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E - Collaboration Knowledge Management

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ABSTRACT

Knowledge plays a critical role in organizational resources that enables organizations to gain a competitive advantage. In the today world, the organizations need to investigate new solutions to remain ahead of the competition. Therefore, organizations endeavor to face the challenges by using technologies to enable an efficient management of the e-collaboration and knowledge management. Many models and techniques have been discussed over years for e-collaboration and knowledge management within organizations. Current changes in Information, and Communication Technology (ICT) have prompted organizations to utilize platforms such as corporate portals for collaborative knowledge sharing. This paper introduces an overview of Knowledge Management (KM) and e-collaboration for the enterprise to gain advantage. The paper is appended by a case study of an organization where it applies KM and e-collaboration to cover the business needs and to improve management of enterprise content with collaboration of knowledge. The organizational structures and processes, standards and values are still the main areas that limit the effectiveness of e-collaboration. This requires changing the organizational focus and culture that remains a challenge for many organizations.

Key words : Collaboration, E-collaboration, Knowledge Management (KM), Collaborative Knowledge Management Models, Information and Communication Technologies (ICTs).

1. INTRODUCTION

Consistently the data and learning the executives (KM) take more power in the associations. Factors, for example, globalization, advancement, and manageability in profoundly aggressive markets quicken the move towards new authoritative plans. KM empowers associations to see the aggregate learning as a base component of advancement; this is conceivable through data and coordinated effort devices that give conditions to share the information among workers and helpful accomplices. One of the things that are impacting business world, and in a big way, is the huge amount of information that is everywhere which is the problem. For example, there's a massive amount of information in documents being produced and being circulated and an enormous number of social media around the world. On the other hand, there is an increasing need for KM in organizations to produce faster turnaround cycles and to develop new products and new services. Therefore, this paper try to focus on these needs and suggested solutions to these problems by implementing KM. At the same time the workers inside the organization in today's economy, who exercise a lot of decisions working on knowledge intensive tasks are very different from the previous generation of employees in the office. The previous generation of employees typically are being trained to perform a particular piece of the task and in a highly repetitive way; no longer the case in the knowledge era, these workers have to work collaboratively, innovatively and often have to make quality and consistent decisions. Another emerging trend is the importance of connecting and sharing information because sharing knowledge between different units inside the organization will shorten product development cycle and lower risk. If other business units have developed some quality ways of generating something and enhancing the product or service quality, customer experience and so forth. The introduction toward a community oriented business speaks to a need for building up an aggressive business in the genuine worldwide economy [1]. The role of information technology and communications is to encourage workers create, store, use, and exchange of knowledge through common platforms. KM models play an important role to ensure a degree of fullness or difficulty in implementing KM. Organizational structures and processes, standards and values are still key areas that limit the effectiveness of electronic collaboration, however, groups of individuals, organizations and individuals include the justification to collaborate with colleagues within and across organizations still need to be addressed. This paper aims to display the definitions, models, tools for KM for e-collaboration and their relationship that affect the enterprise to gain competitive advantages. The paper is structured as follows. Section 2 gives a brief overview of literature on knowledge management. Next, Section 3 presents the e-collaboration. Section 4 displays a case study of applying a collaborative Knowledge Management. Then, section 5 shows a historical summary of the most famous models. Last section 6 is the conclusion of the research.

2. KNOWLEDGE MANAGEMENT

The introduction toward a community oriented business speaks to a need for building up an aggressive business in the genuine worldwide economy [1]. Based on Alharithy [2], “the knowledge management can be defined as all the activities that are conducted on knowledge by

relevant authorities individually and collectively inside and outside the organization." According to Xiaomi et al. [3], "KM is about the identification, creation, distribution, utilization and maintenance of organizational knowledge for fulfilling organizational objectives." Effectively overseeing authoritative learning turns out to be progressively essential for associations to increase upper hands [3]. It is a formal procedure that connects with an association's kin, procedures, and innovations to catch information and convey it to the ideal people at the exact time. KM is a proficient learning process with the investigation, abuse and sharing of authoritative information [4]. According to Geisler and Wickramasinghe [5], "KM is a multi-disciplinary approach that takes a comprehensive and systematic view of the knowledge assets in an organization by identifying, capturing, collecting, organizing, indexing, storing, integrating, retrieving and sharing organizational knowledge". KM is progressively picking up acknowledgment as the determinant for improving the execution, upper hands, and development [5]. From another point of view, learning has a three-level chain of importance that starts with "information", which, when prepared, yields "data", which, when joined with understanding and utilized in basic a leadership moves toward becoming "learning".

