The I^5P Visualisation Framework for Performance Estimation through the Alignment of Process Maturity and Knowledge Sharing

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ABSTRACT

This paper argues that Knowledge Management (KM) and Knowledge Sharing (KS) are strongly linked to organisational maturity. The mechanisms that enable this upward movement and depict measurable effects of performance as the organisation climbs from ad hoc levels to institutionalised high levels of process maturity are investigated. The I^5P visualisation framework which aligns a Knowledge Sharing level to the appropriate maturity level and characterises the process from incidental to innovative is examined. This framework provides the basis, in terms of preparedness and disposition towards knowledge sharing, for estimating and measuring organisational performance. In today’s competitive global business environment organisations are increasingly dependent on Information and Communication Technologies (ICTs) and particularly vulnerable to knowledge dilution. The framework links knowledge sharing to process maturity providing a framework that aims to encapsulate tacit accumulated knowledge in the organisation by preserving it for future needs. The framework will be useful to Information Technology (IT) organisations that are familiar with maturity models, such as CMMI.

Keywords: Capability Maturity, Information Technology, Knowledge Sharing, Process Models, Visualisation

INTRODUCTION

It is widely recognised that people are any organisation’s greatest asset. The employees’ knowledge and experience is one of the most valuable assets of businesses and an important competitive factor. Hence, an organisation must ensure that the knowledge base of its employees is captured and shared throughout the organisation. Capturing, preserving and sharing
knowledge prevents duplication of effort, and ensures that tacit knowledge is not lost when employees leave the organisation. Knowledge Management can be technology oriented i.e. concentrating on the technology infrastructure and the ways in which explicit knowledge can be codified, stored and interrogated, or people-oriented which emphasises the importance of tacit knowledge, the social infrastructure and the business performance. Research concerning the factors affecting knowledge sharing (Nonaka, 1991; Norris et al., 2003; Siakas & Georgiadou, 2008) has identified a number of different factors that can be broadly classified as hard (technologies and tools, such as computer mediated communication) and soft (relationships between the individual and the team, department or organisation including motivation, and organisational culture). As the organisation grows the maturity of its processes needs to grow in order for the organisation to be competitive. Knowledge also evolves continuously as the individual and the organisation adapt to changes and influences from the external and the internal environment. KM and KS therefore is moulded by the organisational maturity and also is expected to grow and evolve provided a KM culture and environment exists.

**CURRENT RESEARCH AND PRACTICE**

People factors are crucial for IT industry also (André-Ampuero et al., 2010; Colomo-Palacios et al., 2010). The Capability Maturity Model (Software Engineering Institute, 2010) has been used as a benchmark by some practitioners and researchers to model the Knowledge Maturity processes in IT organizations.

For example Elms and Langen (2002), practitioners at Siemens AG/Corporate Technology, proposed the KMMM methodology, which provided a Maturity Model (of five levels reflecting the 5 levels of the CMM), and a 6-step process model which they applied in the case of audits. Their process model emphasises the need for transparency and recommends (in the case of audits) the use of pair auditing (presumably borrowed from the agile concept of pair programming). Although KMMM provides visual representations of Key Areas of Knowledge Management it is unclear how the quantitative results and the resulting maturity profile were ‘condensed’. It is questionable whether the measurements were objective, and the authors themselves recognise that the interventional nature of their investigation may have coloured their conclusions.

Kulkarni and Louis (2003) ‘borrowed CMM’s framework and applied it at a broad level to define a KM maturity model for benchmarking knowledge management maturity within an organisation’. They looked at organisational goals and differentiated between perceptual and infrastructure assessment as shown in Table 1. The differentiation between the perceptual characteristics of the process and the availability of technology is useful in that the often mistaken assumption that systems and associated technologies do not guarantee successful KM and KS. They identified, among other limitations of their study, the fact that the scheme of mapping their survey results into an overall ‘crisp’ maturity level is not well defined. Also the study suffers from the deficiency of all case study based research i.e. the confidence with which results can be generalised. However, Gallagher and Hazlett (2000) proposed a more refined framework called the Knowledge Management formula (KMf) where the overlaps and synergies of Knowledge infrastructure (Ki), Knowledge culture (Kc) and Knowledge technology (Kt) were identified. Gallagher and Hazlett used their Knowledge Management Maturity Model (KM3) as an evaluation tool.

Mohanty and Chand (2004) evolved the 5iKM3 KM Maturity Model for assessing and harnessing the organisational ability to manage knowledge. Number 5 (in 5iKM3) reflects the 5 CMM levels whilst number 3 (in 5iKM3) refers to the three pillars or Key Function Areas (KFAs) of KM namely people, process and technology. This model is used within the Tata Consultancy (referred to also as a framework) ‘describes each state of maturity, addresses the
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