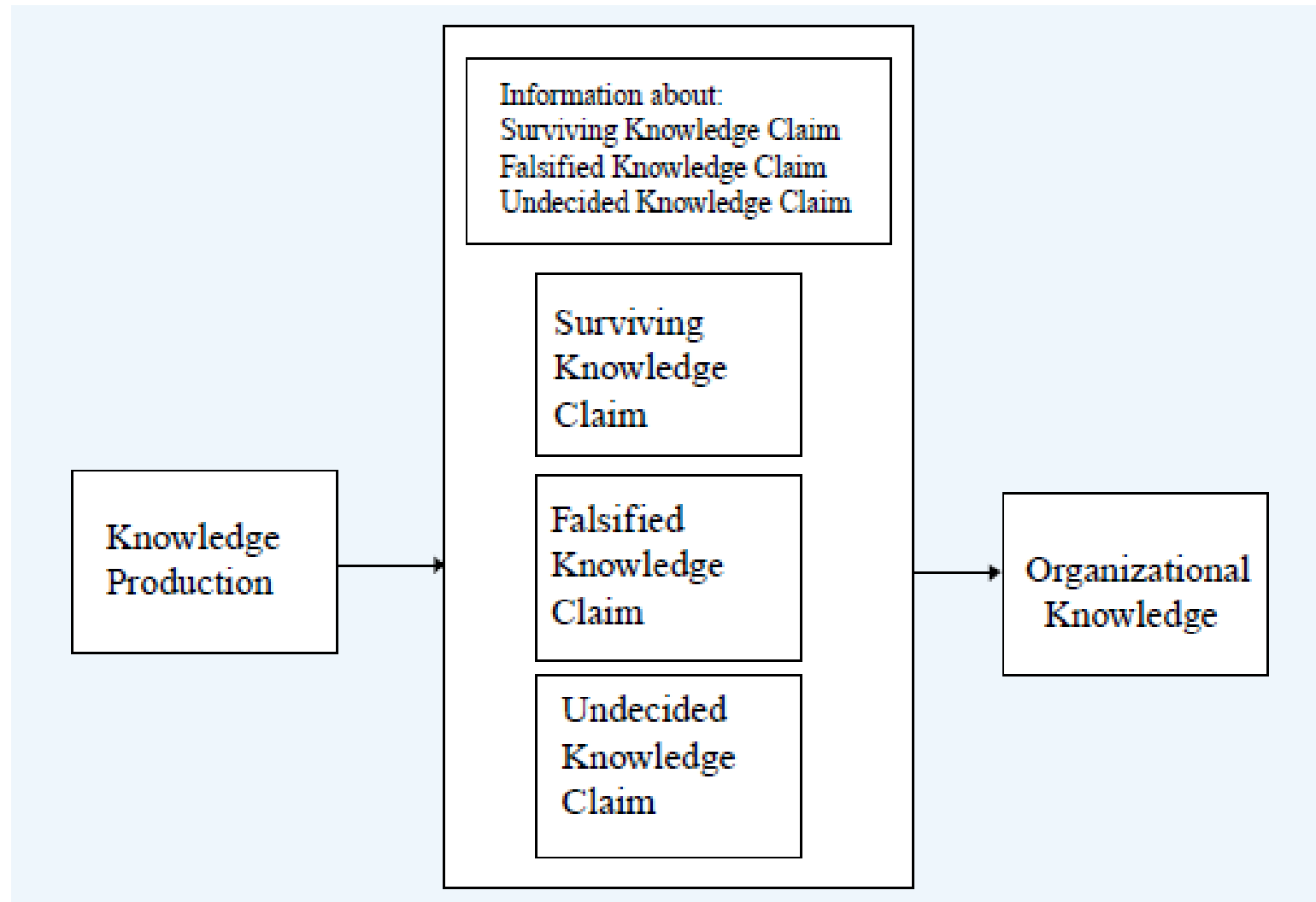Figure 6. Knowledge production processes on the McElroy KM cycle

