

2.4 Supply Chain of KM

Knowledge management provides a huge potential to create and retain greater value within **supply chains** by using appropriate information technology (IT), but also by better understanding and mastering the **knowledge** creation process.

Companies have long shared data and information, jointly developed products, negotiated prices and terms, queried potential partners on product specifications, discussed demand expectations and shared promotional plans. These cooperative activities are essential elements of any successful business and are also information and knowledge intensive. Nowadays, businesses are operating within a new competitive landscape. Collaboration and the utilization of knowledge and intellectual assets have come to be the key ingredients for survival and success within this new landscape. The implementation of knowledge management practices enables a collaborative environment that enables the supply chain to be more adaptive and responsive and ultimately achieve an improved strategic competitive position in the market place.

Supply chain partners must consider many issues when implementing supply chain-wide KM. Organizations must design KM systems that adapt to local conditions map the cultural roadblocks to KM anticipate miscommunication in multicultural teams optimize their corporate culture for knowledge sharing by understanding and leveraging inherent values and be insensitive to corporate culture and be sensitive to the different cultures of functional competencies within an organization. Design KM systems that adapt to local conditions – organizations in the supply chain must decide whether to expand a local KM system, integrate the systems of all their top supply chain partners or to create an entirely new and integrated KM system. The starting point is to examine why the supply chain needs an integrated KM system and what it intends to accomplish through it. Organizations must consider the different cultural norms throughout the supply chain, from the start, to ensure that all parties are willing to contribute and share valuable knowledge. Map the cultural roadblocks – supply chain members must establish how people in the supply chain work in groups, whether they share information and knowledge easily, what systems they use to share information and knowledge, how pervasive knowledge sharing is and at what level and frequency they use KM systems.

The different cultural values and beliefs in the supply chain must also be investigated as different cultures' belief systems, community hierarchies, persistent taboos and gender relations are all critical to how they share information and knowledge among themselves and with those outside their circle (i.e. other supply chain members). Anticipate communication in multicultural teams. People with different cultural backgrounds may have different approaches to the same problem and may even disagree about the existence of a problem. Problems may also be approached from different angles according to cultural orientation. Optimize the corporate culture for knowledge sharing by understanding and leveraging inherent values – if the supply chain wants a large multinational KM structure, the different partners have to analyze how culture affects their activities. The way in which knowledge is managed on a global scale becomes the hallmark of the different organizations and the related supply chain's image and reputation. When a supply chain is spread geographically, it is very important to manage knowledge so that it is consistently received by clients. Knowledge is what actually constitutes a supply chain and the supply chain relies on people. Since it is impossible to instruct employees on every detail of what to do, their actions in the supply chain have to be driven by knowledge and values. Capturing of knowledge gained in each interaction in the supply chain must be a priority so that valuable knowledge is

retained even if employees leave the company.

Be sensitive to the different cultures of functional competencies within the organizations of the supply chain – whether crossing geographic or national borders, or crossing borders of certain competencies within the individual organization, problems start with a lack of a shared vocabulary, of a shared competitive landscape and of a shared view of how the supply chain actually works. The key purpose of KM is to help people create this shared context. KM creates an enormous transparency within the individual organization and within the entire supply chain. And, depending on culture, transparency is usually welcome. If these issues are properly and duly addressed by all members of the supply chain, the probability of supply chain-wide adoption and optimal utilization of KM will be increased.

★ 2.5 Formulation of KM strategy.

Strategic investments represent the company's choices/options so as to enable and enhance the processes outlined earlier (e.g. knowledge sharing) and to offer help define which knowledge is relevant (i.e. in line with strategic objectives) and which is not.

Knowledge Management Strategy

While the knowledge management processes section dealt with the general ways knowledge can be managed.