A. Types of Knowledge

Learning in an association can be comprehensively grouped into two classifications: express and implied information. These two sorts of learning have habitually been known to coordinate during the time spent information creation and application [4].

Tacit knowledge is highly personal, lies in an individual's judgment, context-specific and comes from one's experience. It is difficult to measure, capture or examine [7]. It is knowledge resides and accumulated in the minds of employees, gained from experience, cannot be expressed in symbol and cannot be articulated or stored [8]. Explicit knowledge can be defined as knowledge that can be stated in symbols such as numbers or words [9]. Explicit knowledge is that knowledge which can be measured, captured, examined, and can easily be passed onto others [10].

Muntean and Târnăveanu [11], elucidate inferred learning as being portrays disguised information that isn't actually communicated. It is exceptionally close to home and difficult to impart. Express information speaks to learning that the individual holds deliberately in mental center, in a structure that can undoubtedly be conveyed to other people. Learning can be arranged by its dimension: singular information, authoritative information, and aggregate learning [5].

B. Knowledge Management Benefits

This section is about displaying the benefits of KM from the management perspective. Organizations can generate competitive advantage if they know how to find, collect and harness common knowledge in business. Moreover, knowledge is often considered to be one of the most important factors of enabling better and quick decision-making. The most value from organization's intellectual assets knowledge must be shared and served as foundation for collaboration. Moreover, improvement revenues by getting products and services to market faster, enhance employee holding rates [12] [13].

C. Success Factors for KM

In writing KM, up until this point, an expansive scope of elements influencing fruitful KM was recognized. Seven key components were recognized to be KM achievement. These components incorporate solid connection to business, point of view, and obligatory design, information initiative, the way of life of making and sharing information, persistent learning, and created innovation foundation, efficient authoritative learning process [14]. In view of the finishes of a few creators [15], the primary KM achievement factors detailed are: characterizing KM and conveying its advantages, connecting KM to the business methodology and characterizing criteria for authoritative information. As per Schmitz [16], to be effective in the execution of KM the pioneers should bolster and urge workers to be a piece of KM process.

D. Knowledge Management Process

KM process is common in any business. The difference sometimes is in the resources used, such as techniques and tools. Knowledge has more characteristic value based on new frameworks proposed as KM process. KM is a set of processes or stages that organizations execute sequentially. Therefore, these processes can be grouped into four primary forms as shown in Figure 1.

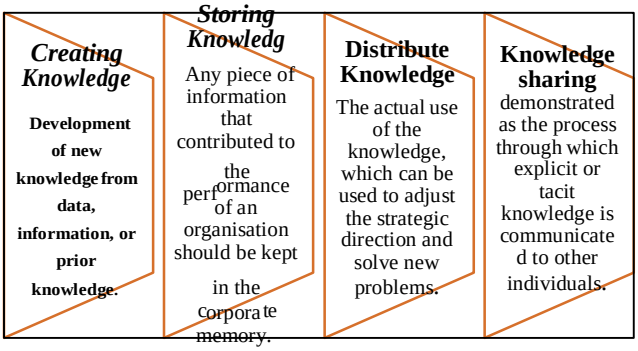

Figure 1: Knowledge Management Process

3. E-COLLABORATION

Collaboration means working together and joining forces as a team in a particular situation to solve problems [3]. Moreover, e-collaboration concerning the exchange of messages and information between people, administration, coordination of activities [16]. E-collaboration refers to collaboration through use technologies among individuals

to achieve a shared task. The "e-collaboration system" is a computerized system or software designed to help individuals and organizations that are involved in shared tasks to accomplish specific goals. Groupware is displayed as a set procedure and processes. One category of groupware increasing in popularity is Group Decision Support System (GDSS). GDSS is defined as a computer-based framework which is used to help the cooperative group work. GDSS is typically used in meeting related of the decision-making DM, so it is not necessary to have the decision makers at the same time and place. Each decision maker has the privilege in his/her workstation, then anonymity, and strengthening their participation. [17]. There are diverse dimensions of GDSS associated with e-cooperation. At its most fundamental, GDSS gives includes that encourage shared correspondence. At its most abnormal amount, GDSS are instruments to oversee gather correspondence designs in e-coordinated effort [18].

A. Attributes of Collaborative Knowledge Management

Authors in Dinh et.al, [16] suggest four key features of collaborative KM: scope knowledge, orientation knowledge, evolution knowledge quality, and decentralization knowledge. First, the scope knowledge explains the focus of an e-collaboration system. Second, the orientation knowledge attribute depends on the exploration vs. exploitation dichotomy. Third, the evolution knowledge quality displays the proper development of an e-collaboration system. Fourth, the decentralization knowledge attribute concerns the way an e-collaboration system gives access to its pool of knowledge resources.

