International Journal of Engineering & Technology, 7 (4.31) (2018) 123-127

International Journal of Engineering & Technology

Website: www.sciencepubco.com/index.php/IJET

Research paper

Knowledge Management Strategy and Initiative for Development of Digital Energy Hub

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Abstract

This article revised several Knowledge Management (KM) strategies and initiatives, in order to develop the digital energy hub. This digital platform employs robust computers and network technology to cater for a wide-range exchange of information and knowledge, which eventually supports new businesses, collaboration and globalization for the energy players. The objective of this article is to analyze KM strategy and initiative for the purpose of developing a digital energy hub. Among the important strategies are goal setting, KM leadership, structure and skill; supported by essential initiatives such as knowledge creation, transfer and sharing. Thus, by accurately identifying the relevant KM strategies and initiatives, the probability for future development and deployment of this platform to be successful can be enhanced.

Keywords: *Digital Energy Hub; Initiatives; Knowledge Management; Strategies.*

1. Introduction

Knowledge management (KM) has been widely initiated and practiced in various organizations around the world. KM initiative comprises a range of strategies and approaches to identify, develop, acquire, transfer, share, and enable adoption of wisdom and experiences, by either individuals or organizations [12]. KM's definition has been suggested by several academicians, including [2], who refer to KM as how organizations create, retain, and share knowledge. [23] have described KM as the methods of developing, capturing, and adopting knowledge to enhance organizational performance. These scholars have also asserted this initiative as a range of approaches and procedures exploited by businesses to determine, represent, and transfer information, skills, experience, intellectual property, and other forms of knowledge for innovation and learning across the organization. In line with this argument, KM has been positioned as a business strategy that advances knowledge as a critical resource and can integrate pieces of this knowledge across the organization as a distinguishing feature for market success [8].

In order to handle the overabundance of incoming information and outgoing knowledge effectively, many organizations have turned out to manage their knowledge in the process of obtaining new knowledge [17]. Thus, KM emerged as a multi-disciplined strategy to achieve organizational objectives by making the best use of knowledge. KM has been positioned as the effective approach that recognizes knowledge as a critical resource and capacity across the organization that will determine accomplishment in the market [8]. KM is described as an approach that simplifies the process of acquiring, transferring, sharing, distributing, developing, and understanding of an individual or organizational knowledge [3]. Furthermore, KM also supports the development, classification, utilization, and sharing of knowledge to assist situational understanding and decision making [14]. In line with this argument, [9] revealed that KM as an important strategic resource, and the success of organizations depends on how well they manage this asset and trust that this knowledge is based within their human capital.

The digital energy hub's role in an energy organization is to determine how information is distributed and accessed organization-wide [39]. This digital platform employs robust computers and network technology to cater for a wide-range exchange of data and knowledge, which eventually supports new businesses and globalization in general [25]. Other scholars, such as [15] stress how the technology provides major features, which includes searching and retrieving functions. The digital energy hub serves as a platform that continuously helps to cultivate new information while spreading the current existing knowledge. This helps in embedding KM practices across all sectors that related to energy sectors. Moreover, a digital energy hub can be described as storage repositories for storing documents in an organized and accountable fashion. These platforms will facilitate the sharing, updating, and dissemination of documents on common platforms across the energy sectors.

As an energy player, by striving to increase knowledge sharing among their employees will eventually lead to the formation of a digital energy hub, where staff contribute their expertise electronically to the organization, in a way that can be easily accessed by their colleagues and also the external parties, such as customers [12]. [27] had stated that KM platform, in particular digital energy hub, must encourage the organization staff and their customers to easily collaborate and socialize; on top of being equipped with an intuitive and easy to use interface. Significant features that should be common for a digital energy hub include having a fair amount of knowledge artifacts and archives readily present, a substantial amount of actively participating users already existing in the system, as well as more features that enhances user participation on these platforms [27].

The objective of this article is to analyze KM strategy and initiative for the purpose of developing a digital energy hub for the energy sectors. Articles published between the year 1998 and 2018, were reviewed and selected for retrieval of paper if they

were judged to include information about or containing the following terms: KM strategies, KM initiatives, KM success factors, digital hub, knowledge repository, knowledge creation, knowledge sharing and collaboration. From here, these articles were further inspected and the decision for its inclusion and exclusion were mediated to develop a comprehensive review on KM strategies and initiatives for a KM platform. The strategies and initiatives for this KM platform will be further elaborated in the next section of this paper.

