Knowledge Management: A Tool and Technology for Organizational Success

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Abstract

Knowledge is a productive resource having successful applications in almost every field and domain of human activities. With unprecedented growth in knowledge resources and explosion in data, such informative resources need effective organization for storage and efficient retrieval for future uses. The entire process involving organization, storage, and dissemination of knowledge falls under the auspices of knowledge management. Thus, Knowledge Management is an organizational practice. In this research paper, we provide a general outline of some of the tools and technologies deployed in managing knowledge across organizations.

We believe that the practice of knowledge management - though considered to be a process - it is also a "method" by which organizations are able to management their knowledge and human resources. On this regard, this paper contributes to our further understanding of what organizational knowledge is, and how they should be proficiently managed that would contribute to organizational success.

Keywords: knowledge management; organizational learning; knowledge management tools; organizational success.

JEL Classification: I32; O32.

Introduction

Knowledge Management. Knowledge Management (henceforth KM) is an *organizational* practice. The term KM describes and delineates how knowledge should be managed, organized, and disseminated for its future use and application. Now, what tools and modern-day technologies are generally deployed to manage knowledge efficiently? Indeed, technology is a factor that determines how knowledge is to be managed in an organization (Corso *et al.*, 2003; Collins and Smith, 2006; Maier, 2005).

In fact, technology is an enabler of KM initiatives (Maier, 2005). The dynamic creation of a variety of *new* knowledge in various kinds of companies (organizations) necessitate an effective means to manage such growing pools of knowledge. Managing knowledge is an organizational process as well as a procedural approach to the storage and utilization of knowledge resources in a company, government organization, repository, or in an institute. Knowledge is a "productive" resource as is it contributes to human and organizational productivity. Worth mentioning, organizational success and survival depend on employee effort, behaviour, and interaction (Wright and McMahan, 1992). Knowledge herein, plays a positive role in the creation of new products and services which promote sales growth, and which in turn affect firm revenue.

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1. Knowledge as a Productive Resource

The effective use of knowledge in organizations is the key to operational efficiency and overall business and organizational successes. Managing knowledge is a resource-intensive technical process that require various tools and technologies that contribute towards effective storage and retrieval o0f knowledge in organizations (Fernandez and Sabherwal, 2014; Holsapple, 2013). In tough, competitive business environments, it's challenging for organizations to survive and compete with excellence. But organizations are living entities that comprise thriving workforces who apply knowledge, understanding, and intelligence in practice to attain operational excellence. Rational use of strategic assets like data and information and converting them into productive and innovative knowledge help technology firms survive and overcome competitive pressures (Collins and Smith, 2006). It is in the human nature that the mind thrives for efficiency and excellence in the matters of competition. Organizational competency decides their competitive fates - and, it is much linked to several human factors that contribute to strategic success of an organization (Collins and Smith, 2006). For organizations and their workforces, knowledge thus constitutes a veritable (re)source of power, strength, and capabilities.

Knowledge is a *productive* resource. But it can be made more productive by its proper utilization and sharing. It is a source of power, strength, and competency. On being the driver of growth and creativity, knowledge is the primary source of human capital formation that contributes to organizational productivity. The mode and mechanism of production and manufacturing are rapidly evolving buoyant on the breakthroughs in science and technology; *i.e.,* development of "new knowledge". There is thus a continuous search for more efficient production methods and systems to increase the quality of output of goods and services that a business has to offer to its customers. The ultimate goal is to make us more productive and efficient. The power of knowledge makes organizations powerful as well in their routine activities of producing more knowledge, and creating new products and services.

Organizations do not only need to survive, but they must innovate using their existing pool of knowledge to create new knowledge (*i.e.*, products - goods and services) that has value and utility (Nonaka, 2009). The purpose of organizational existence is to serve, survive, grow, and excel (SSGE), alike individuals, see Figure 1.