B. The Convergence of KM and Collaboration

KM and collaboration are complemented. They have mutual aims, interdependent and practices showing the interconnectedness through set collaboration technologies for KM activities. KM techniques can capture and occupy the understanding; collaboration technologies enable communication and thinking through people who use their knowledge to create value. There is a need to identify several terms used to denote convergence of KM and collaboration as shown in Figure 2.

C. ICT and KM

KM rehearses are upheld by data and correspondence innovations (ICTs) that assistance encourage information securing/creation, learning dispersal, learning change, and learning usage. The primary role of new ICTs (Collaborative technologies, wikis, social networking tools, internal portals, etc.) is to support workers create, store, use, and share knowledge through shared platforms.

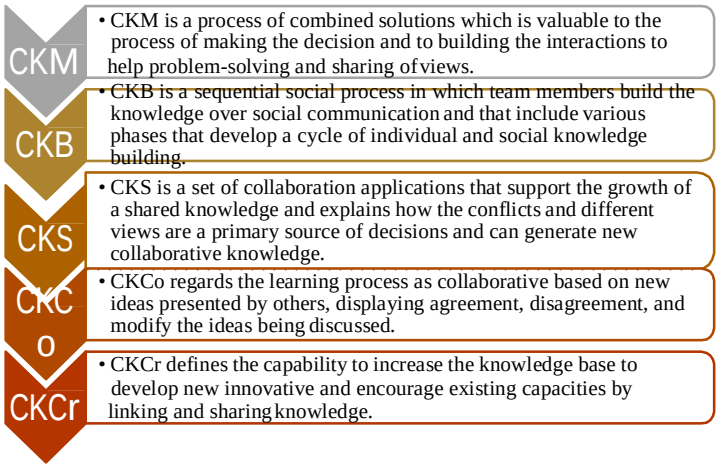

Figure 2: The Convergence of KM and Collaboration

With appropriate preparing and instruction, new ICTs can make it less demanding for associations to gain, store or scatter learning [19]. The essential job of social web frameworks is to enable people to share data and learning through shared stages and electronic stockpiling. In this manner, the term KM 2.0 has been begat to outline new patterns in KM.

1) Enterprise Knowledge Portals

This section will be about a very specialized type of collaboration tools; it's called enterprise knowledge portals. Enterprise portal can support various types of KM related systems that may occur inside an organization. Enterprise information portals are applications that enable organizations to unlock internally and externally stored information. The portal is a kind of software that provides users with personalized information. Moreover, the portal allows to access for different kinds of applications, and, it's heavily customized to support each and every user's needs through the use of portals immediate. [11]

2) Wikies

An Enterprise Wiki is a publishing website for distribution and updating huge amount of information across an organization. It is large, central knowledge source that is designed to both store and exchange knowledge and information on an organization-wide scale, consider using an Enterprise Wiki. [19].

3) Search Engine

The search engine can be one of the major knowledge retrieval tools. There are different search engines have been provided for various purposes such as search engines inside the enterprise portal, also inside document management system.

D. Leveraging the Cloud for Collaboration

The huge upgrades in data transmission speed of the Internet lead to new advances, for example, distributed computing. Distributed computing CC is a method of data stream that gives the opportunity of access and capacity. Its essential idea is to take a monstrous calculation program (Process) through Internet, auto-split it into various littler subroutines (Sub-Process), at that point move it to a framework that is made out of numerous servers (Multi-Server) [7]. In Balco and Drahošová [7], they give a cloud-based answer for KM, to be specific "KM as a Service" or KMaaS . This arrangement would assist laborers with finding required data effectively.

E. E-Collaboration and Communication

Coordinated effort requires components for intra-and between hierarchical correspondences. A case of such an organized convention arrangement is the open frameworks interconnection (OSI) show used to characterize the prerequisites for correspondence crosswise over various gear and applications by various merchants. It isolates the correspondence forms into seven independent dimensions, alluded to as layers [20].

F. E-Collaboration and Community

Hofstede et. al. [21] recommend that understanding contrasts in believing are at any rate as imperative as understanding specialized factors in correspondence. Specifically, this applies today in the relevant of e-cooperation. The distinctions of utilizing language, objectives, subjective perspectives, edges of reference, and hierarchical weights all add to correspondence challenges and absence of trust in coordinated effort. The measure of time made accessible for up close and personal cooperation is pivotal when KM undertakings are entangled or require neighborhood adjustment. While the information is putting away, it incorporates relevant foundation as setting encompassing the procedure of learning. Trust shapes an imperative segment in uniting the introductions of correspondence, communitarian practice, and network inside networks of training [20].