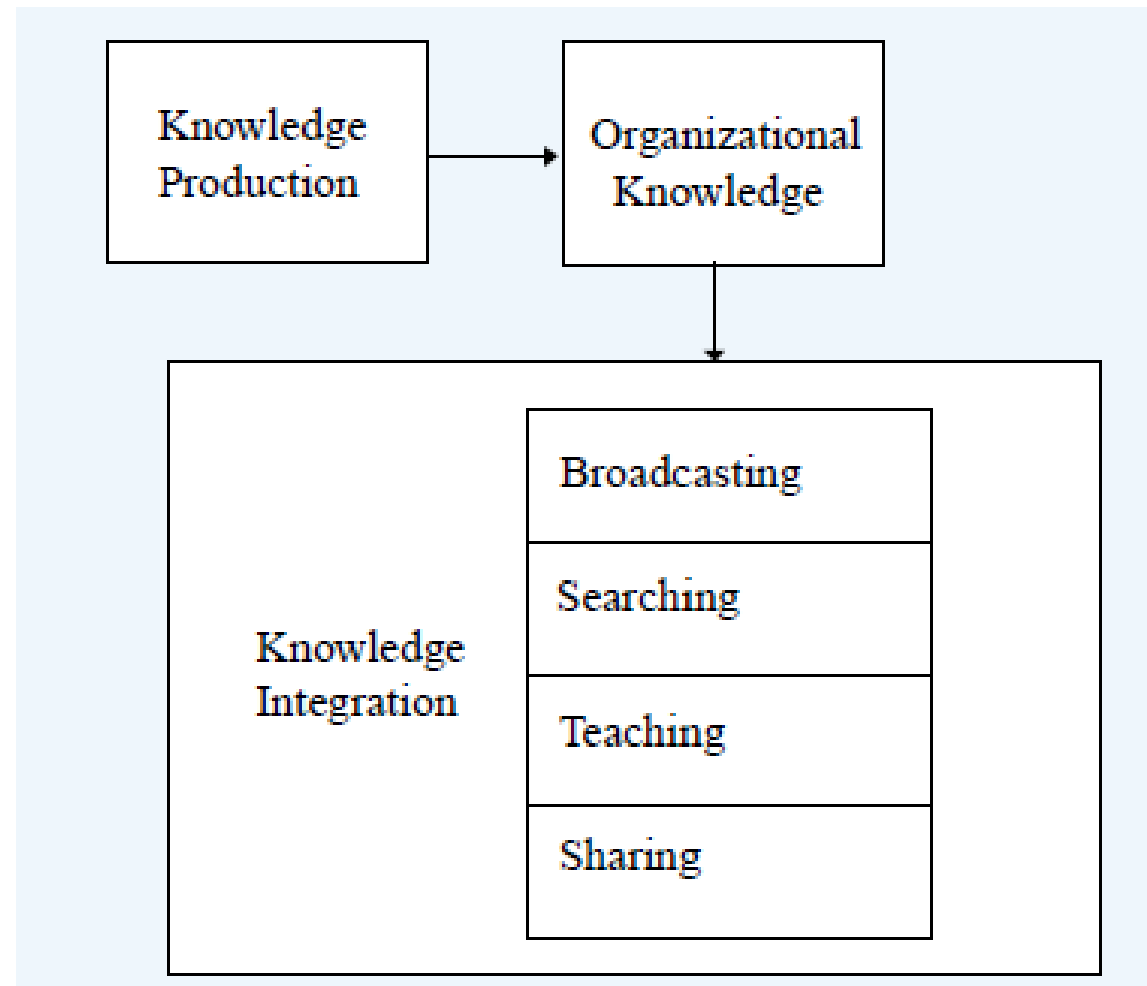Figure 7. Knowledge claim evaluation processes on the McElroy KM cycle

Figure 8. Knowledge integration processes on the McElroy KM cycle

Major Approaches to the KM Cycle
The Wiig KM Cycle

- Highlights 3 conditions required for an organization to successfully conduct its business:

  1. It must have a business (commodities/services) and customers.
  2. It must have resources (people, budget, and facilities).
  3. It must have the strength to act.