This strategic part of the integrated knowledge management model, which includes:

- Knowledge management strategic initiatives:
- Invest: Support of existing structures, competencies, knowledge retention mechanisms, culture, external network, and knowledge management systems
- Invest: Implement changes to structures, competencies, knowledge retention mechanisms, culture, external network, and knowledge management systems
- Divest: Remove obsolete knowledge

The articles that follow are based solely on the points under "invest". Based on that we arrive at the following headings:

- ✓ KM and Organizational Structures
- ✓ KM and Organizational Culture
- ✓ KM and Knowledge Retention
- ✓ KM and Core Competencies
- ✓ KM and External Knowledge Network
- ✓ KM and Knowledge Management Systems
- ✓ Knowledge Management Best Practices

As many of you might realize, many of the strategic initiatives deal with aspects that extend into different branches of management. However, the subsection dealing with knowledge

management systems will be the first that focuses specifically on IT, implementation issues, leading to the subsequent section that looks at some specific systems and tools.

Managing Organizational Structures

This discussion deals with the physical and non-physical divisions and barriers that influence the way knowledge management (KM) operate.

It is important to note that many elements within this topic stretch well outside our focus, and volumes could be written on it alone. The focus here will be only on the general elements that are directly related to KM.

Types of Organizational Structures

Organizational structures deal with the way the firm is organized, and the way people relate to one another. Broadly speaking, there are two types of organizational structure, namely formal and informal. These two concepts are not independent, and the formal structure may greatly influence informal networks, both positively and negatively.

- **Formal:** The official structure of the organization, which is normally displayed on an organizational chart, and which denotes the hierarchical relationships between members of the firm. It is beyond the scope of this site to offer a discussion on the various formal organizational structures. However, there are a few things that are relevant to KM:

- The formal organizational structure must not be so rigidly enforced so as to stifle informal structures such as communities of practice, where knowledge sharing and creation may take place. It is the knowledge manager's job to understand the knowledge dynamics of the organization and to recognize how the formal and informal structures coexist.
- The formal organizational structure, particularly in a larger firm with separate departments, will impact knowledge flows. There is no set structure that is best, since most have advantages and disadvantages depending upon the business type, firm size, etc. However, studies seem to indicate that flatter, decentralized structures are more effective for KM. This also makes sense logically, since knowledge flows would be less hindered in such a structure.

Implementing changes to formal structures can thus mean restructuring the organization, but it can also mean enforcing existing structures to a lesser or greater degree.

- **Informal:** The unofficial organizational structures are the ones that are created through informal networks, as a result of working within the organization. They represent the way people actually interact. Increasingly, the value of these informal structures is being understood, and the knowledge manager must learn to identify and support these networks. This process is closely related to KM, since knowledge flows and repositories (particularly tacit) are dependent upon these structures. KM therefore must play a central role in their management, including identification of the structures and the knowledge they hold, implementing changes, bridging gaps between communities, and so on. Unfortunately, implementing changes to informal social networks is difficult without running the risk of disrupting them.

There are however several ways that managers can influence social networks:

- Generalists (sometimes referred to as gatekeepers) can be used to identify communities and their expert know-how, and to help coordinate activities such as cross-functional projects.
- Project teams and other teamwork can serve as a means to bridge the gap between communities.
- Common physical meeting areas can allow communities to grow and flourish.
- Virtual socialization and people finders can support communities of practice.
- Common vision, goals, ideals, social gatherings etc. and a climate of trust can serve as a way to lessen the distance between organizational members and communities.

Corporate Culture Change

Organizational culture represents the way things are done in an organization, encompassing the values, beliefs, and attitude that generate a common framework for interpreting events.

Knowledge sharing, and thus all aspects related to knowledge management (KM), depend upon organizational culture. Trust is a particularly important issue, since workers need to feel secure that they are not jeopardizing themselves by engaging in knowledge sharing. In order for proper cooperation to take place, management must create a culture where knowledge sharing is seen as beneficial for the individual as well as the organization. Managing corporate culture change is therefore at the very core of KM and organizational learning processes.

Defining and Mapping Organizational Culture

Johnson (2001) presents a model called the cultural web, outlining the various components of organizational culture.

The paradigm: The set of assumptions shared and taken for granted by the organization.

Rituals and Routines: These represent "the way we do things around here". They point to what is valued, and include behaviours that are taken for granted as being correct.

Stories and myths: The organization's folklore that passes on the common perception of past events, thus reinforcing beliefs and passing them on to newcomers.

Symbols: All the symbolic elements of the firm, including titles and dress codes.

Control Systems: Systems that are designed to promote certain activities by rewarding correct behavior and monitoring performance.

