# Umbrellas, alphabet soup and knowledge management theory

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***Keywords***

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**Abstract**

Knowledge management researchers and practitioners seeking a solid theoretical foundation for their work are likely to be challenged by the field's breadth and scarcity of universal frameworks. The diversity, or variety, of knowledge management theory has been acknowledged, many domains and disciplines have claimed territory in this field, and knowledge management theory has been criticised as being vague, broad, incoherent, an ill-defined term and with activities all over the map. Some see this diversity as problematic, detrimental to research and leading to uncertainty in practice; whereas others see diversity as natural, essential and should even be embraced.

This paper reports on research that investigated the alphabet soup of knowledge management concept with the purpose of understanding the phenomenon and any implications for the field. Content analysis was applied to a sample of 1182 journal papers, industry journal articles, conference papers and book chapters published between 1998 and 2007 and selected from online sources and databases. Analysis focused on discussion of diversity, causes of diversity, frameworks proposed in literature, universal frameworks, and the primary focus of the literature. Knowledge management was found to be diverse, and no framework or model was found to comprehensively and adequately describe, explain or embrace diversity. Frameworks were found to be inconsistent, often narrow, and the range of concepts and perspectives could not be concisely packaged into or described by any particular framework. Findings support the position that knowledge management can be anything that is labelled as KM.

Knowledge management is therefore best regarded as an umbrella, an encompassing term for a diverse range of theories, approaches, solutions and activities. It is recommended the way forward for knowledge management research and practice lies in a body-of-knowledge approach, as has been done by the field of project management, rather than seeking a universal underpinning explicit theory.

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# 1   Introduction

Knowledge management researchers and practitioners seeking a solid theoretical foundation for their work are likely to be challenged by the field's breadth and scarcity of universal frameworks. Even casual literature reviews reveal a myriad of approaches, definitions, theories and models; and there seems to be little consensus as to who is right. Understanding the subject and using its theory requires extensive reading and making critical choices.

Numerous authors have acknowledged the diversity, or variety, of knowledge management theory and perspectives. Aidemark (2009) refers to the "*diversity of the theoretical base*". Sheffield (2009) notes a range of perspectives, topics and disciplines involved in knowledge management research; and Vasconcelos (2008) talks about "*diverse foci*". Moteleb and Woodman (2007), Kane *et al.* (2006), Spender (2006), Metaxiotis *et al.* (2005), Patriotta (2004), Gray and Meister (2003), Bouthillier and Shearer (2002), Beckett *et al.* (2000), Newman and Conrad (1999) and McAdam and McCreedy (1999) similarly observe diversity.

Knowledge management remains an extraordinarily difficult concept to demarcate. Some see KM as an ill-defined term (Binney, 2001) with activities all over the map (Stewart, 2002). Others see it as a vague subject, difficult to clarify and delineate (Spender) and characterised by incoherent and unstructured theory (Land *et al.*, 2005). The term 'knowledge management' has enormous breadth of relevance (Spender) and can even be regarded as an irreconcilable collection of concepts and techniques (Hazlett *et al.*, 2005). Scale of efforts to define the subject is revealed by studies of KM frameworks like Sheffield, Heisig (2009), Eppler and Burkhard (2007), Metaxiotis *et al.* (2005) and Rubenstein-Montano *et al.* (2001). To paraphrase Rao (2005, p2), there is an alphabet soup of concepts falling under the KM umbrella.

Diversity may be natural according to van den Berg and Popescu (2005) and Despres and Chauvel (1999). Some feel it ought to be embraced (Spender), and may even be essential (Yoo and Ginsberg, 2003). On the other hand, diversity could be problematic (Dominguez *et al.*, 2003; Wilson, 2002), detrimental to research (Malhotra, 2005; Stewart, 2000) and lead to uncertainty as to how to implement theory (Wong and Aspinwall, 2005; Moffett *et al.,* 2002; Nielsen and Nielsen, 2001). Vasconcelos points to "*dilemmas introduced by different approaches to knowledge management*", and diversity may even lead to a collapse of the KM concept itself (Gray and Meister).