- The purpose of this KM is "*to make the organization intelligent-acting by facilitating the creation, accumulation, deployment and use of quality knowledge.*"
- Shows how knowledge is built, created, and used by individuals or by organizations.

Major Approaches to the KM Cycle

The Wiig KM Cycle

- **Building knowledge** − From external and internal knowledge sources

- **Holding knowledge** − Storing the information in a particular form

- **Pooling knowledge** − Through intranets and knowledge management portals

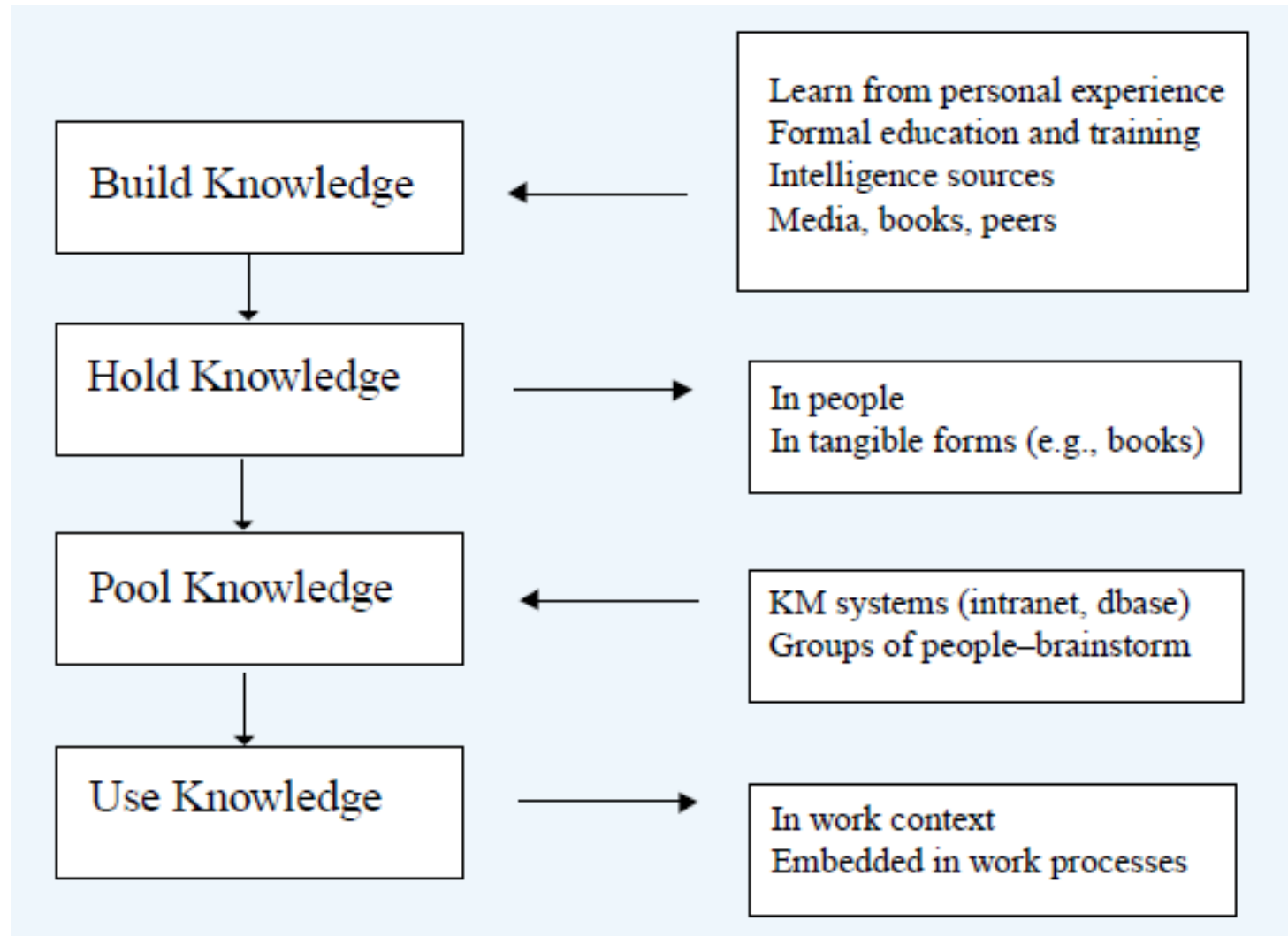- **Applying knowledge** − In the context of work embedded in process