Org. Structures: The formal structure of the organization, organizational structures (though in this case it is considered solely in regards to its influence on culture).

Power structures: The more powerful groups are also most likely to be involved in shaping the paradigm. A big problem arises when "the main targets for change are also those who hold the power."

Managing Corporate Culture Change

Series of leadership roles that will help facilitate corporate culture change towards a knowledge friendly culture:

- **Acknowledge the existence and influence of organizational culture:** It must be brought into the open so people can see and understand how it affects activities

- **Have a clear and persistent vision of what the culture should be and of what changes need to be applied:** This vision must be understood by management at all levels and spread across the organization.
- **Consciously manage culture:** Wellman suggests the using health assessments and employee surveys to evaluate progress and direction. Expanding upon this, one might add the use of incentives (whatever is suitable within that particular organization) and of using managers as intermediaries between different cultures within the organization.
- Management must strive to create a culture where knowledge sharing is perceived as beneficial to the whole and also to the individual. In other words, through shared vision, incentives, etc. they must foster an atmosphere of trust to ensure that individuals have faith in the principle of reciprocity. They must also bridge cultural differences that exist between different communities and power structures within the organization.

Gardner presents a somewhat more concrete approach to corporate culture change. He states that it is dependent on redefining the assumptions that shape the common understanding, or in other words the paradigm. It thus involves introducing "anomalies" that present a reality that cannot be true under the old assumptions. As more and more anomalies are presented, people will eventually abandon old beliefs and frames of understanding and eventually be willing to adopt new ones.

No matter what, corporate culture change is a difficult process that is likely to meet significant resistance. Its stubbornness is due in part to the fact that it is history dependent, woven into everyday practice, and used as socializing mechanism for newcomers.

Knowledge Retention

Knowledge retention involves capturing knowledge in the organization so that it can be used later. Five knowledge repositories, namely individuals, culture, transformations (i.e. procedures & formalized systems), structures (e.g. formal and informal networks), and external activities. This is where knowledge can exist or be retained in an organization.

Most often, one hears of knowledge retention in the context of losing key employees and using techniques such as exit interviews to try to capture their knowledge. In reality, knowledge retention should be integrated into how the organization operates and start well before a key employee is about to depart. Although it is considered crucial for long term organizational success, few organizations have formal knowledge retention strategies.

A knowledge retention strategy as a part of knowledge management (KM) will identify the knowledge resources that are at risk and must be retained, and then implement specific initiatives so as to keep these resources in the firm. Like most other KM-related processes and strategies, success depends upon successful knowledge sharing and having a knowledge sharing & learning organizational culture.

Apart from the more general knowledge sharing initiatives that a firm may use - e.g. support of formal & informal knowledge networks (social areas, social media, meetings, company functions, knowledge fairs, expertise locator, etc.), changing the organization culture, etc. - examples of tools & techniques which can be used specifically for knowledge retention include

- Implementing reward structures to encourage sharing of key knowledge.

- Use of project teams and cross-functional project teams.
- After-action reviews.
- Storytelling.
- Mentoring programs & job shadowing.
- Interviews & exit interviews.
- Job rotation.
- Company procedures/processes manuals.
- Taking advantage of the knowledge of retirees.

Knowledge Retention Strategy

The three basic questions that must be asked when considering knowledge retention:

- What knowledge may be lost?
- What are the organizational consequences of losing that knowledge?
- What actions can be taken to retain that knowledge?

Expanding upon these questions, one can outline several concrete steps necessary in the formulation of a knowledge retention strategy:

Step 1: Understand your risk factor with the following risks:

- The average age of your employees is high
- The company has placed insufficient focus on:
- knowledge capture
- mentoring program
- employee training and development
- Information is difficult to find or is often misplaced.
- There is little informal communication in the organization.
- Many knowledgeable employees are leaving the organization.

Step 2: Understand which knowledge is critical.

Step 3: Formulate a strategy using the pillars of knowledge retention. Knowledge retention consists of a wide range of tools, some easy and some hard to implement.

Liebowitz identifies four categories which encompass all the initiatives within knowledge retention. These are:

- Recognition and reward structure: Management has the choice to use either intrinsic motivators (i.e. which make the job itself more satisfying, such as praise or recognition) or extrinsic motivators (i.e. which offer benefits unrelated to the job, such as money). These must take

organizational as well as national cultural factors into account, but overall the most effective and longer lasting appear to be intrinsic motivators.