Figure 1. The purposes of organizational existence

Knowledge is the finest driver of growth, excellence, and creativity. On the other hand, creativity creates new knowledge as well. Both knowledge and creativity supplement each other where ideas derived from thinking power human abilities and such abilities contribute organizational competencies. An able firm must have competent and capable employees to outperform its competitors and survive the competition to serve its clients. Herein, the purpose is "service". One has to have a purpose to be competent - but if you are competent then you can "serve"

as many different purposes. Competency, however, demands "efficiency". Past studies have proven the fact that organizational efficiency is explicitly correlated with human capital formation and capability development (Teixeira 2002). All these would only be possible if organizations assume efficient human resource practices that prioritize knowledge dissemination and facilitate knowledge exchange among the workers.

Organizations, including business firms should strive to identify KM tools that enhance functional performance and overcome limitations. Efficient tools like KM software and Ontology-based approaches for knowledge management are prerequisites for storing, structuring, filtering, classifying, and integrating knowledge that an organization creates or acquires. Such approaches help organizations effectively supervise knowledge generation (*i.e.*, from R&D activities). These also help organizations to supervise knowledge acquisition, synthesis and analysis, dissemination, and use (Holsapple, 2013).

In fact, Holsapple and Joshi (2002) consider Knowledge management as a threefold framework. By threefold framework, they have meant KM to be a resource that needs effective management, and for this to take shape, they suggest three frameworks: the first one provides a generic description of KM, the second concerns with knowledge manipulation activities in organizations, and the third one relates to the identification of influencing factors that impact the practice of KM in organizations.

Hence, it becomes relevant for organizations to deploy KM systems which include tools and IT-based systems software and hardware as well as networking appliances that aid knowledge managers to effectively organize and store knowledge for use. Some of the tools used to manage knowledge in organizations could be enumerated as follows (Fernandez and Sabherwal, 2014):

- Repository search engines;
- Algorithm-based systems for organizing knowledge;
- Ontology-based knowledge organization framework;
- Knowledge application systems;
- Knowledge capture systems;
- Knowledge Discovery systems;
- Knowledge sharing systems;
- Knowledge storage systems.

Out of the aforementioned tools and technologies, Ontology is especially an attractive as well as an effective technique which has found the favour among knowledge organizers to help organize knowledge for its proficient management (Fensel, 2022). There are other KM tools that are highly effective in managing organizational knowledge, and since such tools are evolving and exhaustive, it is not possible to list all of those here. Readers may refer to the given references to gain a deeper understanding of the tools and techniques that define Organizational Knowledge Management climate. In the following section, we shall be discussing what Organizational knowledge is, and how it needs to be managed.

2. What is Knowledge Organization?

Bacon (1876) considered knowledge in Plato's opinion as: *"all knowledge is but remembrance, and that the mind of man by nature know et things, and hath but her own native and original notions…"*

As it occurs, notions as we know are ideas and Plato considered them as formative inferences characteristic of intellectual virtues. That knowledge is idea and beyond it could be ascribed to the following nature of human intellectuality where such intellectual capacity is characterized by sharp memory and penetrative judgment. Knowledge as we commonly know it today is different from 'data' and 'information' although the three are often used interchangeably. It is also an intellectual capital and is the result of our noetic and conceptual understanding

of facts and phenomena. Knowledge is the conclusion drawn from analysis of data and information which is turned into meaningful ideas and notions. We should understand what knowledge is and then conceptualize how we can define Organizational Knowledge (OK). Simply OK means the knowledge possessed, processed, and produced by organizations. The object of knowledge could be facts, data, or information. Knowledge - according to Plato is universal, since no two persons can have different "knowledge" of an identical thing, but people can possess different opinions about the thing. Herein, bear in mind that opinion is not true knowledge. You cannot create knowledge out of opinions but you can create knowledge out of data and information.

Now let's distinguish knowledge from data and information. Data is facts, statistics, or numbers devoid of meaning or context but can be easily captured and stored using print and electronic media (Fernandez and Sabherwal, 2014). Information is a subset of data that contain meaning and context which is obtained from analysis of data that reveals meaningful patterns or trends in it. It also can be stored and retrieved. Knowledge is the highest level of understanding and refers to information based on which decisions and actions are taken. It is understanding of what data and information tells us, what it contains or what it means to an inquisitive mind. For example, suppose that you are a sales representative/booking clerk of a travel business agency.