2. KM Strategies

As defined by American Productivity and Quality Center (APQC), KM strategy is the ability to provide the appropriate knowledge to the right people at the suitable time and in ways that strive to improve organizational performance [28]. The right knowledge constitutes assets which are reliable, relevant, current and accurate. The knowledge assets must be reliable and relevant to users who required it; either come internally within the energy sectors or from external sources through strategic partnership or resides within their customers. To ensure that the knowledge is current and accurate, a high degree of participation is required from the knowledge custodians. Ultimately, it is the receivers of the knowledge who will be able to extract the most value and essence from the digital platforms. Thus, it is essential that the right knowledge arrives to the right people who benefits from it most. The vital element to strategize KM success is ensuring that the knowledge assets are available when they are needed. Timeliness must occur at both ends of the knowledge flow – the sender and receiver of knowledge. On that note, responsibility falls on the knowledge sender or custodian to ensure knowledge which are required have been deposited into the digital platform in a timely manner and the responsibility of KM to ensure that these assets are available in a proper channel at the right time.

Energy sectors have a rich and enormous knowledge base that must be harnessed. Once knowledge has been harnessed and institutionalized, this ensures that it is retained within the organization's knowledge bank or digital energy hubs. The approach to develop the digital platform for energy sectors are guided by these strategy outlines:

2.1. Goal and Objectives Setting

Goal and objectives for digital platform are clearly defined based on several KM elements. These objectives must be endorsed by the management and relevant KM stakeholders. This strategy is develop to ensure full support of KM strategy and initiatives when they are deployed. These goals must also be well documented, updated and communicated throughout the organization to avoid any confusion or ambiguity. KM strategy normally concentrated on organizational objectives, such as to improve performance, innovation, the sharing of lessons learned and best practices, integration and continuous improvement and competitiveness of the organization [19]. KM could also assist in addressing business problems and creating innovative products or services that would improve customer relationships, thus ensuring organizational growth [16]. The consequence of KM is found to enhance the organization's ability to produce products or services that are competitive, efficient, and effective, while being able to continuously improve their customer requirements [18].

2.2. Define Action Items

Based on each goal and objective, the action items can be identified and defined. As example, an initiative roadmap can be created, guiding all the actions that will be taken for development of the digital energy hubs. Action items need to be identified by the respective KM developers, so that a clear roadmap can be initiated for further action in planning and execution phases.

2.3. Planning and Execution

To ensure the successful delivery of the action items, a clear roadmap must be planned with appropriate milestones defined. In relation to this, the budget and financial management must be developed in this planning and execution of the proposed digital energy hub initiative. Top managements and KM leaders are require to provide effective long-term planning to build the structure and platforms to promote the KM behavior within their organizations [33].

2.4. Leadership

Sufficient skilled leaders exist within KM fraternity to drive the goal and strategy. These KM leaders must be trained to fulfil the KM leadership, such as to inspire followers and motivate them. A high performance energy player must sustain a stream of leadership that has the appropriate KM goals and desires. [31] and [5] have highlighted the importance of leadership to moderate the effects of KM for group dispersion and their vital role in social integration process of such groups. Furthermore, leadership capabilities that are crucial in promoting KM strategy consist of leading the change effort, conveying the importance of KM to employees, and maintaining morale in developing this behavior (Wong, 2005). Prominent KM leadership is recognized as a crucial task in deriving organizational benefits out of its knowledge base communities [13].

2.5. Organizational Structure

A clear structure with specific functions is established to drive KM strategy and must be well defined, documented and communicated. The governance of this organization structure must include consistent platforms and potential leaders that drive KM strategy for the energy sectors. The KM platform and leaders would allow the sustainment and facilitation of KM fraternity. In developing the digital platforms, commitment from the stakeholders and establishing effective organization structure will affect the acceptance and utilization of this digital energy hub. As recommended by [29], organizational culture and stakeholders' support is essential in promoting KM approach and strategy.

2.6. KM Skill

In order to facilitate KM strategy and initiatives, there must be sufficient skilled resources within the energy sectors. The required skill is vital to implement KM strategy and develop a standardized set of KM tools and platforms. Self-efficacy and facilitating condition elements, such as training and technology assistances are crucial to support the acceptance of this digital platform [36]. However, without proper system hands-on and assistance, probabilities of users' participation for this digital platform are rather minimal and will widen users' error and misinterpretation toward the platforms. Training, for instance, is required in developing potential users to subscribe and utilize new technologies, such as the digital energy hub [21].