- Bidirectional knowledge flow: Establishing a two-way system of knowledge capture, where knowledge is not only passed down from the senior employee to the junior employee, but also vice versa.
- Personalization and codification: Personalization refers to connecting people and includes tools such as mentoring, job rotation, knowledge fairs, communities, and so on, while codification includes tools like after action reviews, various knowledge repositories, lessons learned systems, etc.
- The golden gem: Bringing back important retirees in various capacities. This includes rehire programs, consultancy, part-time work, temporary jobs, etc. (Corporate Executive Board 2005).

KM and Core Competencies

The knowledge management definition presented earlier, involved the reuse and creation of relevant knowledge. The word *relevant* links knowledge management (KM) to the concept of organizational core competencies.

Core competencies: Definitions vary greatly. The term was originally coined by Pralahad and Hamel (1990) who defined it as "the collective learning of the organization, especially how to coordinate different production skills and integrate multiple streams of technologies". Since then it has been defined in multiple ways, but very generally, core competencies refer to the firm's primary expertise, which is a source of sustained competitive advantage. Arriving at a more precise definition is not necessary for our purpose here. Suffice it to say, that these are key capabilities, which, from the resource-based perspective of the firm, are the primary drivers of innovation and competitive advantage.

Core competencies thus have a large knowledge component, and managing them is, in the very least, a product of corporate strategy working with KM and innovation management. This simplified model has strategy dictating the overall direction, KM managing the knowledge dynamics, and innovation management turning core competencies into profitable core products. To understand the role of KM let us look at a brief overview of how core competencies are managed:

1. Identifying and assessing core competencies: The firm should map out its key competencies, possibly linking them directly to specific core products. Then, an evaluation must take place, assessing what one has vs. what one needs. KM is responsible for identifying where the key knowledge is located, including the tacit expertise and knowledge embedded in products, routines, etc, as well as identifying knowledge gaps.

2. Sustaining core competencies: Organizational core competencies, like all knowledge assets, have the virtue of improving rather than depreciating through use. Conversely, lack of use will lead to erosion of any skill set. The role of KM here is twofold, on the one hand, it must keep stock of the state of key knowledge assets and, on the other, it must leverage key knowledge assets across the organization.

3. Building core competencies: Building new core competencies involves an interplay between knowledge, practice, coordination, and refinement. Knowledge assets must be built, enhanced, combined, and coordinated in an environment that supports experimentation and improvement.

Building core competencies can be a complicated endeavor since sustained competitive advantage is derived from assets that are hard to imitate (Dierickx and Cool 1989). From a KM perspective, this implies the build up of specific tacit knowledge and expertise (i.e. uncodified knowledge that is generally more valuable, and inherently more difficult to copy and transfer), often across multiple departments or functions.

4. Unlearning core competencies: Organizations have a habit of trying to keep doing what they have always been doing. Unlearning a competency when it is no longer useful is one of the key aspects of a successful firm, and history is riddled with examples of companies that have failed to do so. In the process of unlearning, KM again plays an important role by identifying and managing the firm's knowledge assets in the right direction. This may be done through re-training, restructuring, creating new knowledge flows, external knowledge acquisition, outright removal, etc.

The specific dynamics of the processes of knowledge creation, knowledge acquisition, knowledge sharing, and knowledge reuse, which are central to the management of core competencies, have been discussed earlier. The purpose of this section is to emphasize that KM is not just a collection of individual initiatives. The build up of skills and competencies, involving the coordination of multiple KM disciplines with other organizational functions, must often be managed according to long-term strategic goals and coordinated across the organization.

Managing the External Knowledge Network

Having explored the dynamics of knowledge acquisition from external sources, I will now briefly look at the role knowledge management (KM) has in the broader, long-term process of building an external knowledge network. Once again, I want to underline that this presentation is only intended as a broad overview of the potential roles of KM, and will not go into any detail on specific topics such as customer or supplier relationship management.

In the previous subsection, the major potential external knowledge sources were identified as:

- Customers
- Suppliers
- Competitors
- Partners
- Mergers & Acquisitions

Each of these categories offer a different set of potential knowledge, as well as different challenges in the acquisition process.