Practitioners may not be immune, with Aidemark asserting that; "*Different views in an organisation on knowledge management can be a source of problems and failed knowledge management projects*". It appears then that the questions posed by Hazlett *et al.* (p.968) remain unanswered and still relevant:

> "*Does the KM discourse consist of irreconcilable views derived from different disciplines or is there some synergy and compatibility present that can develop into a deep, rich theory? Is there any potential benefit in a more unitarist approach?*"

KM diversity therefore represents an interesting phenomenon and the purpose of this research was to understand it and the resultant implications for KM theory and practice.

## 2   What is knowledge management?

Knowledge management is a social construct; physical laws do not underpin its theory. It is an invented phenomenon following principles established by people, with boundaries erected by people, and researched and practiced within a human context. This proposition is supported by Kane *et al.*, Malhotra (2004), Schultze and Leidner (2002), Clarke and Rollo (2001) and Despres and Chauvel.

Knowledge management research and practice are not constrained by any paradigm (Newman and Conrad), bound to universally accepted understanding or theory, or controlled by any standards or legislation. There is no professional charter setting out principles to work or study by, nor is the field limited by any physical boundaries. No widespread call within research has forcibly challenged the inclusion of particular concepts into the domain. Researchers, practitioners and publishers have therefore freely embraced, invented, encouraged and contributed to diversity.

On the basis of its social construction, lack of boundaries and diversity of concepts, it is proposed that the term "knowledge management" can be applied to anything claiming the label. This position is weakly supported by arguments such as Dominguez *et al.* (2003) who find that practice conceives of KM in their own way, and by Collison and Parcell (2001) warning about KM being "*all things to all men*". This uncritical stance opens the door to theoretical and methodological complications, yet is necessary to initiate a frank and comprehensive examination whilst avoiding preconceived notions.

## 3    Researching diversity

A literature review reveals many knowledge management definitions and theories; with theory being regarded as any abstraction and generalisation of elements, their causal relationships, and any axioms and underlying principles. Particularly useful forms of theory are models and frameworks. Models "*give structure to experience. They bring together concepts to show relationships and represent complex situations*" (Morris, 1967). Frameworks explain a domain, define its elements, provide a set of guiding principles, provide a methodology of how to use it, and determine the domain's boundaries (Metaxiotis *et al.*; Rubenstein-Montano *et al.*).

Rather than synthesise understanding through a literature review, this research used inductive research logic to allow answers to the question "*what is knowledge management?*" to

emerge from the data. Qualitative techniques are suited to the socially constructed nature of the subject and the presentation of its theory as discourse in literature, and the content analysis method was used to systematically analyse literature in the discovery of concepts and trends.

A broad cross section of literature was sampled to ensure a wide net was cast over the subject. 1182 documents, consisting of journal papers, industry journal articles, conference papers and book chapters, published between 1998 and 2007 across 56 publications, were extracted from online sources and databases available to the researcher through the Athens academic portal. Any articles in these databases that included the phrase "knowledge management" in their title, keywords or relevant discussion were included in the analysis. Subsequent investigation reveals this sample of publications included 8 of the top ten and 11 of the top twenty KM journals as ranked by Serenko and Bontis (2009).

Theories, perspectives, concepts, frameworks, models and explanations were systematically discovered through analysis of text broken down into smaller chunks (Krippendorff, 2004; Snyman, 2001; Powell, 1997). *Emergent* rather than *a priori* coding was chosen; categories emerged from the data rather than being sought according to predetermined categories (Stemler, 2001). The size of sampling units and context units were not rigorously controlled but driven by the data itself; concepts were identified at the word level and meaning was derived from phrases, sentences and paragraphs. Emergent concepts were collated and consolidated into models using a mind-mapping tool.

## 4    Findings

Five broad areas were investigated; specific discussion of diversity, causes of this diversity, frameworks proposed in literature, discussion and claims of universal frameworks, and the focus of literature. Findings in these five areas were then

critically evaluated and an understanding of diversity and its implications then formulated.

