Knowledge management conceptual framework in Nigeria tertiary institutions

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Abstract - Knowledge is an essential resource to academic institutions, but its management especially in the developing countries has always been very difficult. A KM model is developed in this study to manage institutional resources and make same available at the right time towards enhancing academic performance. Quantitative research approach was adopted over content analysis to evaluate data obtained through the review of the past related works on KM models. The study framework is based on some established models and is integrated into the university process activities. It links institutional knowledge to capabilities and KM system to ensure best practices and promote academic performance.

Keywords – Effectiveness, enabler capability, knowledge management, process capability, strategy capability, tertiary institution.

1. Introduction

Knowledge is an essential element necessary for sustainability of an institution [1] which make institutional knowledge (IK) a powerful instrument for development as it gives competitive advantage over others. Knowledge possessed by an institution is in two forms - explicit and tacit knowledge. IK is derived from interaction between these knowledge (explicit and tacit) and it remains unique and peculiar to the university[2]. Even though knowledge is identified as vital factor for increasing productivity and promoting innovativeness [3], [4] nevertheless, it’s success can strongly be established via successful implementation of knowledge management [5].

Knowledge management (KM) is a process of coordinating, organising and making institutional knowledge available for knowledge creation, sharing, storage and reuse to achieve institutional aims and objectives[4]. Another scholar defines it as an expertise management that makes tacit knowledge available at a specific time of need for improving organization performance [6]. KMi’s not new as quiet number of researchers have argued its usefulness in enhancing organisation and institution performance.

Knowledge can become obsolete and corrodes easily if not properly managed[7][8] thus it is necessary to ensure continuous flow of knowledge to attain adequate sustainability. Some researchers[9]–[11] have identified needs for KM implementation in universities. Tertiary institution were urged by Fattahiyan, Hoveida, Siadat and Talebi[12] to invest on KM by developing a knowledge capability that will aids effective flow of information and knowledge within the institution. Ramakrishnan and Yasin[13] stated that institution can increase its performance and productivity by making a KM supporting system available. Also, Sulisworo[14] emphasized on the need for establishing a well suitable KM framework in tertiary institution for effective management of the institutional resources.
Despite the benefits tagged to KM, some Nigerian institutions are still lacking behind in the implementation of KM [4], [15], [16] due to lack of KM capabilities namely enablers, process, strategy and system [17]. In as much as it is compulsory for the business strategy and process to align with KM, there is need to provide a comprehensive and logical model which will identify different knowledge domain in the institution and make it available for usage [18]. By assessing previous KM models, this research work develops an integrated model for successful and effective knowledge management practice to improve academic performance in institutions.

2. KM Models

Different researchers have come up with different frameworks to support KM practice success.

2.1 Nonaka Knowledge Conversion Framework

Nonaka framework emphasized on conversion of knowledge which leads to creation of new knowledge. The model considered organisation knowledge in two ways (tacit knowledge and explicit knowledge) and forms a basis for interaction between this two knowledge. According to Nonaka [19], organization can create new concept and idea via interaction of explicit and tacit knowledge. The Nonaka’s framework is grouped into four modes - Socialization, Externalization, Internalization and Combination - which provide avenue for knowledge conversion as depicted in Figure 1.

![Knowledge Conversion Framework](image)

- **Socialization (tacit - tacit):** Interaction between tacit carriers is referred to as socialization. Socialization generates new knowledge by linking tacit with tacit, and share this tacit knowledge among individuals to create new knowledge.
- **Externalization (tacit - explicit):** Tacit knowledge is converted to explicit knowledge by using embed tacit knowledge to develop concepts.
- **Combination (explicit - explicit):** Combination uses various elements of explicit knowledge to build a prototype.
- **Internalization (explicit - tacit):** This is knowledge gained from documented knowledge. Internalization occurs when tacit knowledge is derived from documented or external knowledge shared within the company.

The Nonaka model converts personal knowledge to institutional knowledge which brings innovativeness and increase institutional performance [20]–[22] thereby guiding organisation in decision making.
2.2 KM Solution and Foundation Framework

Becerra-Fernandez and Sabherwal framework as shown in Figure 2 viewed knowledge management in two dimension namely KM solution and foundation[23]. KM solution consists of two elements which are KM system and KM processes, it is specific in nature and handles how KM activities can be achieved. While KM foundation comprises of three elements namely infrastructure, mechanisms and technologies. KM foundation is general and long-term activities that support KM.

![Figure 2: KM Solution and Foundation Framework][21]

2.3 Theoretical Framework

2.3.1 Ogunbanwo’s Framework:

The framework shown in Figure 3 was empirically examined, and it considers enabler capability and strategy capability as positive contributors in achieving a successful and effectiveness KM practice [24]. The enable capability has four components namely organization, leadership, technology and people while strategy capability comprises of three components which are planning, policy and fund.