Without looking specifically at KM, the general steps for extending the external knowledge network are as follows:

- **Identification of potential partner/target:** This would depend largely on the corporate strategic goals assessed against the perceived benefit of the potential partners.
- **Evaluation of potential partner/target:** This process is particularly important for high investment ventures like mergers and acquisitions or joint ventures. The process would be driven by the estimated contribution of the target (this includes knowledge and core competencies but also potentially other assets), the estimated cost of establishing the relationship, and the

estimated cost of acquiring similar knowledge from other sources (including building it in-house). The word "estimated" plays a key role here, since the information required to make accurate decisions is often hard to come by.

- **Establishing the relationship/acquisition of target:** The process of actually establishing cooperation/acquisition. For customer, supplier, or competitor relationships this may involve setting up procedures, rules, and intentions regarding the nature of the relationship and the things that will be reported or shared. For mergers and acquisitions it could take any number of forms and may include defining a new structure, integration into a common locale, merging corporate cultures/identities, and so on.
- **Knowledge transfer/integration:** The actual processes that are put in place to gather and use the knowledge and know-how from the relationship/acquisition. These may involve reporting procedures, feedback mechanisms, common IT systems, common projects etc.

The role of KM in building the external knowledge network would thus be to:

- **Provide all the relevant information regarding internal knowledge assets:** This includes identifying what the firm has, what it does not have, and the costs associated with building new knowledge.
- **Help in the evaluation process:** help evaluate the potential value and difficulty to integrate of the knowledge that the firm expects to acquire.
- **Encourage knowledge sharing & integration:** On the one hand it could involve working with top management so as to devise the best procedures and systems relating to knowledge transfer. On the other, it could involve introducing incentives, systems, managing organizational culture change, etc. that facilitate, support, and encourage knowledge sharing.
- **Gather, integrate, and share relevant external knowledge and information:** Managing the knowledge transfer process so as to ensure that the knowledge is relevant and that it is available whenever and wherever necessary. Analyzation of data and information so as to provide the building blocks of new knowledge.

As one can see, KM plays a supporting role in all areas and is instrumental in the learning process. Its importance will be greater the more knowledge intensive the industry and nature of the relationship.

What are Knowledge Management Systems?

Knowledge management systems refer to any kind of IT system that stores and retrieves knowledge, improves collaboration, locates knowledge sources, mines repositories for hidden knowledge, captures and uses knowledge, or in some other way enhances the KM process.

Will break these terms down into the following general categories.

Groupware systems & KM 2.0

- The intranet and extranet
- Data warehousing, data mining, & OLAP
- Decision Support Systems
- Content management systems

- Document management systems
- Artificial intelligence tools
- Simulation tools
- Semantic networks

These categories will cover the vast majority of the systems that people would normally associate with a KM system.

Problems and Failure Factors

Too often, the effects of technology on the organization are not given enough thought prior to the introduction of a new system. There are two sets of knowledge necessary for the design and implementation of a knowledge management system.

- The technical programming and design know-how
- Organizational know-how based on the understanding of knowledge flows

The problem is that rarely are both these sets of knowledge known by a single person. Moreover, technology is rarely designed by the people who use it. Therefore, firms are faced with the issue of fit between IT systems and organizational practices, as well as with acceptance within organizational culture.

Stress the importance of understanding what knowledge management systems cannot do. They point to the fact that introducing knowledge sharing technologies does not mean that experts will share knowledge - other initiatives have to be in place.

Building upon all this, and incorporating previously discussed elements, failure factors of knowledge management systems are as follows:

- Inadequate support: managerial and technical, during both implementation and use.
- Expecting that the technology is a KM solution in itself.
- Failure to understand exactly what the firm needs (whether technologically or otherwise).
- Not understanding the specific function and limitation of each individual system.
- Lack of organizational acceptance, and assuming that if you build it, they will come – lack of appropriate organizational culture.
- Inadequate quality measures (e.g. lack of content management).
- Lack of organizational/departmental/etc fit - does it make working in the organization easier? Is a system appropriate in one area of the firm but not another? Does it actually disrupt existing processes?
- Lack of understanding of knowledge dynamics and the inherent difficulty in transferring tacit knowledge with IT based systems (see segment on tacit knowledge under knowledge sharing).
- Lack of a separate budget.