### 4.1 Literature discussing diversity

Content analysis discovered diversity was mentioned in sixty-three articles in the sample. Diversity was referred to in several ways, including variety, broad relevance (Beckett *et al.*, 2000), a "*heterogeneous range of interests, perspectives and issues*" (Quintas *et al.*, 1997), "*a fragmented mosaic*" (Despres and Chauvel), and "*a vast and diversified body of literature*" (Patriotta). Knowledge management diversity may be defined as the ontological and epistemological variety of its theory, research and practice.

Twenty of the sixty-three articles describe diversity in sufficient detail to derive an understanding of the different areas in which KM diversity has been found. Seventeen broad categories were identified, are modelled in Figure 1, and each category contains a variety of sub-categories. For example, Hazlett *et al.* in referring to paradigms describe computational and organic paradigms in KM. This model explains the extent of diversity, and may be used to support the analysis of differences in theories, frameworks, models and even practices.
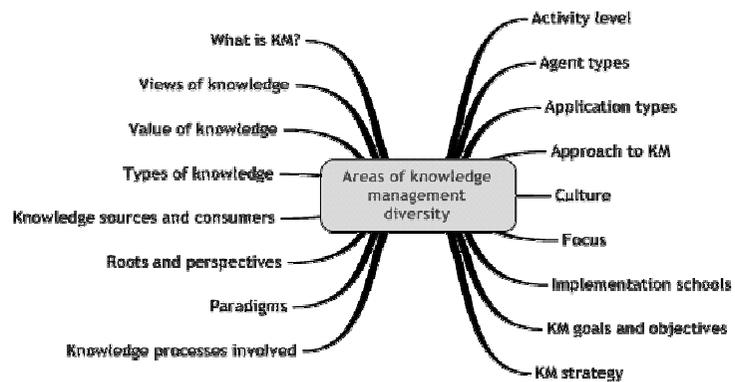


*Figure 1. Areas in which diversity has been found*

### 4.2 Literature discussing causes of diversity

A fine-grained content analysis of the literature discussing diversity discovered a number of causes. Discourse predominantly expressed opinion about causes, rather than explicitly reporting on research into them, so interpretation was relied upon. Codes were collected, and then thematically consolidated using a mind-mapping tool. Seven categories were derived, and the model of causes of diversity illustrated in Figure 3 below was produced.
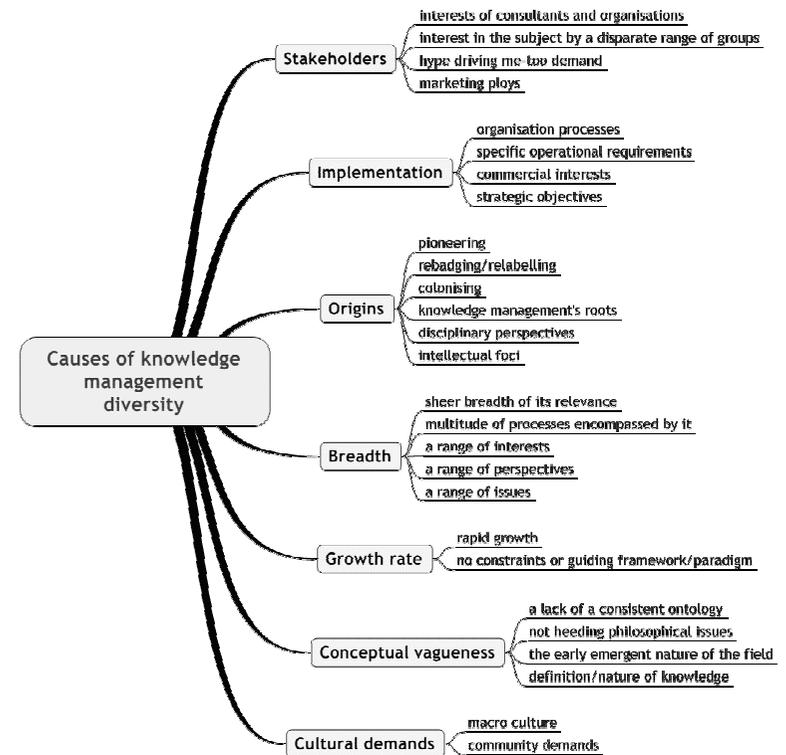


