Should Innovation Knowledge be Assessed?

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INTRODUCTION

There is almost global perception that knowledge is a belief. This perception has led many scholars and management practitioners to evaluate knowledge on the basis of *correctness of answers* only. However, correctness of answers is not sufficient in determining the goodness or the appropriateness of knowledge for a given task. What is need is an evaluation method. However, available evaluation methods require measurements of knowledge characteristics. That is why Hunt (2003) proposed a method of knowledge measurement that has been criticised for leading to false results that in turn leads to unpredictable levels of uncertainty.

It has been shown that uncertainties could impact adversely on the qualities of the *correctness answers* or acceptable justifications (Hunt, 2003, p. 109). However, the research in uncertainties revealed that failure to formulate precise questions about acquiring, retaining and managing knowledge could adversely affect the ability to perform certain tasks safely and effectively within the desired levels of quality (Von Krogh and Von Hippel, 2006). The failure to identify mismatches between desired and actual quality levels has driven strong interest in researching uncertainties as a possible source of knowledge defects or knowledge gaps (Soliman, 2012).

Innovation knowledge that is usually created and transferred or disseminated within one single company or between a group of innovative companies (Nonaka & Von Krogh, 2009). Hull et al. (1999) suggests that the continuous and rapid evolution of information and communication technology has elevated knowledge to become an essential ingredient for the successful innovations. The paramount concern lies in the lack of identification of globally accepted set of knowledge characteristics that could be used to identify knowledge quality, fitness for the purpose and its usefulness for given tasks.

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Soliman and Youssef (2003) points to the quality of information as a competitive advantage. Accordingly, to ensure better quality of information, knowledge should be assessed thought the organisational processes, in particular knowledge handling processes.

In recent times Soliman (2011) pointed out that the knowledge transfer processes must be carefully managed to support the strategic goals of innovation. This in turn means innovation knowledge must be managed effectively to ensure adherence to the basic objectives of innovation. In managing the innovation knowledge, Soliman (2011) proposed the following three interrelated domains of management of the innovation knowledge; namely *The Knowledge Domain*; *The Learning Domain* and *The Innovation Domain*. The common core activity flow between the three domains is the *Innovation Knowledge* (Soliman, 2011).

BACKGROUND

Managing business uncertainty is necessary but very difficult, especially in innovation projects. This is due to the fact that innovation projects are by definition full of risks. One of the significant risks that could lead to poor performance or failure of the innovation processes is the inappropriate managerial perceptions of uncertainties (Capon et al., 1992; Song & Montoya-Weiss, 1998). Soliman (2013a) has specified at least three main areas of uncertainties that could impact on the performance of business innovation; namely *Economic Uncertainty*, *Market Uncertainty*, *Talent Uncertainty*. However, uncertainties could be defined as "the inability of a manager to assess and predict any changes in regards to factors that are external to his/her organisations environment such as knowledge obtained from outside sources external to the organisation" (Soliman (2013a). Many scholars have associated uncertainties to complexity management. In turn complexity man-

agement is regarded by Hanseth (2007) as dependable on the level of complexity of technology used. In this regards Hanseth (2007) pointed out that "the use of more complex technologies are likely to increase the degree of uncertainty." In innovation projects high degrees of uncertainties could be encountered thus leading to poor innovation outcomes (Rogers, 1995). Chun-Wang Tsou (2012) added that "the inherent difficulty of using a new technology is a major concern when deciding to adopt that technology."

Pedersen and Larsen (2004) proposed ten information properties. However there are five knowledge attributes constructed from the Pedersen and Larsen information properties that are considered relevant to innovation knowledge. The five innovation knowledge attributes also referred to as *soft attributes of innovation knowledge* may be known as: *Knowledge Capability, Knowledge Flexibility, Knowledge Congruency, Knowledge Stability and Knowledge Specificity.* These five soft knowledge attributes could also encompass some of the nine attributes (*hard attributes of innovation knowledge)* that have been identified by Soliman (2012). Soliman (2012) noted that innovation knowledge must also encompass the general knowledge attributes that are relevant to all types of knowledge. The nine general knowledge attributes (*hard attributes of innovation knowledge)* proposed by Soliman (2012) are:

1. Accuracy of innovation knowledge.
2. Timeliness and currency of innovation knowledge.
3. Relevance of innovation knowledge.
4. Authority of innovation knowledge source.
5. Purpose of innovation knowledge.
6. Importance of innovation knowledge.
7. Accessibility of innovation knowledge.
8. Applicability of innovation knowledge.
9. Suitability of innovation knowledge.

Although many scholars have been sceptical about the need and the usefulness for a knowledge measurement scheme, it should be remembered that Lord Kelvin once said "If you cannot measure it you cannot improve it" which implies that unless knowledge is measured, it would be difficult to objectively improve (Evans and Lindsay, 2011, Chourides et.al. 2003).

Although there are several quantitative approaches that have been developed for the measurement of knowledge imported in a tangible form, the most frequently used approach counts numbers or value of patents brought in. More recently, however, innovation statistics have been questioned for not adequately reflecting the value of innovation knowledge (Griliches 1990; Pakes and Griliches 1980). However, the real difficulty lies in the intangible knowledge that are in most cases come as tacit knowledge.

Tacit knowledge is widely known as the most difficult to measure. However, Ambrosini and Bowman (2001) proposed a causal mapping approach that has not been tested. Other attempts to measure tacit knowledge were proposed by Sveiby (1997) and Oliver *et al.* (1999). However, some practitioners use difference between market value and net book value as an indicator of the value to tacit knowledge. This implies that methods for measuring tacit knowledge are still undeveloped. However, the approach used by Soliman et al (1989), Soliman and Spooner (2000) and Soliman and Youssef (2003) to treat the information flow as a process that has input and produces output has sparked an interesting debate about the development of innovative concepts. These debates have identified: three important methods that are concerned with knowledge measuring: a) The strength of the knowledge relationships, b) The level of knowledge relationships and c) The capacity of internal knowledge processes.

From these perspectives, it appears that knowledge assessment should support the innovation business processes by aligning the measurement strategy with the business strategy. This implies that the management of innovation knowledge should also be linked to the firm's strategic objective or business goal (Carlucci and Schiuma, 2006). Furthermore, the selection of innovation knowledge assessment method may lead to better understating the following three important relationships:

1. Levels of innovation knowledge codification and knowledge diffusion,
2. Conversions from explicit knowledge to tacit knowledge and vice versa, and
3. Innovative firm's capital and structural resources.