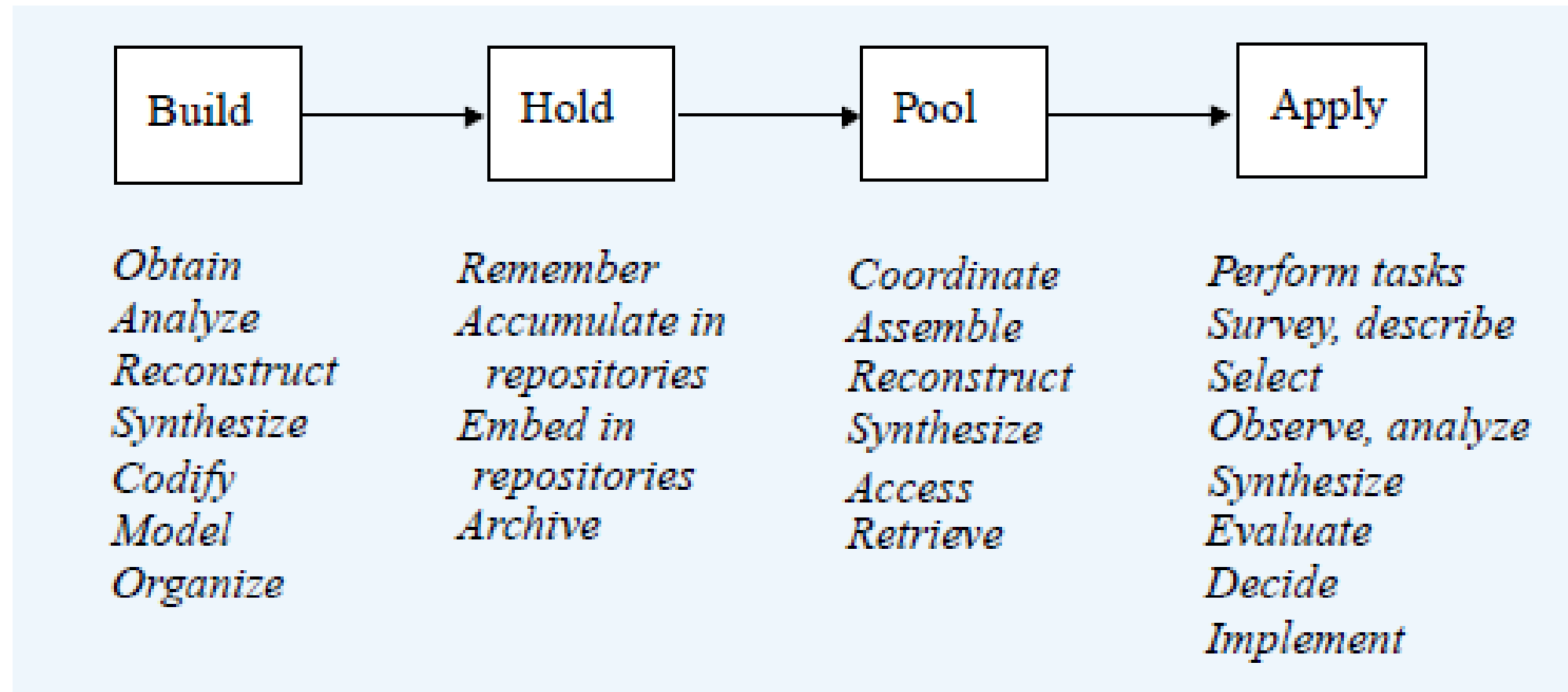Figure 9. Major steps in the WIIG KM cycle