*Figure 3. Causes of diversity*

Two examples illustrate this interpretation of causes. The category of conceptual vagueness emerged from discussion by Despres and Chauvel who say; "*One part of the problem is so*

*basic as to stem from the definition of knowledge itself. Another is that this field offers neither the principles nor the models that anchor thinking and practice in any domain.*" Categories of breadth and origins were drawn from Moteleb and Woodman who say; "*Knowledge management, now a distinct domain of research and practice, has roots in many disciplines. As a result, a wide variety of philosophies, theories, and definitions of knowledge management are used in the literature, and in practice.*"

### 4.3 Literature describing frameworks
The sample yielded fifty-nine KM frameworks that meet Metaxiotis *et al.*'s and Rubenstein-Montano *et al.*'s criteria for frameworks (section 3 above). These were decomposed into their constituent dimensions, and the dimensions then consolidated and abstracted. This process produced twenty-four conceptual dimensions representing perspectives of and approaches to the subject, as illustrated in Figure 2 below. This model may be used to analyse the completeness or universality of frameworks, and to categorise knowledge management research and practice.
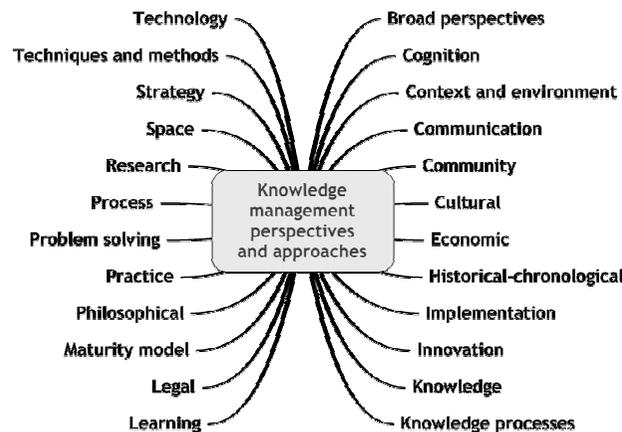


*Figure 2. KM perspectives and approaches*

### 4.4 Literature proposing universal frameworks
Universal frameworks refer to those that describe or encompass the entire breadth of the domain. Such frameworks are particularly useful in structuring and guiding research and practice. The search for suitable examples concentrated on finding frameworks that tacitly or explicitly claim to identify the domain's boundaries, and on comparing their dimensions with those in Figures 1 or 2. Numerous frameworks infer they define the boundaries of the domain, yet none explicitly includes all of the dimensions in either of the figures. Several abstract frameworks conceivably cover the diversity modelled, such as frameworks based on tacit-explicit models of knowledge; but the lack of detail inherent in such abstraction hides complexities in underlying theory, fails to explain or reveal gaps, and limits their usefulness as prescriptive foundations for research and practice.

Analysis also reveals inconsistencies between frameworks, with combinations of framework dimensions varying considerably. This tends to support arguments that knowledge management's conceptual underpinnings are incoherent, such as by Patriotta and Bouthillier and Shearer; and that knowledge management may be all things to all men. Many frameworks are also narrow interpretations, showing only a small range of the above figures' dimensions. Typical examples include technologically oriented frameworks.

Attempts were then made to synthesise a universal framework by configuring, consolidating and re-constituting all the dimensions in either Figures 1 or 2. Permutations, ranking and classification schema failed to produce a single coherent model that is neat and free of interpretation or focus. Single dimension models and frameworks cannot accurately describe the domain of knowledge management. Multi-dimensional frameworks are apt to be unwieldy, too abstract or view the subject from a particular perspective. Furthermore, all these attempts imposed artificial boundaries that would potentially limit or exclude concepts and creativity. Knowledge management could not be

packaged into the type of elegant model that is favoured by the management and information sciences.

### 4.5 Focus of KM literature

Analysis of the sample was extended to establish whether the above figures or frameworks in literature adequately encompass all the approaches, perspectives and concepts described by more general knowledge management literature, and whether theory is inclusive or aware of the diversity.