You have got data on a number of hotels found in specific tourist locations, the number of different categories of rooms that they have, and the tariffs of the rooms of specific hotels in such places. It appears that you have more detailed information about them, including whether they have attached restaurants, swimming pools, locker rooms, baggage facilities, car on rentals, and distance from the city centers, and Information about staff behaviour, quality of services offered, seasonal discounts, goodwill, safety concerns and ratings, among others.

Based on such data and information, you could suggest or recommend your clients the best rooms that would suit their individual needs. That is - you have all the data based on which you could be able to "inform" your clients or match your clients' needs as and according to their budget and planning. It is simply meaning extracted out of raw data and information on hotels. Today, we have several web portals who do the job of searching accommodations using search criteria that help you with finding rooms of your choice in hotels across the world. You can choose your travel itinerary and book online your room before you reach your travel destination. The portals have data and information on hotels fed into the system and the search algorithms do the job of searching and retrieving the right information for you.

The entire knowledge is organized into the system. Now, what is this Organizational Knowledge (OK)? How do we define it? Organizational Knowledge according to Tsoukas and Vladimirou (2001) is the fusion of Polanyi's concept of knowledge and Wittgenstein's insight of what all knowledge is - in effect, collective. According to them (Tsoukas, Mylonopoulos 2004), knowledge is an expression of capability and acquisition of skills necessary to be capable to do certain tasks.

Zapata-Cantu et al. (2023), explain that enhancing knowledge management also in family firms becomes a topic that encompasses various aspects of organizational behaviour, information technology, and family business dynamics. Conducting their background research on this topic they succeed to spread a deeper understanding of the challenges and opportunities associated with knowledge management in family firms.

By organizational knowledge we mean the whole gamut of data, information as well as knowledge that is obtained or acquired from outside, or created and synthesized within the organization. The knowledge acquired from practice and job-related experiences and that acquired through workforce education and training also constitute organizational knowledge. The knowledge obtained from training and HR programs to empower the employees constitute as the knowledge essential to boost workforce performance and increase efficiency in organizational operations. Besides these, OK also means the ordered form of knowledge and information that are used in decision making. It is a form of intellectual capital or asset which is used by an organization for productive
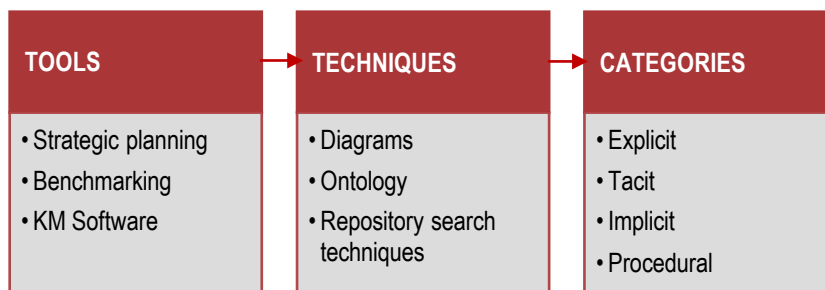
and occupational purposes. Hence, we may say that knowledge is a "productive" resource. Now you can easily relate this knowledge that you possess as an "organized" form of data and information concerning your clients, their choices, travel histories, booking data and other itineraries that could be readily stored as "data or information", and by feeding it into the system, it can be made available for future use to identify certain patterns in the data to create research reports based on which new decisions could be made. The report obtained from analysis then becomes the knowledge that gives you some idea of how your travel business is performing over the years.

3. The Role of Human Factors in Organizational Success

What is Organizational Knowledge Management (OKM)?

Organizational knowledge management is a process by which organizations collect, classify, store, and process information (knowledge) for the benefit of the firm. For organizations to succeed, human intervention is indispensable. Knowledge contributes positively to all these developments as well as to human understanding of how things work. Therefore, knowledge is not only considered as a resource but a factor of strategic advantage as well which is required to achieve organizational efficiency and success. Organizations by their activities obtain and create different types of knowledge; *e.g.,* tacit knowledge, explicit knowledge, procedural knowledge, market data and consumer information, and product and services knowledge, among others. The practice of organizational knowledge management (OKM) concerns that knowledge which is created as well as obtained from and correlated with the technical domains like market intelligence, product market information, business intelligence, etc. Therefore, it becomes necessary to design policies that are effective in managing all the different kinds of organizational knowledge so that they could be effectively reused and utilized for the benefit of the organization. Knowledge management is thus a tool for organizational efficiency and success.

