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## 100. The Extended Knowledge Management Adoption Model.

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### Abstract

*Knowledge Management (KM) adoption theory, research and practice appears to have its primary foundations in generic organisational change theory. Recent research into KM adoption by individuals indicates diffusion of innovation theory may better explain individual adoption. This paper presents the Extended KM Adoption (EKMA) model and proposed research to test and further develop this model. The EKMA is a research framework which recognises the changing dynamics at play across four phases in the lifecycle of KM adoption by organisations. The EKMA model builds on research into the factors that influence the volitional adoption by individuals of KM.*

**Keywords:** Knowledge Management, Knowledge Management Systems, Adoption

### Introduction.

With the growing acceptance that knowledge has value, organisations are investing in Knowledge Management systems (KMS) to support the capture and sharing of their intellectual capital. Leveraging the competitive advantage of knowledge by creating knowledge-sharing organisations has been a challenge. Regardless of the many claims for KM, there is little empirical evidence of sustained success (Marr et al. 2003; Strassman 1999). Part of this challenge has been successfully deploying KMS in organisations and the adoption of these systems by individuals in these organisations.

Having decided to invest in a KMS organisations turn to the literature for guidance on how to best deploy their systems. But what do they find? If they turn to the management literature the guidance is broadly based on the treatment of the introduction of a KMS as an organisational change exercise (Davenport et al. 1998; Tiwana 2000). The emerging field of KM is considered a socio-technical discipline (Coakes et al. 2001) and can be viewed as an innovation that represents significant cultural change for most organisations (Senge et al. 1999). Guidance focuses on the management decision making process and creating the environment in which knowledge sharing will take place. If they turn to the IT adoption literature the guidance varies with a number of generic technology adoption models e.g., Davis's intentional Technology Adoption Model (TAM) (Davis 1989) and Rodgers' Diffusion of Innovation theory (DOI) (Rogers 1995) supported by generic organisational change (OC) recommendations. The advice offered in the literature is often addresses one, or at best, a subset of what can be seen to be a multi-phased adoption lifecycle.

This paper presents the development of the EKMA and the research proposed to test and further develop the model in the following sections: the first provides a review of KM adoption research; the second presents the method used to develop the EKMA and research proposed to test and enhance this model; the third presents the EKMA; and the paper concludes with a summary of the major implications of the model and proposed research.

## A review of the KM adoption literature.

The focus of contemporary KM adoption research appears to be centred on understanding the dynamics of adoption at specific organisational levels as illustrated in Figure 1<sup>1</sup>.

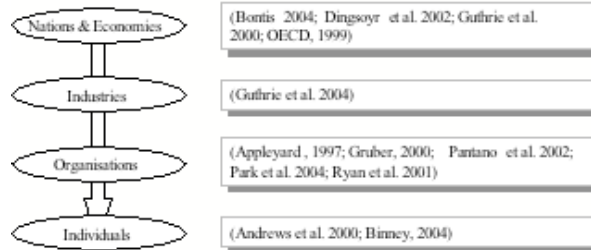


Figure 1. Levels of KM adoption research

The study of national, industry and organisational level KM adoption has contributed to the understanding of the dynamics associated with organisational adoption of KM. Organisational level adoption research can be seen to establish the motivations and characteristics of organisations that adopt KM and invest in a KMS.

When considering the adoption of KM at the organisational level, a number of studies have examined the influence of culture on KM adoption. The studies sought to correlate organisational and cultural factors such as openness, trust, the organisation's reward and motivation structures, and top management support of KMS usage within the organisation. These studies have mainly focused on interpreting characteristics of the organisation, or have taken an organisational view of the factors at play in the adoption process. This adoption research appears to be founded on the assumption that KM is an organisational change process with little reference found to KM as an innovation in the context of Rogers' DOI theory. Further, contemporary organisational level adoption research relies on external, often subjective, assessments of organisational culture, or relies on the organisation's management perception of the adoption processes as the source of organisational adoption characteristics.

Where individuals are the focus of research the emphasis appears to be on social networks that support the flow of tacit knowledge (Cross et al. 2001; Cross et al. 2002). A recent study (Binney 2004) points to the primary role of diffusion theory in explaining intra-organisational adoption. The study identified a subset of studied factors significant to KM adoption by individuals in the studied organisation.