A course-grained content analysis was used to identify the primary topic discussed by each article. Emerging data was recorded and thematically grouped into categories. Categories were then classified as either theoretical issues, or those focused on the theory and nature of knowledge management; or as practical issues that are focused on how knowledge management is practiced. Data is presented in Appendix A and summarised categories presented in Chart 1 below.
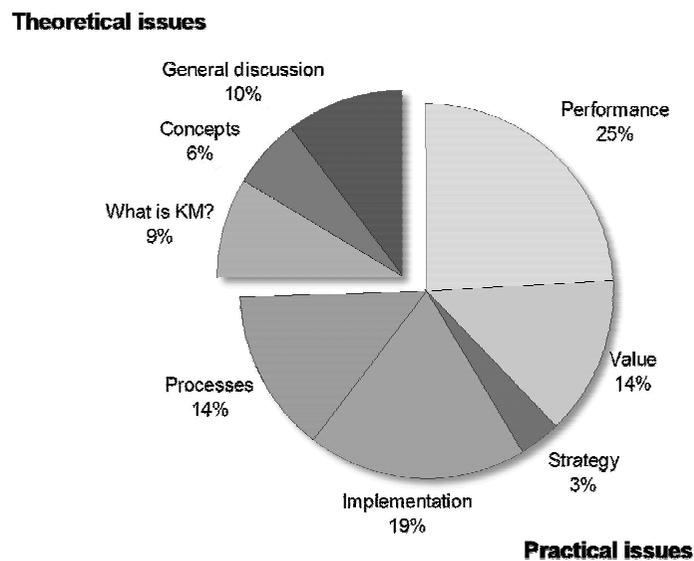


**Theoretical issues**

General discussion 10%
Concepts 6%
What is KM? 9%
Processes 14%
Implementation 19%
Performance 25%
Value 14%
Strategy 3%

**Practical issues**

*Chart 1: Primary focus of KM literature*

Findings show the focus of most KM literature is on implementation and practical issues. This is in contrast with frameworks that tend to focus on theoretical aspects. General literature also reveals a number of concepts and dimensions that are not included in frameworks or in the discussion of diversity. Some of these are not easily aligned with the dimensions of Figures 1 and 2; such as the variety of concepts in the '*performance*' category (Table 1, Appendix A).

## 5 Critical evaluation of findings

Findings describe generalised patterns that emerged during the course of making observations. These patterns represent inductively derived hypotheses that require substantiation before being promoted to theory. Rather than engage in a deductive confirmation of the hypotheses, this research chose to substantiate its findings through critical comparison with topical research publications by Aidemark, Heisig, Sheffield and Jafari *et al*. (2009).

Recently published reviews of the field confirm findings of diversity. Jafari *et al*. describe a range of frameworks and models for KM implementation, Aidemark uses the term 'diversity', Sheffield refers to the breadth of the field, and Heisig identifies 160 frameworks that show 29 different knowledge dichotomies (Table II, p.8) and a range of KM activities.

The number of frameworks found by this research is comparable to the 50+ frameworks discovered by Sheffield, and more than the numbers discovered by Jafari *et al*. and Aidemark. Heisig discovers almost three times as many. This is partially explained by the selection criteria used, and by this research focusing on academic literature from the period 1998 to 2007; whereas a comparable 71 of Heisig's 160 frameworks are derived from scientific literature and specialised conferences published in the period 1995 to 2003, and the remainder emanating from practitioner sources.

Logical inspection of the frameworks reveals no configuration that satisfactorily explains or predicts all research and practice diversity. Aidemark strengthens this in saying; "*The KM area contains numerous contradictions*". Few frameworks researched here show the pluralism that Sheffield regards as necessary for a KM framework, and with that study uncovering only 3 frameworks out of 50+ that meet that criterion. It is still possible that more extensive research could uncover a solution, as analysis has not included all frameworks examined by Heisig.

There may be commonality between frameworks at other levels, as indicated by Heisig's findings of an underlying consensus in KM activities and critical success factors. This research compared origin, type of framework, definitions of knowledge, KM activities and critical success factors. Heisig on the other hand examined underlying knowledge models, and found 42 of the frameworks underpinned by the "*implicit/tacit – explicit knowledge*" category of models. The apparent contradiction with this research may be countered by arguing that such underpinnings are quite abstract, can lead to overly general and ineffective frameworks, and do not necessarily constrain diversity in other areas.