Figure 10. Summary of the key in the WIIG KM cycle activities

An Integrated KM Cycle

- 3 major stages of integrated cycles of knowledge management strategy when introduced in any organization:

    1. Knowledge capture and/or creation
    2. Knowledge sharing and dissemination
    3. Knowledge acquisition and application

An Integrated KM Cycle

- **Knowledge Capture** - identification and frequent codification of internal knowledge and know-how within the organization and/or external knowledge from the environment.

- **Knowledge Creation** - advancement of new knowledge and know-how innovations that did not have a previous existence within the organization.

- When the newly identified content is clearly of sufficient value, contextualize the content by maintaining a connection between the knowledge and those knowledgeable about that content.

- **Contextualization** – identifies the key elements of the content to better match a variety of users; contextualization succeeds when the new content is firmly, precisely yet seamlessly, embedded in the business processes of the organization.

- The KM cycle is then rechecked as users understand and decide to make use of that content.

- The users determine the contents' usefulness, timeliness, and applicability.
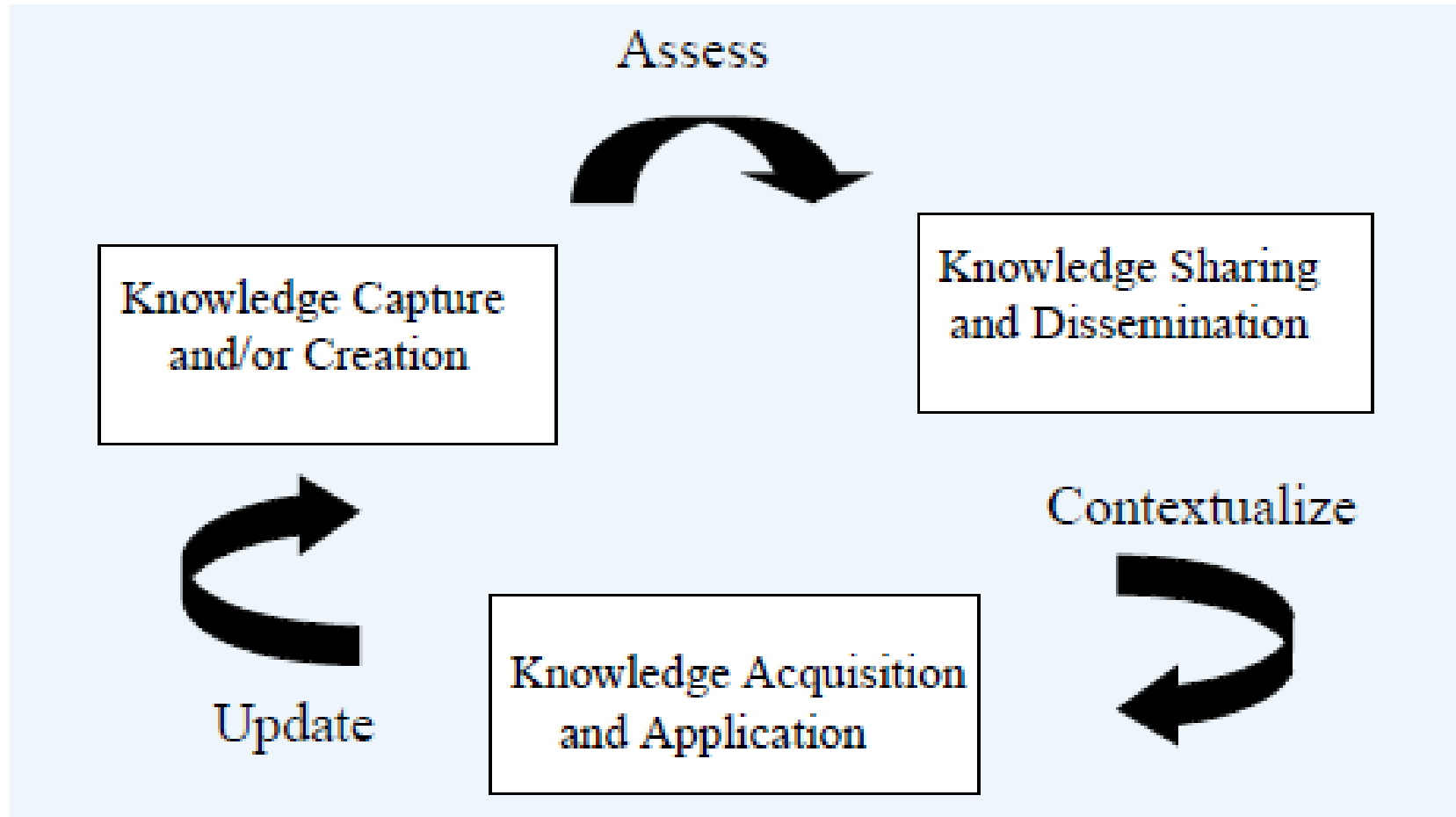
Figure 11. An Integrated KM cycle