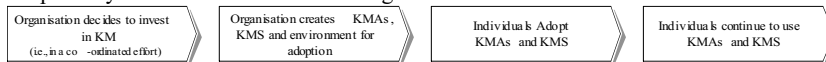
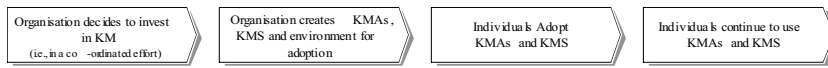


Figure 2 illustrates a KM adoption lifecycle derived from the literature review. Each of the reviewed research shows a part of the lifecycle of organisational KM adoption and posits factors at play in one or a subset of these phases.

<sup>1</sup> Examples of the reviewed research are also shown in this figure.



**Figure 2. Four phases in the adoption and development of an organisation's KMS**

The problem for those responsible for developing and deploying an organisation's KMS is that there appears no holistic view and/or advice available to guide them through the KM adoption lifecycle.

## Method

This paper builds on the reviewed research and proposes a lifecycle framework for KM adoption from the organisational adoption decision, through adoption by individuals in organisations, to the continued use of a KMS. This section describes how the EKMA framework has been developed as a starting point for research aimed at developing a more complete view of the KM adoption process by and within organisations.

The method used to develop the EKMA is as follows:

1- Generic organisational change and adoption theories were identified and reviewed in order to categorise the factors found significant to the adoption by individuals of a KMS as identified by Binney (2004). The change and adoption theories selected in this review were:

Organisational Science<sup>2</sup> – due to its predominance in the literature as proposing KM adoption is primarily a change program;

Technology Adoption models – due to the strong link in the literature to technology enabling KM. Davis's Technology Acceptance Model (TAM) (Davis 1989; Davis et al. 1989) was selected from the following candidates summarised by Pantano (Pantano et al. 2002) as the most common frameworks used in discussing the adoption of technology: the theory of reasoned action (TRA); the theory of planned behaviour (TPB); the TAM (TAM); social cognitive theory (SCT) and Rogers' classical DOI theory (DOI). Elliot and Loebbecke (2000) and Elliot (2002) propose that Davis's Technology Acceptance Model (TAM) is often the favoured intention-based model when the research focus is on the behavioural aspects of innovation adopters and their perception of the technological innovation; and

Diffusion of Innovation (DOI) Theory (Rogers 1995) – due to the emphasis placed on KM as representing an innovation for organisations and the view proposed by Elliot and Loebbecke (2000) that where innovation models focus on the characteristics of the innovation and the adopter and/or the process of adoption, Rogers' (1995) DOI work is considered the most authoritative.

Table 1 summarises the main characteristics or focus of the selected theories that will be used to establish the first version of the EKMA.

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## 2 Organizational Science is considered here and in

Table 1 as comprising its three contributing disciplines: Organisational Change; Organisational Development and Organisational Behavior.

2- The nine factors identified by Binney (2004) as significant to the adoption of innovation by individuals in his study were linked to one of the three selected theories using the characteristics presented in Table 1. The results of this mapping are presented in the EKMA model (see, Figure 3).

3- The above mapping of Binney's empirical results has been extended to other phases of the proposed adoption lifecycle. This process resulted in the initial population of the EKMA model which is briefly described in section 0.

The EKMA framework and its initial population will be used to interpret past and to shape proposed KM adoption research. Via this process the EKMA itself is expected to be tested and evolve. The framework will be tested and extended by

- a) a review and mapping of longitudinal KM adoption case-studies;
- b) a review and mapping of KM adoption research which addresses discrete phases of the four phase organisational KM adoption lifecycle;
- c) the conduct of case-studies using the EKMA framework to guide the interview and supporting secondary data review techniques employed in the studies.

The data from these sources will be used to validate, or otherwise both the EKMA phases and the relevant change and adoption theories that apply to each phase.

**Table 1. Characteristics of the reviewed adoption theories**

| Source theory and foci and supporting literature   | Characteristic  |
|--|---|
| Organisational Science (Argyris et al. 1996; French et al. 1995; Schein 1972; Vecchio 1987).   | <i>Organisation Science characteristics are presented in its three sub-disciplines.</i>   |
| Organisational Change (Management and the environment of the organisation.)                    | Leadership; Team dynamics; Motivational systems; Communications; Culture; Power authorities   |
| Organisational Development (Structure, technology, people and tasks)                           | Team based interventions; Inter-group interventions; Comprehensive interventions; Structural interventions; Training experiences  |
| Organisation Behaviour (Individual behaviour)  | Motivation based; Reward based  |
| DOI (Rogers 1995) (Innovation and the adopter)   | Relative advantage; Compatability; Complexity; Trialability; Observability; Connectedness; Age; Personality variables<br>Education levels; Attitude to change; Communication behaviours |
| TAM (Davis 1989; Davis et al. 1989) (Characteristics of the technology as seen by the adopter) | Usefulness; Ease of use   |

### The EKMA model.

This section briefly describes the EKMA model developed to date using steps 1-3 of the method described above. Figure 3 illustrates the initial population and characteristics of the EKMA.