Figure 2. Tools and techniques of organizational knowledge management

TOOLS	TECHNIQUES	CATEGORIES
• Strategic planning • Benchmarking • KM Software	• Diagrams • Ontology • Repository search techniques	• Explicit • Tacit • Implicit • Procedural

In this paper, we strive to discuss how organizations use advanced KM tools to effectively manage their growing knowledge pool, see Figure 2 above. Our endeavour attempts to highlight how knowledge organizations management knowledge in digital environments. However, we believe that Knowledge Management (KM) itself is an effective tool for successful organization, storage, and retrieval of the growing pool of knowledge required for the use of creating new knowledge in knowledge creating organizations. Therefore, we make an attempt to discuss these aspects of KM in the following sections by citing some examples that correlate the use of knowledge resources with an efficient mode of management of such knowledge resources.

4. The Role of Knowledge Management in Organizational Efficiency

What Makes an Organization Efficient? Capacity, Capability, and Creativity (The 3Cs)

Knowledge is the primary source of competitive advantage. It is knowledge which educates the human mind that contributes to capability and skill development. It is also a great source of power and strength. Take for instance, any new technical terms in science indicates new knowledge embedded in it. Today we have come to appreciate how knowledge is embedded in products, process, and practice. Modern industry, hence, is a complex outgrowth of the merger of manufacturing machineries, industrial and digital automation, and knowledge processes. The rapid expansion in industrial automation that contributes to production efficiency and competitive advantage rests on knowledge resources: i.e., intellectual capital. In lieu of that, many large and medium size companies have either adopted or have started to appreciate the benefits of knowledge management practices (Pan and Scarbrough, 1999; Holsapple, 2013; Becerra-Fernandez and Sabherwal, 2014). They are gradually appreciative of the implied benefits of knowledge management practices and the use of specific tools and methods in organizing and managing organizational knowledge for increasing their business efficiencies. This understanding and practice of knowledge management (KM) has now come to be accepted as a domain in its own right, which has gained tremendous importance as a professional field.

Some experts of organization management now consider KM as a veritable tool for organizing and managing knowledge resources. Such a consideration for efficient management of knowledge provides does provide the more needed professional dynamism which is required for a new domain like KM to flourish given that its applications are wide ranging and far-fletched. Take for instance, the knowhow embedded in "strategies" that are designed for the purpose of gaining competitive advantage is nothing but knowledge, born out of knowledge processing. The information embedded in technologies is knowledge which is derived from fruitful research and development of productive technologies. Knowledge is embedded in goods and in services, and it constitutes as one of the chief components of capital production. It is also one of the ordinal determinants of organizational and business success. But Knowledge needs to be effectively managed as it is a critical and strategic resource for modern-day business organizations, governments, non-profit entities, and most importantly, knowledge-creating companies. In the past, our basic understanding of managing knowledge resources was derived largely from the functioning of libraries. Libraries do still represent, in a technical sense, the dynamic models of higher-order systems of knowledge organization.

Figure 3. The major operational components of a library
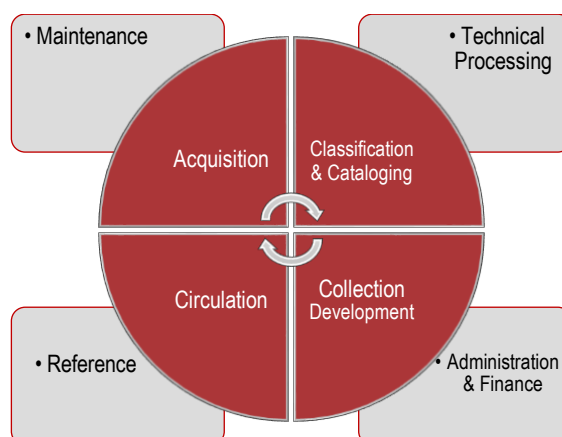
Libraries function as commutative entities that excel at managing documents and keeping records, and they have since long had a track record of devising ordered means of organizing knowledge resources (classification, cataloguing books, periodicals, magazines, etc.) for ingenious storage and fast retrieval, see Figure 3. Today's strategic knowledge management practice owes much to our understanding of how data, information, and knowledge are managed in libraries. But today's KM practices have moved far beyond simple document organization and storage that characterize knowledge management which is practiced in libraries.