Findings here of narrow and general frameworks are consistent with Heisig finding half of frameworks were hybrid in nature, and Sheffield finding pluralism.

Popular use of a framework may also be considered as a form of universality. Aidemark observes "*several attempts to bring some order into the different possibilities*" and proposes use of Earl (2001) as a common model. Sheffield finds several frameworks have achieved significant adoption, including Earl and Hansen *et al*.'s codification-personalisation model (1999). No framework can however claim to be universally agreed or used, and high citation counts are not necessarily indicative of comprehensiveness.

Research findings of diversity and its effects are further substantiated by an investigation into practice that was undertaken alongside this research. Knowledge management initiatives in four large national and multi-national organisations reveal that practitioners did not engage with, have the time to investigate, didn't know of, or have practical access to the broad spectrum of frameworks or diversity of theory. The social nature of KM and lack of well-publicised and universal frameworks meant practitioners freely adopted their own interpretation of the term 'knowledge management' and rely on narrow, often technological and off-the-shelf solutions. Diversity does lead to uncertainty and complications in practice; and observations of practice confirm the assertion that KM is anything claiming the label.

Methodologically, the use of *in-vivo* terminology and drawing of explicit concepts from the data wherever possible lends credibility to findings. A modicum of interpretation was however used in treatment of concepts displaying ambiguous or synonymous terminology, and abstraction and interpretation was applied. The data set may also be criticised on the basis that books were not well represented, and no recent (2008-2009) literature was included, although this research encountered many of the frameworks described by Aidemark, Heisig, Sheffield and Jafari *et al*. and found no indefensible contradictions.

## 6    Conclusions

Research into the diversity of knowledge management reveals much about the phenomenon of diversity and attendant implications for KM theory and practice.

Content analysis of a broad research sample of knowledge management literature finds that KM exhibits considerable diversity, or ontological and epistemological variety and breadth, in its theory. Diversity is greater than is appreciated by many researchers, supports assumptions that KM can be anything labelled as such, and is probably impossible to coherently

structure. The domain lacks a universal model or framework, or one that comprehensively and definitively demarcates the boundaries of the field of knowledge management theory and/or practice.

In the absence of a common model, in the presence of diversity, and given the difficulties in developing a unifying coherent model, the most feasible treatment of knowledge management is therefore as an umbrella term:

> *Knowledge management is an umbrella term encompassing multiple perspectives, approaches, theories, concepts, models, frameworks, solutions, tools and techniques that involve all types of knowledge and all knowledge activities.*

This viewpoint has appeared before. KM has been described as an "*integration of multiple perspectives*" (Wainwright, 2001), and "*an umbrella term under which many different disciplines can be grouped, all relating to the effective use of knowledge to meet business needs*" (Step Two Designs, 2008). The term '*umbrella*' has also been referred to by Wilson (2002) and Vasconcelos.

An umbrella is not a universal model; if anything it is the converse. An umbrella approach to the field recognises the diversity and positions its concepts and research within that, but does not attempt to model it. Treating knowledge management as an umbrella will not help establish boundaries or define an inherent structure and underpinning theory. Rather, in accepting the incoherence and vagueness, an umbrella approach would help the field through promoting a particular mindset and awareness. An umbrella approach would discourage an ongoing trend of research that produces single and multi-dimensional models that clearly fail to demarcate the domain's boundaries, limit value-laden definitions, dissuade narrow approaches, encourage researchers to clearly identify their positions or perspectives within the context of diversity, and underline the absence of a commonly agreed understanding of the subject.

Ultimately an umbrella approach is seen as the only way to bring consensus.

## 7    Recommendations

It is conceivable that the apparent limitations of an umbrella approach and lack of explicit theory may not be as challenging as may first be expected. Project management lacks explicit theory (Koskela and Howell, 2002), and yet that discipline has managed to crystallise its research and practice around what amounts to an umbrella approach – the body of knowledge. Rather than basing the discipline on universal theoretical models, project management research and practice is integrated into formal and widely accepted bodies of knowledge such as the PMBOK (PMI, 2008). These bodies are framed by methodologies or project lifecycles, and emerging theory often clearly positions itself within that body or methodology. Practitioners adopting the methodology can rapidly locate relevant material to inform their practice.