In the first phase of the proposed model, labelled “Organisational KM adoption”, the organisation decides to invest in KM establish a KMS. The organisational decision to adopt in this phase is proposed to be an “authority-innovation adoption decision” (Rogers 1995, p. 28-29). The unit of adoption is the organisation and the authority-innovation decision taken by senior management. The focus of this phase is on the system, as defined in the socio-technical context (Coakes et al. 2001), in terms of defining and deciding on what KM is to the organisation, developing the case for action and the business case to support KM related investment.

The second phase labelled “KMS preparation”, covers the actions and activities undertaken by an organisation to create its KMS. The focus is on the system and the innovation. This phase is proposed to be a preparatory phase with a focus on building the system and planning the deployment including initiating deployment interventions.

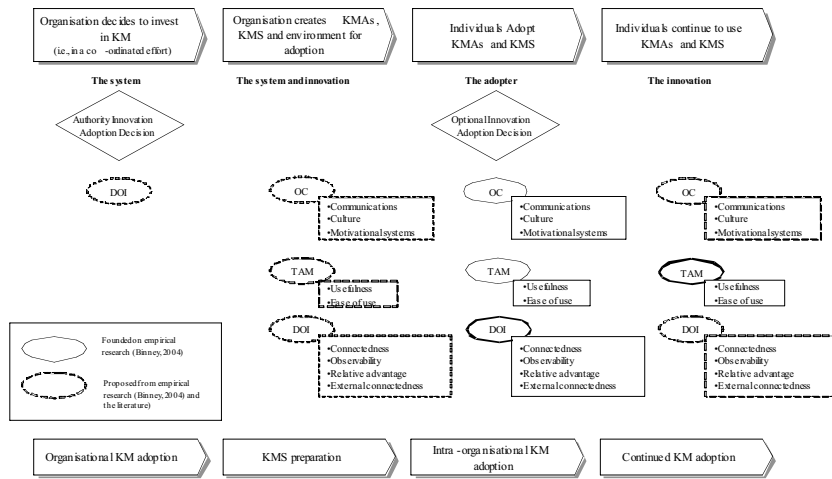


Figure 3. The Extended KM Adoption model

The third phase labelled “Intra-organisational KM adoption” covers the period during which individuals in the organisation adopt the KMS. The focus in this phase shifts to the adopter in an effort to affect the take up and use of the innovation. KM is proposed to be a volitional innovation and the individual adoption process primarily seen as a diffusion process with each individual making an optional-innovation decision to adopt, or not adopt, the KMS. In this phase the interventions identified in the KMS preparation phase are implemented and deployment of the KMS begins.

In the fourth phase, labelled “Continued KM adoption”, the individuals who have adopted the KMS continue to use it, or discontinue its use.

**Summary**

The role of the three foundational theories and their characteristics are proposed to vary over the KM adoption lifecycle. The mapping of the characteristics of the foundational theories

that affect KM adoption to the EKMA model provides a view of the dynamics involved in the KM adoption process. By grounding KM adoption factors in the one of the three selected change or adoption theories and considering KM adoption as a multi-stage process the EKMA posits that these theories may combine to describe a staged model of the KM adoption lifecycle. This lifecycle spans the authority innovation decision taken at the level of the organisation, through the establishment of the KMS, the individual's optional-adoption decision to the continued use, or abandonment, of the system. The four phases of the model are supported by a changing focus between the system, the system and the innovation and the adopter over the adoption lifecycle. This changing emphasis is reflected in the variable importance of the three theories during the phases of this adoption lifecycle.

The proposed research will commence with the proposed model and by employing a combination of existing case-study review and additional longitudinal KM adoption research, will confirm or otherwise the applicability and validity of the model to represent the complete KM adoption lifecycle. Insights gained in the research will support the evolution of the EKMA model and help develop it as a model which potentially more fully describes the dynamics of the KM adoption lifecycle in organisations. This theory building research shows the adoption of KM by organisations is at least as complex as the literature suggests and may provide a foundation for better understanding changing dynamics across the lifecycle of KM adoption.

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