The practice of KM, however, has moved beyond the walls of libraries and have become more complex, advanced, and efficient in managing huge explosion of digital data and knowledge resources. With an ever-increase in non-traditional, modern means of knowledge production like for example blogging, microblogging, web resources, and online publication of materials, *i.e.,* texts and multimedia documents which have flourished with an unprecedented scale, the need for managing such digital resources calls for KM expertise. More digital data are now being produced in a single day than what's being produced as physical data via printed medium in an entire year (Peters, 1992)

Therefore, the advent of digital multimedia technologies supporting and augmenting an unprecedented growth in knowledge resources requires more than efficient means of organization of knowledge assets and knowledge resources. Hence the need.

5. The Need for Efficient Knowledge Management Tools

The current need for managing knowledge at the business and organizational levels goes well beyond that of the libraries. Here in this paper, we capture the most modern knowledge management models in vogue. Reverberating in the tone of (Peters, 1992), it could be said that organizations should do their best to turn their employees into full-fledged "knowledge managers" who could work as the most efficient knowledge workers (and vice versa).

Employees should develop a clear perception of knowledge management practises in their organizations. Companies, too, should readily encourage their employees to participate in knowledge management activities so that they can learn different ways of using KM tools and techniques to augment their performances. This will also help boost employees' effectiveness in using the right kind of knowledge to make decisions that are customer-centric, fast, and ingenious.

Organizations gain different types of knowledge from their business operations and organizational activities. They gain knowledge from their clients and customers, vendors, raw material suppliers, processes, operations, and most other activities that make companies go. Businesses optimize their activities using KM techniques and management strategies. Therefore, understanding KM from a corporate culture perspective would require someone to gain first-hand experience of KM implementation. But before that, managers and employees must know the significance and benefits of KM implementation in their organizations (Giju et al., 2010). Unless you know the factors that contribute to business competitiveness or managerial success, and until you know "what" those factors are and "how" they work behind the scenes for you and your organization, it would be difficult for anyone to establish a connection between KM and effective leadership or between KM and business optimization strategies. One should know or attempt to know the reasons behind certain effects before making business decisions. Knowledge, in this respect, plays a significant role in decision-making, business operations, product development, product marketing, and even branding. Employees will recognize successful KM efforts and their significance as they learn about such implementation schemes.

Efficient knowledge management practices provide managers with the information they require to make sound decisions. It is not just the collection and storage of data and information that defines KM. In essence, how

knowledge is purposefully 'categorized', 'organized', and made easier for people to conceptualize at all levels in an organization define what effective knowledge management means for a (knowledge) manager. Besides, beyond managing, knowledge needs to be shared. The effective practice of knowledge dissemination adds to its value and helps explain its utility and importance. Shared knowledge has benefits for others. It has.

"Things more organized tend to function more efficiently"

Therefore, the current theme and contemporary thought concerning the need for managing knowledge rests on the reason that the great volumes of data, information, and knowledge that are being produced at an unprecedented scale needs to be effectively streamlined for future use by anyone who might benefit from its access. The processes of organizing knowledge for its effective sharing and management also need to be understood. Therefore, the main ideas that dominate this paper are as follows:

The methods (*i.e.*, knowledge ontologies, *etc*.) of organizing knowledge and how it is managed in digital environments,

- The main challenges that managers face while managing knowledge and,
- The application of specific tools for effective knowledge management practices.

This research takes a theoretic approach to the practice of knowledge management in knowledge-creating companies and knowledge organizations. Knowledge is one of the most important fundamental factors of organizational success. We can learn a lot from how organizations function, how products are developed, marketed, and sold, what makes something tick, and what creates demand for a specific product or service. The success of something - and all these things - depends on the underlying interactions of some other things. Similarly, an organization's success in conducting its business profitably depends to a great degree on successful management practices, of which knowledge management (KM) now seems to be an important determinant (Holsapple, 2013; Fernandez and Sabherwal, 2014). Things more organized function more efficiently. All of these interactions generate a massive amount of data, from which meaningful information and, when correctly interpreted, knowledge can be obtained. This knowledge has definite value for today, but for tomorrow it becomes data and information, which need to be stored for efficient retrieval for future use.