4. MODELS FOR COLLABORATIVE KM

Much researches have been done on the models and frameworks for KM to help organizations to set various parts of problem collected in a mode that leads to a deeper understanding of both the parts and the group they make up. KM models are crucial in addressing strategic business goals, even if only partially [22]. The purpose of this section is to display an overview of some of the most influential KM models and to highlight the strengths and weakness of each model. Based on early existing life cycle models and frameworks, a new integrated model is proposed which is called KMC model [15]. Moreover, most of these models have focused on knowledge itself rather than collaborate people; accordingly, Collaborative Knowledge Management (CKM) and Information-Driven Knowledge Management (IDKM) models are developed. In next section, paper will present an overview of the most famous models mentioned in the literature with focus on Collaborative KM models. Finally, Table 1 shows a comparison for strengths and weakness points in each model. The importance of merging collaboration and KM is significantly increased as many collaborative technologies have recently been developed.

Collaborative Cognition Model by Salisbury, (2008) [24], manages the life cycle of knowledge in organizations and how an organization can use this framework to support collaborative knowledge. Another model created by Cress and Kimmerle, (2008) [26] called Model of collaborative knowledge building with wikis. Besides, IDKM Framework (2013) [16] supports the reconciliation of KM and e-collaboration. According to Dinh et al. [16], they introduce IDKM in four main activities. Collaborative knowledge management (CKM) framework that is developed by Cha et al. [4].

5. CASE STUDY

In this section, we will present a case study that authors conducted on an organization. The name of the organization has been kept confidential, henceforth to be referred to as the "XYZ" organization. Authors focus on how XYZ found solutions to the business needs by implementing the collaborative KM solutions.

A. Business Needs

The ideal enterprise information system should be single point of access to one source of information. Otherwise, employees may be forgetting or ignoring relevant information sources. Each department or division creates sets of knowledge that are unique in their structure and content. XYZ has a treasure of knowledge. Knowledge and expertise are abundant, but they were scattered and unconnected. There was no platform for collaboration or guidance which could help lead someone particularly new staffs to certain information.

B. KM Model in XYZ

XYZ Knowledge Management Model as visualized in Figure 3, is a set of independent, yet mutually re-enforcing building blocks as components that when combined, strengthens the capacity of XYZ as a knowledge-based institution. Its parts involve: First, enabling Environment by implement policies and institutional arrangements. Second, implementation of KM platform and associated business processes that enable staff, also external partners and stakeholders. Third, package knowledge products and services in appropriate formats and diffuse these through different channels. Fourth, improve the creation, application, and reuse of knowledge through various modalities.

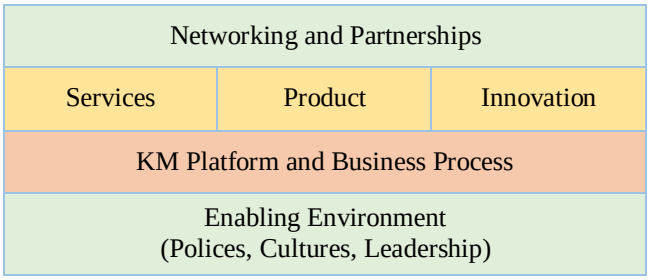

Figure 3: XYZ Knowledge Management Model

C. Solution

The solution covers the business needs and dramatically improves management of enterprise content and collaboration of knowledge. XYZ created a department named Department of the Knowledge Management and Innovation. It is responsible for discovering knowledge resources and provide technical solutions. XYZ decided to launch a project to build the right infrastructure. This portal gives staff general views of critical information and allows better collaboration and easy access to information.

6. CONCLUSION

KM is an ongoing topic not only in academic research but also in business. Also, E-collaboration is one of the huge topics which is crucial for organizations today. This paper has discussed the KM and E-collaboration. It starts with KM by identified its types, benefits, the process of KM, barriers and success factors for KM. The paper then presented the e-collaboration and the convergence of KM and collaboration followed by the role of ICTS in KM. The paper reviewed the historical overview of some of the most influential KM and collaboration models and highlight the strengths and weakness of each model. Finally, a review was conducted for applying KM in IDB. Authors found that it used SP portal to give all employees comprehensive views of important information and allow better collaboration and access to information and knowledge sharing.

