Identifying Crucial Know-How and Knowing-That for Medical Decision Support

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ABSTRACT

In this paper, the authors propose a multi-criteria methodology for identifying “Crucial Know-How/Knowing-That”. Know-How and Knowing-That are two kinds of knowledge. Know-How is a disposition to perform a type of action whereas Knowing-That is a belief state and concerns a description which can be factual or propositional. The category of “crucial Know-How/Knowing-That” represents the subset of Know-How/Knowing-That sufficient for Know-How/Knowing-That capitalization. The authors are interested in special Know-How/Knowing-that called “Likely Crucial Know-How/Knowing-That” which represent the set of Know-How/Knowing-That under validation and experimentation and can be crucial in the short or medium term. For thus, a new decision class is attributed to this category of Know-How/Knowing-That. The methodology is composed of three phases: (i) the construction of the preference model of decision maker, (ii) the evaluation of “crucial Know-How/Knowing-That” and (iii) the sorting of this set of Know-How/Knowing-That. The methodology is experimented in the ASHMS organization and validated in the medical field.

KEYWORDS
Crucial Know-How/Knowing-That, Decision Class, Know-How, Know-How/Knowing-That Identification, Knowing-That, Medical Field

1. INTRODUCTION

Confronted with demands of care quality, optimality, dynamicity and complexity, medicine is obliged to well manage their medical knowledge which is in increasing (Chen et al., 2011; Kim, 2014; Kothari et al., 2011; Panahi et al., 2012; Stroetmann and Aisenbrey, 2012). For reaching this objective, each healthcare organization must integrate a healthcare knowledge management (Charlet, 2002; Nadeem et al., 2012; Olaolorun and Oladejo, 2012).

Medical or healthcare knowledge is created through different modes like communication, exchanging and sharing knowledge (Ting et al., 2010) between practitioners, interrogation examination and assessment stored in medical record and other knowledge related to experience and skills (Charlet, 2002; Chen, 2013; Henry, 2010; Kothari et al., 2012; Tsui et al., 2014). This knowledge can be classified into two types: explicit knowledge which is easy to identify and locate. It is stored in good practices, theoretical knowledge, medical records and others medical papers whereas the second type is related to tacit knowledge which is embedded in healthcare professionals’ mind. It represents their competencies, their experiences, their talents and their know-how. This type of knowledge is difficult to locate and not always accessible.

Taking into account these points, healthcare organizations are becoming aware of tacit knowledge (Abidi et al., 2005) and grant a special attention to tacit knowledge to avoid its miss-use and loss (Erden, 2008; Henry, 2010; Kinchin et al., 2008; Kothari et al., 2012; Mahrooeian and Forozia, 2012; Parpandel, 2013; Polanyi, 1967; Reinders, 2010; Wang and Tian, 2012).
Many works in the literature are proposed to demonstrate the importance of knowledge management and knowledge engineering in medicine. (Hojabri et al., 2012, Al-Khasawneh and Hijazi, 2014, Pietro et al., 2014) stress the impact of using telemedicine on knowledge management in healthcare organizations. They propose a new framework and a model to explain how knowledge sharing and organizational learning occur in telemedical practices. (Edenius et al., 2010) explain how knowledge can be managed across boundaries when implementing innovations in the healthcare sector (healthcare quality register). The findings of this study describe knowledge through three levels (syntactic level, semantic level and pragmatic level. (Tian, 2011) improves knowledge management between primary and secondary healthcare by using e-referral (an electronically transmitted referral message) which facilitates the generation, capturing and sharing patients’ information between primary and secondary health providers.

In the literature, most of works proposed don’t give a meticulous and clear definition of knowledge although many disciplines talk about knowledge: in philosophy (Fantl, 2012; Schwartz, 2011), in strategic management (Pesqueux, 2010), in knowledge management (Grant, 1997; Kogut and Zander, 1992), in knowledge engineering and in others disciplines.

Our research work is conducted in the Association of Protection of Motor Disabled of Sfax (ASHMS). Its purpose is to protect children having a cerebral palsy. The main important process of ASHMS is the medical care process which is composed of several activities in terms of medical and paramedical consultations in different specialties. Among these specialties, we quote: neonatology, neuro-pediatrics, physical medicine, orthopedics, psychiatry, physiotherapy and occupational therapy. Because of healthcare professionals are volunteers and have experience in their specialty, the trainees cannot benefit from the volunteer practitioners’ experience that’s why a big part of this tacit knowledge is not transferred, shared and reused.

Our goal is to help the ASHMS to improve knowledge accessibility (for better care quality), knowledge localization (knowledge in the association and embedded in the mind of liberal doctor or medical academic teacher), collaboration and knowledge sharing (among different healthcare professionals, among different specialties and among the same specialty) between healthcare professionals.

An epistemological analysis is undertaken for the concept of knowledge (Schwartz, 2011). This analysis led to give meticulous definition of knowledge. It distinguishes between two types: Know-How and Knowing-That (Fantl, 2008; Fara, 2012; Maier, 2011; Roland, 1958; Ryle, 1949; Stanley and Williamson, 2001; Zardini, 2012).

Our methodology for identifying Know-How and Knowing-That is composed about three phases: (i) Construction of the preference model, (ii) Evaluation of “likely crucial Know-How”/“likely crucial Knowing-That” and (iii) Sorting of “likely crucial Know-How”/“likely crucial Knowing-That”. Each phase will be detailed in the paper.

The remaining part of this article is organized as follows. Section 2 presents an overview of the knowledge identification and valorization methods in medical field. Section 3 describes our methodology for identifying organization’s “Crucial Know-How”/“Crucial Knowing-That”. Section 4 presents the application of our methodology in the ASHMS. In conclusion, we remind the different parts of the paper and we exhibit some future research topics.

2. RELATED WORK

In the literature, many works stress the importance of healthcare knowledge management (HKM). Its intention is the diagnosis of knowledge which is the most valuable resource in organizations. HKM is:
Corporate Political Strategies and State Owned Enterprises (SOEs): An Alliance to Conquer International Markets
www.igi-global.com/article/corporate-political-strategies-and-state-owned-enterprises-soes/163958?camid=4v1a

Effective DMSS Guidance for Financial Investing
www.igi-global.com/article/effective-dmss-guidance-financial-investing/1741?camid=4v1a

Performance Measurement: Measuring Retail Supply Chain Performance
www.igi-global.com/chapter/performance-measurement/176777?camid=4v1a