Promoting Acceptance and Assimilation

According to Hecht et al. (2011) the process of successful implementation has three stages: adoption, acceptance, and assimilation. Based on recognized models and theories, the authors identified three comprehensive sets of factors affecting these three elements. The resulting model organized the KMS implementation factors into the following categories:

- Adoption:
- Influenced by design: Innovation characteristics, fit, expected results, communication characteristics.
- Not influenced by design: Environment, technological infrastructure, resources, organizational characteristics.
- Acceptance
- Influenced by design: Effort expectancy, performance expectancy.
- Not influenced by design: Social influences, attitude towards technology use.
- Assimilation:
- Influenced by design: social system characteristics, process characteristics.
- Not influenced by design: Management characteristics, institutional characteristics.

Step 1: KMS Adoption

Some of the key factors identified by Hecht et al (2011) are: characteristics, commercial advantage, cultural values, information quality, organizational viability, and system quality. To promote KMS adoption:

- Start with an internal analysis of the firm.
- Evaluate information/knowledge needs & flows, lines of communication, communities of practice, etc. These findings should form the basis of determining the systems needed to complement them.
- Make a thorough cost-benefit analysis, considering factors like size of firm, number of users, complexity of the system structure, frequency of use, upkeep & updating costs, security issues, training costs (including ensuring acceptance) etc. vs improvements in performance, lower response time, lower costs (relative to the previous systems) etc.
- Evaluate existing work practices and determine how the systems will improve - and not hinder - the status quo.
- One very interesting rule of thumb, is that "the more tacit the knowledge, the less high-tech the required solution". For example, expert knowledge is often best supported by multimedia communication technology and by expert finders. Beyond that, it is about human interaction and collaboration.

Step 2: KMS acceptance

Some of the factors outlined include: anxiety, ease of use, intrinsic motivation, job-fit, results demonstrability, and social factors. Promoting acceptance can be improved by:

- Involve the users in the design and implementation process when possible
- Involve the user in the evaluation of the system when applicable.
- Make it as user friendly and as intuitive as possible.
- Support multiple perspectives of the stored knowledge.
- Provide adequate technical and managerial support.
- Use product champions to promote the new systems throughout the organization.

Step 3: KMS Assimilation

Some of the factors include: knowledge barrier, management championship, process cost, process quality, and promotion of collaboration. Assimilation can be improved by:

- Content management: In order for the system to remain useful, its content must be kept relevant through updating, revising, filtering, organization, etc.
- Perceived attractiveness factors -This includes not only the advantages of using the KMS, but also of management's ability to convince users of these advantages.
- Proper budgeting: i.e. planning expenses and implementing a KMS that is cost efficient.
- Focus on collaboration. In particular, consider the adoption of enterprise 2.0 / KM 2.0 systems, which by design promote collaboration while generally being inexpensive and often quite popular.
- Management involvement: The system must be championed by management at all levels.

Naturally, these factors do not apply to all systems. Some are fairly straightforward and accepted in today's society (e.g. email). However, the strategic implications of implementing knowledge management systems that significantly aim to change the way things are done in the organization requires proper consideration and careful planning. Moreover, with the evolution of systems to better support different facets of KM, they should be regarded as a critical component in the implementation of the discipline.

Summary: Knowledge Management Best Practices

This section offers an overview of the main points discussed thus far in the knowledge management processes and knowledge management strategy sections.

First, let us take a step back and look at the enablers of knowledge management (KM).

- **Culture:** One which is supportive of knowledge management, and the processes it implies - particularly knowledge sharing.
- **Infrastructure:** Support systems, teams, structures, and collaboration.
- **Measures:** Developing a process and design for managing change.
- **Technology:** Can offer great advantages, particularly with the management of explicit knowledge, as a collaboration tool, and as an expert locator. However, technology should not be misused – it is just one important component of a KM strategy.

According to the authors, these aspects are what make KM possible. For instance, KM initiatives implemented in a company with a competitive culture that shuns knowledge sharing are doomed to fail from the start. I would not go as far as to call technology an enabler, but it is an important aspect nonetheless and an unavoidable part of any modern knowledge management best practices.