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Table 1: Various Concepts of Collaborative Knowledge Management

	Concept	Strengths	Weakness
Wiig's Model, (1993) [22]	This model tries to define different levels of internationalization of knowledge where should organize knowledge, to be useful and valuable	This model is currently the most realistic and easily integrate into any of the other models. Also, it endorses practitioners to adopt for a more detailed approach of KM based on the type.	The main weakness is the lack of research experience and process that involve implementing this model.
Nonaka's KM Model (1995) [23]	This model explains the dynamic conversion between tacit and explicit knowledge.	The simplicity to understand the basic principles of the model or the ability to absorb and apply knowledge quickly.	It does not seem appropriate to clarify all the phases engaged in KM. Also, does not address how the decision making can taking advantage of forms of knowledge (tacit/explicit).
Boisot, (1998) [6]	This model based on a concept that knowledge as either diffused or spread and as codified or uncodified.	It depicts the organizational knowledge assets to turn social learning that other KM models do not directly address.	Boisot's KM model not applied widely and are difficult to accessible
Bukowitz and Williams (1999), [26]	This model depicts the process that determines management strategy building and strips, and promote knowledge assets.	It is a strategic focus, which puts KM in context. Also, it is worth noting that the concept of "divestment" is included - something that is often missing from models.	It does not contain any deeper insight into what initiatives are appropriate in a case.
McElroy's Model 2003 [6]	This model emphasizes organizational knowledge that held all the objectivity in the minds of individuals and groups and a clear objective.	It concentrates on processes to determine the content of the knowledge that is valuable to the organization and its staff.	This model not practical, it focus on personal knowledge that is in the minds of persons
The 7C by Oinas-Kukkonen, 2004 [4]	Developed to reach a better understanding of creating knowledge through communication.	This model helps organizations to improve all their core business activities, increased capacity, as well as a competitive advantage for business alliances.	This model needs to motivate knowledge workers to perform their daily tasks and improve core business capabilities.
The KM Process Model by Botha et al., 2008 [5]	This model provides a most realistic picture of KM process.	This model is a focus on the managerial initiatives. Also, it includes the creation of new knowledge as a particular KM initiative.	In this model, the organizations tend to approach knowledge sharing as a technological challenge rather than organizational and social challenge.
The learning model by Casey and Goldman, 2010 [25]	The model identifies individuals and organizations as learning systems and uses diagnostic questions on adaptation	The model describes the process of experiential, interactive, and repetitive. It determines the different factors and work experiences and organizational factors that contribute to knowledge and cooperate to develop the ability to think strategically.	The model does not have a particular end point such as the unanswered question whether there is a limit to learning how to ' expert's ' strategic thinker and one can learn to be.
CKM Model with wikis By Cress and Kimmerle, (2008) [26]	This model gives a comprehensive view of the knowledge life cycle through build on previous life cycles.	To increase innovation capabilities, the collaborative services and work together in a coherent manner for effective communication and efficient collaboration.	More efforts desires to be done to validate and experiment with this model. Future research remains to be carried out to apply the framework on a broader scale, and in particular to determine its applicability about various collaboration patterns and current technology development.
Collaborative Cognition Model by Salisbury, (2008) [24]	This model manages the life cycle of knowledge in organizations and how you can use this framework to support collaborative.	This model describes how performance goals the drivers of knowledge work can be used in organizing and managing knowledge assets to provide access to these different types of knowledge.	This model needs to take advantage of performance goals for assessing individual performance of members of the organization.
Unified Collaborative Knowledge Management (UCKM) (2010) [23]	This model provides a holistic view of knowledge creation and exchange processes through two layers (internal CKM process layer and outer CKM interface layer).	This model can be used to design and evaluate the whole process of knowledge management, including primary and subsidiary operations provide knowledge and human-computer interfaces.	This model is a conceptual model; it could not present all views for collaborative KM in detail.
KMC, (2013) [6]	This model helps to a better understanding of collaborative knowledge building with wikis.	This model has integrated the previous KM life cycles models (McElroy, Wiig's, Bukowitz and Williams) and created a comprehensive, practical, and simple of KM life cycle model.	KM initiatives and technologies cannot be regarded universally applicable in all life cycles of KM, where each phase may require unique tools.
IDKM Model, 3102 [16]	This model supports the reconciliation of knowledge management and e-collaboration systems.	It provides an appropriate solution to create and exploit e-collaboration system as common ground between networking companies so that they can share knowledge and enable learning and improving intellectual capital.	More work needs to be done to validate and experiment with this model. Future research needs to be supported to implement the framework on a broader scale.