3. KM Initiatives

KM strategy for digital platform that we have discussed earlier is to ensure that the right knowledge is captured, retained, shared and transferred to the right people at the right time. This strategy also assist in supporting the need for sufficiently skilled personnel, leaders and consistent structure are available to drive the KM initiatives. In fact, [7] has asserted organizational culture as a key

component in ensuring critical knowledge and information flow within a business. Support and recognition from management to improve and enhance their employees' day-to-day activities also contributes to the success of KM strategy and initiative.
Previous studies have classified KM initiative into two dimensions. The first dimension is to manage existing knowledge, which includes developing essential system and tools, such as knowledge repositories, knowledge compilation, collaboration and categorization. Another dimension is to manage knowledge-specific activities or processes, i.e., knowledge acquisition, creation, distribution, communication, transfer, sharing, and application. [22] have proposed a KM dimension and practices to promote sharing of knowledge within the organizations and focuses on capturing, articulating, and disseminating knowledge to build dynamic capabilities and to respond to environmental changes.
Based on KM strategy that has been outlined earlier, a roadmap of KM initiatives could be defined for digital energy hubs deployment for energy sectors. The KM initiatives for digital energy hub are grouped in these two dimensions, as follow:

3.1. KM System and Tools

The main objective of digital energy hub is to provide a centralized, standard and unified platform for all knowledge requirements related to energy sectors. KM system and tools includes hardware, software, databases and others that enable the technologies capture, share, capture of knowledge, and to facilitate the KM process within the organization and to promote organizational learning [35]. On that note, digital energy hub will cover the following features and functionalities:

3.1.1 Knowledge Capture

Knowledge assets from energy sectors, including from the stakeholders, shareholders, regulators, government agencies, customers and other relevant parties will be deposited in this platform. The hub will provide a robust mechanism to capture all business and industry information that is related to energy sectors. There would be relevant content structures within the hub to ensure they are captured and stored in the related and accurate location. This will ease access and future maintenance of the content for this platform.

3.1.2. Knowledge Repository

Energy information and knowledge which are kept within the hub should always be relevant, reliable, real-time and accurate. By virtue of having a centralized repository, all content must easily be updated in real-time with versioning features and change audits. Knowledge repositories or online databases can be described as storage repositories for storing documents in an organized and accountable fashion. These platforms will facilitate sharing, updating, and disseminating documents on common platforms across an organization [26]. In order to develop knowledge repositories for documenting explicit knowledge, a few techniques, such as knowledge acquisition, discovery, and data mining tools, could be applied [26]. This scholar also discussed knowledge taxonomy and mapping techniques typically constructed for serving as a framework to build these knowledge repositories.

3.1.3 Knowledge Source and Collaboration

The digital energy hub will provide ease of access to its content by ensuring the accurate and reliable information is presented to the right users by using some relevant features, such as enterprise search and Helpdesk. The hub also features online and real-time collaboration with the relevant parties, such as the customers, regulators and other relevant stakeholders. According to [30], these digital platforms could facilitate virtual communities to interact, contribute, and develop the professionalism level of individuals by social collaboration without a high expenditure on the learning process and sharing of knowledge. This argument is supported by [4], who indicates that digital energy hub could support communication and collaboration among members, enabling interaction anywhere and anytime by removing the geographical barriers and allowing knowledge sharing practices.

3.2. KM Activities and Processes

KM strategies and initiatives will ensure that there is a standardized and consistent manner in which knowledge is managed within the related fraternity. Among the activities and processes that are proposed to be covered in KM initiative are:

3.2.1. Knowledge Capture and Retention

Identifying and capturing relevant explicit and tacit knowledge within the digital energy hub is very critical for a digital energy hub. [38] have proposed that knowledge has become a key resource for organizations to increase the competitive advantage, which is significant for organizational performance. On the contrary, [10] have asserted that if knowledge is not capture and made accessible in an organization, the knowledge existence in an organization becomes useless. Knowledge retention is also essential in maintaining and up keeping the current knowledge within the digital energy hub.

3.2.2. Knowledge Sharing and Transfer

Knowledge sharing and transfer is a set of individual behaviors involving sharing and transferring one's work-related knowledge and expertise with other members within one's organization, which can contribute to the ultimate effectiveness of the organization [38]. Knowledge sharing and transfer initiatives are necessary for the energy sectors because knowledge is an intangible asset that includes ideas, methods, feedbacks, techniques, and information [20]. Additionally, knowledge sharing is depicted as a set of behaviors about knowledge exchange which involve the actors, knowledge content, organizational context, appropriate media, and societal environment [24]. It is assumed that a common KM platform enables this process because the individual share a common language and meaning of different terms, which makes knowledge sharing easier [32].

3.2.3. Content Management

Managing the current and future knowledge asset and repository is very critical in a digital platform and environment. Prior studies tend to define the term KM quality in the objective point of view, such as the information or knowledge that meets the needs of a specific activity the user is engaged in, as well as the content that meet the quality standard, including accuracy, completeness and relevance [11]. According to [37], information or knowledge quality comprises the following attributes – completeness, timeliness and relevance. Similarly, these attributes also specify that the appropriate knowledge with sufficient content is captured and available to the right users at the suitable time [15].