6. Obstacles to Knowledge Creations in Organizations

Most companies perceive knowledge as a productive resource. It is perceived as an asset, advantage, strength, and power. It is an enabler of productivity. It is used effectively and intelligently by knowledge-creating companies that excel at developing new and niche products (Nonaka, 1994). Products have technical and procedural knowledge embedded in them. But organizations often face obstacles to knowledge creation and sharing that impede learning among the employees. When employee learning is impeded, their performances may be constrained (Chatterjee, 2014). Organizations should effectively identify and handle some of the more common constraining factors that impede learning or function as constraints to organizational learning. These could be listed as following (Chatterjee, 2014):

- Impairment in knowledge acquisition and sharing;
- Lack of knowledge experts to train the workforce;
- Lack of freedom to learn independently;
- Inefficient KM practices;
- Lack of effective KM tools and techniques to support work-based learning.

These are among some of the factors that may silently impair employee learning and affect capability development. Impaired learning may reduce employee efficiency and affect overall organizational competence, capacity, and creativity.

Now, the knowledge that is created results from the dynamic interaction between tacit and explicit knowledge. It shall be borne in mind that organizations tend to be dynamic in nature, *i.e.*, they embrace change, and those who do not do not survive. Businesses adopt new technologies, adapt best practices, continuously make decisions, and create new knowledge, out of which new products are developed that contain "explicit" knowledge embedded in them. It is to be noted that businesses are experts at transforming human tacit knowledge into its explicit counterpart that benefits the whole organization (Nonaka, 1994; 2009). It is knowledge transfer that does the job. The transcription of "tacit knowledge" into explicit knowledge is thus a process, *i.e.,* the foundational basis of the interpretation and use of knowledge in organizations. Unquestionably, products have embodied knowledge; new products have new "gen" embedded in them. The knowledge that is embedded in products include technical knowledge, scientific knowledge, aesthetic knowledge, economic knowledge, and social knowledge. New products are continuously developed by knowledge-creating companies through research and development (R&D) activities that result from innovation drives (Nonaka, 2009). The knowledge that is created by successful companies, in turn, gets embodied into new technologies, processes, and products. Now, the underlying processes utilise the data, analyse it, and derive information, which, when interpreted correctly, becomes valued knowledge. There is therefore every need to manage such knowledge that are being created for effective utilization. Hence, a conditionally convergent effort like KM should involve active participation of both the employees and the team management of a company to make it a "permanent practice" towards effective management of knowledge resources in knowledge-creating organizations (KCOs).

In the course of creation of new knowledge in society, companies have thus taken giant leaps to nurture human talents who excel at creating new technologies that define today's organizational success (Pan and Scarbrough, 1999). It shall be reckoned that knowledge is the strategic and lasting source of "competitive advantage" for most companies. But this success doesn't come easily. There are many obstacles to knowledge acquisition, sharing, and its effective management in knowledge-creating organizations (Chatterjee, 2014). In this paper, we have attempted to identify some "implicit" obstacles to effective KM practices. Besides, understanding KM in the context of organizational learning while identifying and removing barriers towards making learning available and all-pervasive in most organizations is also one of the key objectives of this research effort.

Conclusion

In this paper, we have attempted to discuss in brief how knowledge management as a process could be viewed as a tool and technique that contributes to organizational success. There are various determinants of organizational success but one of the important factors being that, when knowledge is organized and such organized knowledge is efficiently managed, it contributes to organizational efficiency. We believe that although there are various tools and advances techniques systematically deployed to manage knowledge in organizations, KM is itself an effective tool to manage knowledge that simply require some helping hands - human involvement and computer software and storage devises to manage knowledge. Besides these, KM also require sound principles of categorizing knowledge based on Ontological approaches to OKM Such cognitive systems like Ontology, also help knowledge managers work more efficiently with rapidly growing knowledge pool in most organizations.

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