With this in mind, I will now recap the main KM processes. The knowledge management best practices summary below will cover all the categories mentioned above.

Determining the Organization's Knowledge and Know-how:

- **Knowledge Discovery and Detection:** Refers to the processes of identifying existing knowledge sources, as well as discovering hidden knowledge in data and information. This knowledge resides both inside the organization and externally, in customers, suppliers, partners, etc.
 - **Explicit knowledge:** Document management, intelligence gathering, data mining, text mining etc. IT is useful/crucial in this respect.
 - **Tacit knowledge:** Includes tools/practices such as knowledge surveys, questionnaires, individual interviews, group interviews, focus groups, network analysis, and observation. IT has a more indirect role here.
 - **Embedded knowledge** Includes observation, analysis, reverse engineering, and modeling tools to identify knowledge stored within procedures, products, etc.
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- **Knowledge Organization & Assessment:** The process of mapping, categorizing, indexing, and evaluating organizational knowledge assets.
 - This is heavily supported by IT, which can use complex categorization and retrieval mechanisms to organize knowledge assets in multiple ways.
 - Tacit (embodied) knowledge: This is done through the use of focus groups, expertise guides, and knowledge coordinators.
 - Embedded knowledge: Tools include job/workplace design, workflow analyses and performance measures.

Tactical Knowledge Management Best Practices:

- **Knowledge Sharing:** Perhaps the most important process in KM, it plays a determinant role for both knowledge reuse and knowledge creation. The factors below summarize the key considerations with the exception of cultural issues, which are discussed further down.
- **Explicit knowledge:** Depends on articulation of needs, awareness of knowledge, access to knowledge, guidance in the knowledge sharing process, and completeness of the knowledge sources . IT systems and content management are extremely important in this process.
- **Tacit (embodied) knowledge:** This depends on socialization, particularly within informal networks. Culture is particularly important in this area. Tacit knowledge can rarely be effectively codified without losing the essence that makes it so valuable to begin with, so the focus should be on supporting work relationships. IT has a secondary supporting role in this context, primarily as an expert finder and as offering support in the socialization process (e.g. through groupware applications).

- Embedded knowledge: Use of scenario planning, after action reviews, and management training. IT has a role in mapping, modeling, creating simulations, and as an embedded knowledge repository.
- **Knowledge Reuse:** Involves three roles, the knowledge producer, intermediary, and consumer (Markus 2001), which are involved in creating, preparing, and actually reusing the knowledge. Two key elements here are culture and cost - particularly relating to tacit knowledge (where indexing the source rather than the knowledge itself is often more viable). Markus identifies four reuse situations:
 - Shared work producers
 - Shared work practitioners
 - Expert seeking novices
 - Miners of secondary knowledge
- **Knowledge Creation:** This process depends upon knowledge sharing (as defined above), collaboration, and access to relevant information and data. Cook and Brown (1999) suggest that knowledge creation is an interplay between knowledge and knowing, or in other words, putting knowledge into practice. The role of management in this process was identified as:
 - Enabling knowledge sharing: As above
 - Creating suitable work related environments: The focus here is on unstructured work environments where experimentation, trial and error, and theory in use are promoted. Self-organizing, semi- or fully-autonomous project teams are identified as one useful tool in this endeavor.
 - Providing access to collaborative IT systems: Groupware applications can be used for this purpose. These must support and not interfere with the ideal work environment.
 - Providing access to relevant data and information: From information systems, data warehouses, data mining, etc. These can act as building blocks in the knowledge creation process.
 - **Knowledge Acquisition:** The firm can acquire knowledge externally from customers, suppliers, competitors, partners, and mergers. The role of KM varies in each process (as does the type of available knowledge), but at its core its function is to establish the right channels to transfer relevant knowledge from existing partnerships into the firm, and to integrate this knowledge as best as possible. To do so, KM can use a wide range of tools including:
 - Common IT systems
 - Common projects
 - Interaction and socialization
 - Involvement of partners in certain organizational processes (e.g. design)
 - Cultural alignment (for mergers or joint ventures)
 - Setting up the right incentive systems

- Identifying and protecting crucial knowledge assets: when such knowledge should not be shared with a partner