3.2.4. Knowledge Communities and Collaboration

Digital energy hub should promote and support knowledge-based communities. The highest level of collaboration implies a high use of digital platform, in which distribution of connections, conversation, collaboration, communication and relationship building are embedded [38] Hence, with the higher level of digital infrastructure, the more virtual the organization could be, and thus, enables the company to work more distributed. The development of this collaboration mode has enabled users to talk and interact to whoever is online at the same time they are. In this mode of communi-

cation, messages and information are sent and online users can immediately receive and respond back in real time.

3.2.5. Knowledge Culture and Mindset

The last KM initiative that is also crucial for digital energy hub deployment is developing the necessary culture and mindset among the related communities. This strategy will be further discussed in the next initiative – change management and communication strategy.

3.3. Change Management and Communication

To ensure long term commitment for the development of digital energy hub, an effective branding, image and communication strategy is required. The initiatives or strategy for change management and communication for a digital energy hub should include:

3.3.1. Developing Awareness and Convey Information

This initiative will include capabilities development and create excitement among the users. As described by [1], effective communication strategy to develop awareness and communication is to inform potential users of the benefits of the digital platforms. This is practiced by marketing groups who usually communicate the benefits of a product, rather than its attributes, to customers, in order to draw their attention and heighten their realization [1].

3.3.2. Stimulating Action

This strategy will encourage usage of the digital energy hub as a daily norm or routine and recognize as first point of reference. [6] have asserted that an individual's attitude toward KM platform determines his/her intention for receiving and sharing related knowledge. When individuals discover that KM initiative is important and beneficial in their daily activities, they will voluntarily engage in knowledge sharing and transferring activities.

3.3.3. Promoting Change in User Behavior

This initiative will promote knowledge sharing behavior and collaboration world-wide. Hence, when individuals perceived personal and organizational benefits of sharing and transferring knowledge, they are more likely to facilitate a positive KM behavior in the organization. Nevertheless, [34] have indicated that the presence of individuals' attitudes toward knowledge sharing may not lead to an intention to share knowledge. Hence, organizational and management should create a supportive atmosphere in which knowledge can be shared via an effective formal and informal communication to promote change in user behavior.

However, paradigm shift and changes in mindset and behavior will not happened immediately and requires a sustained effort by the KM practitioners. The branding strategies deployed by the KM practitioners should also include several initiatives, such as insistence on developing an efficient and a good experience for users at every occasion. This approach is to ensure user-friendly and easy-of-use attributes and functionalities in the digital energy hub. Likewise, KM fraternity should also initiate other branding and marketing strategies to ensure successful realization of the digital energy hub.

Ultimately, the appropriate and positive mindset and behavior will lead to a successful digital energy hub development and deployment. Priority must be given on equipping the workforce to respond positively to the change management journey. In relation to this, KM practitioners should stressed the following strategies to ensure the success of this KM initiative:

1. Effective communication and collaboration among the stakeholders and users of the digital energy hub. This initiative can increase awareness and strengthen the commitment among the key players in KM fraternity and related stakeholders.
2. Transformation and change management must be supported by all relevant stakeholders. This approach can be developed by engaging them with educational programs, such as training and relevant courses. It is vital that relevant parties that engage in the digital energy hub are properly trained or educated to ensure full benefits are enjoyed by the respective users [21].
3. Leverage culture assessment insight to develop and implement change management plans. The initial stage of inculcating KM culture can happen through communication activities, KM education, collaboration approach and others. As KM culture matures among the users, information and knowledge will be seen as valuable asset and users can appreciate the value derived from this asset they handle and begin to harness their full potential.
4. Leadership engagement and support is essential and vital for this KM initiative. The KM initiative must be clearly articulated and understood by the management, with these leaders actively involved in driving their staff through the culture change within their organizations [31].

4. Conclusion

Eventually, this article proposed several KM strategies and initiatives, in order to develop a comprehensive digital energy hub. The advantage in identifying and analysing the right strategies and initiatives is no less crucial than the knowledge, skill, and ability to conclude the development of this digital platform. By accurately identifying the relevant KM strategies and initiatives, the probability for future deployment of this KM platform to be successful can be enhanced. The assumption is justified via the academic contribution of this study where these KM strategies and initiatives can serve as a planning tool for future digital hub development and deployment. Therefore, this study provides KM practitioners with an understanding on how to utilize KM strategy and initiatives to achieve accomplishment in development of a KM platform, such as a digital energy hub.

The analysis approach used in this study suits the formative and exploratory subjects addressed for the purpose of this article. However, several limitations are worth mentioning in this study. For instance, this article only analysed few KM strategies and initiatives that addressed by previous scholars without supporting data that can be analysed or justified to strengthen the findings of this paper. Thus, as recommendation for future research, it would be necessary to conduct study with similar objectives within energy sectors, by constructing research respondents and use scientific methods or modelling for data collection and sampling.

Acknowledgement

This research is funded by Ministry of Higher Education under Fundamental Research Grant Scheme (FRGS); which is also supported by Universiti Tenaga Nasional.

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