TOWARDS A HOLISTIC KNOWLEDGE MANAGEMENT FRAMEWORK FOR HEALTHCARE INSTITUTIONS

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Abstract – Despite substantial investments in information technology (IT), organizations have not been able to exploit the advantages of the Information and Communication Technology (ICT) revolution to the desired extent. This is also true for the healthcare sector. Twenty first century healthcare practitioners face the challenge of transforming large amounts of data into information, which then has to be converted into contextual knowledge. This process of knowledge creation and conversion is further accentuated as transformation of information into knowledge calls for: (1) contextual recognition of information and (2) a mechanism to support effective transfer of knowledge. Also reinforced is the recognition that it is essential to have a framework that supports the dissemination of the contextual knowledge acquired. We argue the Knowledge Management (KM) paradigm is aptly suited for this purpose. However, the lack of an explicit and generic framework for adopting KM has hindered its rapid acceptance in the healthcare sector. Using data inputs from a collaborating organization, we then present the Organization Current Knowledge Design (OCKD) model - a holistic and generic KM framework that could help healthcare organizations to navigate this difficult change process.

Keywords – Healthcare, Explicit knowledge, Bioinformatics.

I. INTRODUCTION

Applications of advances in IT in the healthcare sector have caused an information explosion in the healthcare industry and have brought to the forefront new disciplines such as Bioinformatics, Biomedical and Genetic Engineering etc. The advents of these new disciplines have propelled revolutionary projects (like the Human Genome project) that hold very promising solutions (like Gene therapy) for improving healthcare outcomes. Simultaneously, healthcare managers are being forced to look into the costs associated with healthcare and are under increasing pressure to discover approaches that would help to carry out healthcare activities better, faster and cheaper [1,2]. For this to happen, the healthcare sector would have to shift their emphasis to deal with the intangibles of knowledge and culture [3].

II. NEED FOR A KM FRAMEWORK

Healthcare institutions (HIs) require a KM framework which in light of their ICT implementation level, would assist in the discovery and creation of new knowledge (see figure 1). HIs would then have to decide how best to disseminate the knowledge acquired in a manner which ensures that it is available to other healthcare stakeholders for preventative and operative medical diagnosis and treatment when required.

Figure 1: Need for a KM framework

This would call for HIs to identify key sociological and technological roles affecting the knowledge-transfer process and to develop organizational-specific measures for identifying best knowledge transfer practices. A KM strategy that would extend best knowledge-transfer practices on an organization-wide basis (see figure 1). Our contention above has been confirmed by the Canadian Department of Health [4]. KM can assist healthcare institutions to become viable by giving healthcare information context, so that other healthcare providers can extract knowledge and not information [3]. The prevalent knowledge categorization approach characterises knowledge as tacit or explicit [5]. Explicit knowledge typically takes the form of company documents and is easily available whilst tacit knowledge is subjective and cognitive [5]. The cornerstone of this paper is that the KM paradigm can enable the healthcare sector to successfully overcome the information and knowledge overload in healthcare [6].

We argue that HIs that integrate KM and ICT into their main healthcare processes are more likely to survive and prosper. In this context, using data inputs from our collaborating organization, we present the OCKD framework (see figure 2) that would assist HIs in the development of a KM strategy.
The first step in our framework is the identification of the core competencies of an organization (see figure 2). This process will enable HIs to be clear about their mission, objectives, strategy, and tactics (MOST) and how they are aligned with the organizational core competencies. This would call for economic, industry and company (EIC) analysis (see figure 2). The next step would be a study to identify their current and future knowledge needs (Biomedical and Genetic Engineering could be the future thrust areas). This would call for an analysis of the current technological infrastructure that is in place for supporting knowledge transfer. This would result in the identification of the relationships that exist between different types of knowledge (tacit or explicit) being transferred and dissemination practices. After this process, HIs will need to assess how much knowledge should and can be codified and this process will result in the adoption of a KM strategy with emphasis on either personalization or codification.

### III. CONCLUSION

To conclude, we contend that adoption of KM is essential for HIs, as it would enable them to identify, preserve and disseminate “best context” healthcare practices to different healthcare stakeholders. In this paper, we have argued that the ultimate objective of KM is to transform knowledge from a tacit to an explicit medium, so as to allow its effective dissemination and that this can be best provided by a holistic KM framework. We have presented the OCKD framework, which we believe is the first holistic KM framework for HIs.

We have argued that the application of the OCKD framework could enable HIs to have a profound understanding on how to best identify and create knowledge from internal and external healthcare experiences which could result in the saving of lives (see figure 2). This would allow other healthcare stakeholders to relate this knowledge with existing clinical information for generating value in tangible and intangible terms.

### REFERENCES