Strategic Knowledge Management Best Practices:

- **KM and Organizational Structures:** Two types were defined: formal and informal.
- Formal structure: These will interfere with KM if very rigidly enforced. The choice of structure, and the physical division of the firm, will also affect knowledge flows. Studies seem to show that decentralized structures seem to be best for KM . Informal structures: The firm should be perceived as a community consisting of a collection of communities. Management can affect these through the use of project teams, teamwork, social functions, etc.
- **KM and Organizational Culture Change:** This must be recognized and managed carefully and deliberately. By introducing anomalies that challenge the accepted premises of organizational culture, management can influence organizational members to abandon certain aspects in favor of others (Gardner 1997). Use of incentives and common vision and goals are also effective tools. One of the most important goals is to create a culture where knowledge sharing is perceived as beneficial rather than detrimental to the individual.
- **KM and Knowledge Retention:** Knowledge retention is the part of KM that is concerned with making sure that important knowledge assets remain in the firm over time, e.g. when key employees leave the firm or retire. Formulating a knowledge retention strategy depends upon understanding which knowledge is important, which knowledge is at risk and what it takes to keep this knowledge in the organization. Depending upon its knowledge retention strategy a firm may choose to implement one of many initiatives and tools including reward structurers, mentoring, interviews, and utilizing knowledge from retirees.
- **KM and Core Competencies:** The management of core competencies consists of four processes: identifying, sustaining, building, and unlearning. KM plays a key supporting role throughout this process by:
 - Identifying what the firm knows, and what its main expertise is.
 - Leveraging knowledge assets across the organization.
 - Building the right know-how and expertise to match strategic requirements.
 - Isolating and removing/changing obsolete knowledge.
- **KM and the External Network:** As mentioned before, external knowledge sources include customers, suppliers, competitors, partners, mergers, etc. KM plays a role in the assessment of potential partners, by helping to determine what the organization knows, what it needs to know, and the best ways of getting that knowledge. It is also a key element during the cooperation process to ensure that the right knowledge is transferred and integrated into the organization.
- **KM and Knowledge Management Systems:** This very ambiguous category of systems refers to most systems used in the sharing, discovery, and creation of knowledge. Failures are generally due to an over reliance on technology, a lack of understanding of the limitations of these systems, improper fit with organizational practices, lack of acceptance, etc. Proper implementation implies paying attention to:
 - Organizational fit: Carry out internal assessment of needs and work practices, cost-benefit analysis, etc.

- Organizational acceptance: by involving the user in the design and implementation, through managerial and technical support, and with product champions, etc.
- Continued use: A function of perceived attractiveness factors and content management.
- This concludes the summary of knowledge management best practices. KM is a process that spreads throughout the organization. Its scope is difficult to define and its effects are hard to measure - e.g. how do you determine the ROI on a discipline designed to subtly improve most aspects of the organization. Nonetheless, if properly implemented, it is a worthwhile investment that will promote efficiency, learning, innovation, and competitive advantage.

Organizations approach towards strengthening the supply chain

Internet of Everything (IoE) is defined as intelligent connection of people, process, data and Internet of things . This IoE will transform passive supply chain into a live digital supply chain to create transformational solutions. By connecting people with process, data and things (which are the core of DSN) organizations have started realizing and embracing the value potential this digital ecosystem brings along. The overall IoE market potential from investments and savings on people, process, data and IoT by the industries (VAS8) is estimated to be INR 25000 billion by 2025.

Smart factories, connected marketing, supply chain efficiency and business process optimization contribute to 50% of the total potential opportunities in the private sector. Many organizations have realized that a digital business model and a supportive ecosystem will help organizations achieve tangible benefits in the near term. Though overall digital transformation of the business is the vital objective, companies have started their migration into the journey by strengthening multiple levers in the supply chain.

They have started building the required capabilities in the network based on the strategic lever they wish to focus and pursue. For example, use of big data analytics for real time demand driven forecasting seems to be one of the major focus areas across all sectors of business.

Questions

1. Illustrate with examples drivers of knowledge Management.
2. Explain briefly pillars of knowledge Management.
3. Explain Supply Chain of knowledge Management.
4. Write down formulation of KM strategy.