It is recommended that knowledge management research and practice abandon the search for a unifying theory, and focus instead on treating the subject as an umbrella term. A new method will be required to facilitate this approach. One option lies in a knowledge management body of knowledge (KMBOK). This has already been called for by McFarlane (2008) and is consistent with the solution arrived at by project management. A KMBOK would require the field to agree on an underlying methodology or model, and several options may be suitable. One pragmatic route is offered by a lifecycle, such as the implementation phases of a KM initiative as proposed by Rubenstein-Montano *et al*. Another may be a functional approach structured around knowledge processes, such as the SECI model (Nonaka and Takeuchi, 1995) or the underpinning commonalities found by Heisig. Application centric models that show which tools and techniques to apply in a particular situation may also be used, like the RICE model (Curley and Kivowitz, 2001).

These recommendations may be criticised as being of more value to practice than research, but it is worth considering whether a pragmatic model underpinning a body of knowledge would really hinder research - or whether it would help it become more relevant and coherent in a way that no theoretical model has yet been able to do.

## 8    Acknowledgements

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## 10  Appendix A: Focus of KM literature

| Category and focus | No. papers | % |
|---|---|---|
| **Performance** | **287** | **24.2%** |
| General performance issues | 36 | 3.0% |
| Factors | 167 | 14.1% |
| Failure of KM | 26 | 2.2% |
| Measurement of KM performance | 21 | 1.8% |
| IT and Technology | 18 | 1.5% |
| Focus of KM | 12 | 1.0% |
| Governance | 4 | 0.3% |
| Improving people | 2 | 0.2% |
| Quality | 1 | 0.1% |
| **Value** | **161** | **13.6%** |
| General value and KM | 49 | 4.1% |
| Competitive advantage | 29 | 2.5% |
| Measurement | 24 | 2.0% |
| Human capital | 1 | 0.1% |
| Knowledge economy | 29 | 2.5% |
| Intellectual capital | 24 | 2.0% |
| Intellectual property | 5 | 0.4% |
| **Strategy** | **40** | **3.4%** |
| KM strategy and architecture | 40 | 3.4% |
| **Implementation** | **222** | **18.8%** |
| General tools and techniques | 19 | 1.6% |
| Business intelligence | 9 | 0.8% |
| K audit | 8 | 0.7% |
| Content management | 6 | 0.5% |
| Libraries | 5 | 0.4% |
| Space | 5 | 0.4% |
| KM technology | 36 | 3.0% |
| Ontologies and taxonomies | 25 | 2.1% |
| K mapping | 17 | 1.4% |
| Communities of practice | 12 | 1.0% |
| Best practices | 1 | 0.1% |
| Thesauri | 1 | 0.1% |
| General KM implementation | 54 | 4.6% |
| Cases and applications | 24 | 2.1% |
| **Processes** | **171** | **14.5%** |
| General processes | 35 | 3.0% |
| K sharing and transfer | 71 | 6.0% |
| K work | 5 | 0.4% |
| K networks | 25 | 2.1% |
| K creation and acquisition | 20 | 1.7% |
| Codification | 2 | 0.2% |
| K retention | 12 | 1.0% |
| Information seeking | 1 | 0.1% |
| **What is KM** | **106** | **9.0%** |
| Theory of KM | 41 | 3.5% |
| What is KM? | 63 | 5.3% |
| KM history | 1 | 0.1% |
| KM as a discipline | 1 | 0.1% |
| **Concepts** | **72** | **6.1%** |
| KM concepts | 25 | 2.1% |
| Learning organisation | 20 | 1.7% |
| Culture and KM | 11 | 0.9% |
| Personal KM | 9 | 0.8% |
| Roles | 7 | 0.6% |
| **General** | **123** | **10.3%** |
| General KM | 122 | 10.3% |
| Ways to research KM | 1 | 0.1% |
| **TOTAL** | **1182** | **100%** |

*Table 1: Primary focus of KM literature*