![Figure 3: Enabler and Strategy Capability Theoretical Framework][24]
2.3.2 Enabler, Process and Organisational Framework

Lee and Choi framework shown in Figure 4 linked KM process and KM enablers with organization performance[25]. This framework presented four components of KM enablers as information technology, people, structure and culture while only one component was presented for KM process namely knowledge creation process. It proposed that KM enablers has effect on KM process which has positive influence on organization performance as depicted in Figure 4.

![Figure 4: Enabler, Process and Organisational Theoretical Framework[25]](image)

3. Tertiary Institutions

Tertiary institution (TI) is major generators and producers of knowledge, and have similar characteristics for accessing, storing and sharing knowledge. Thus, it becomes necessary to examine how this knowledge is embedded, generated and disseminated to society[26] as institutional success is linked to how its knowledge is being create, share and reuse[10]. Almudallal, Muktar and Bakri[27] categorised activities in TI into three as shown in Figure 5 namely input, process and output.

![Figure 5: University Process Activities [27]](image)
4. Methodology

The methodology adopted for the study was qualitative method and data was extracted using content analysis. The framework depicted in Figure 6 shows the steps followed to achieved the research objective - developing a model for KM success in tertiary institution. Previous related studies were reviewed and four models were chosen and evaluated. All the components of the chosen models were identified and integrated as part of the new KM model.

![Figure 6: Step-by-Step Activities](image)

5. Results

5.1 KM Model Analysis

Table 1 presented the components of the existing models as well as the components for the proposed model. The proposed model tagged knowledge management for tertiary institutions (KMMTI) was derived from integrating all the components of the existing models with one additional component. KMMTI consists of eight components as depicted in Figure 7. The knowledge gap of the previous models was addressed by the new model. The components of KMMTI are institutional knowledge, knowledge conversion, process capability, KM system, enabler capability, strategy capability, KM intermediate outcome, and academic performance.

| Model Component                   | Nonaka Framework | Becerra-Fernandez and Sabherwal Framework | Ogunbanwo Framework | Lee and Choi Framework | New Integrated KM Model |
|-----------------------------------|------------------|-------------------------------------------|---------------------|------------------------|-------------------------|
| Institutional Knowledge           |                  |                                           |                     |                        | ✓                       |
| Knowledge Conversion              | ✓                |                                           |                     |                        | ✓                       |
| Process Capability                |                  |                                           | ✓                   | ✓                      | ✓                       |
| KM System                         |                  |                                           | ✓                   | ✓                      | ✓                       |
| Enabler Capability                |                  |                                           | ✓                   | ✓                      | ✓                       |
| Strategy Capability               |                  |                                           | ✓                   |                        | ✓                       |
| KM Intermediate Outcome           |                  |                                           | ✓                   |                        | ✓                       |
| Organisation / Academic Performance|                  |                                           | ✓                   | ✓                      | ✓                       |
5.2 Integration of KMMTI and Tertiary Process

The Figure 8 reveals how KMMTI can be integrated into tertiary institution activities of input, process and output as stated by Almudallal et al. (2016)[27].

5.2.1 First layer - Input

The input is the first layer which consists of knowledge conversion and institutional knowledge. Knowledge conversion provide avenue for interaction between explicit knowledge (EK) and tacit knowledge (TK) which consist of four (4) modes namely socialization, externalization, combination and internalization. While institutional knowledge is of two form - tacit and explicit. TK are knowledge that reside in human brain while EK are documented knowledge. This layer absorbs and converts the personal knowledge to institutional knowledge. This can be achieved via community of practice (CoP).

5.2.2 Second layer - Process

Process is the second layer, it has four components namely enabler capability, process capability, strategy capability and KM system. Enabler and strategy capability are supporting factors for KM process which also act as mediator for KM practice success. Enabler capability consists of organization process, leadership, technology and people while planning, policy and funding are components of strategy capability. Process capability handles KM activities such as knowledge capturing, sharing, storing and reuse. While KM system (KMS) is the technology that aids smooth running of process capability.
5.2.3 Third layer - Output

The last layer which is the output or end result is viewed from two dimensions which are KM success and academic performance. KM success which comprises of organisation creativity, people readiness to participate and share knowledge while academic performance consists of grounded graduate, innovativeness, increase research output and performance increase.

![Figure 8: KMMTI and Tertiary Process](image)

6. Conclusion

KM is a big challenge in this knowledge economy era. Hence, knowledge needs to be balanced as excess of it can cause vast and complex situation for institutions and organizations[28]. This work postulates a model for academic enhancement when KM is successfully implemented in Nigerian tertiary institutions.

When fully adopted, this model shall make institutional knowledge easily available for improving academic performance. Although the model is a conceptual framework, it can be a good guide to researchers and academic communities in general to enhance KM implementation in their institutions.

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