Meyer & Zack (1996)	Bukowitz & Williams (2003)	McElroy (1999)	Wiig (1993)	Integrated KM Cycle
Acquisition	Get	Individual & group learning	Creation	Create/capture
Refinement	Use	Knowledge claim validation	Sourcing	Create/capture
Store/retrieve	Learn	Information acquisition	Compilation	Create/capture
Distribution	Contribute	Knowledge validation	Transformation	Create/capture and contextualize
Presentation	Assess	Knowledge integration	Dissemination	Share, disseminate, and assess
	Build/sustain		Application	Acquisition and application
	Divest		Value realization	Update

Figure 12. An Integrated KM cycle steps

Strategic Implications of the KM Cycle

- Knowledge determines the intelligent, competent behavior at the individual, group, and organization level.

- Organized lessons learned and best practices allow organizations to leverage their hard-won knowledge assets.

- Therefore, a knowledge architecture needs to be designed and implemented to enable the staged processing and transformation of knowledge to ensure that the knowledge objects reach intended end-users and are put to good use.

- The goal is to retain and share knowledge with a wider audience; information and communication technologies (e.g. groupware, intranets, and knowledge bases or repositories) provide the necessary infrastructure to do so.

- Business processes and cultural enablers offer the necessary incentives and opportunities for all knowledge workers to become active participants throughout the KM cycle.

Practical Considerations for Managing Knowledge

- It is important to understand the different stages of managing knowledge throughout the KM cycle; however, understanding alone is not enough.

- From a practical perspective, managing knowledge requires an organizing principle or a framework that helps in classifying the different types of activities and functions needed to deal with all knowledge-related work within and between organizations.

- This framework is often encapsulated in the form of a KM theory or model.

- Several major KM models will be presented in the next chapter.

Key Points

- There are numerous approaches to the KM cycle; but there are 4 major models that are prominently used: McElroy, Wiig, Bukowitz & Willams, and Meyer & Zack.

- By comparing and contrasting these approaches and by validating them through gained experience with KM practice, the major stages are identified as knowledge capture and creation, knowledge sharing and dissemination, and knowledge acquisition and application.

- The critical processes throughout the KM cycle assess the worth of content based on: 1) organizational goals 2) contextualized content that better matches with a variety of users, and 3) continuous update with a focus on updating, archiving as required, and modifying the scope of each knowledge content.

Discussion Points

- Discuss the different KM cycle approaches and how to integrate them into a comprehensive, integrated approach to the effective management knowledge within an organization.

- Provide an example of how each major KM cycle stage listed below can add value to knowledge and increase the strategic worth of the knowledge asset:

  a. Capture
  b. Codify
  c. Create
  d. Share
  e. Acquire
  f. Apply

- Where are the key decision points in the KM cycle?

- What types of information would you require in order to decide whether the knowledge content would continue to the next step of the cycle?