A Synthesis of Knowledge Management Failure Factors

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Abstract

Knowledge management (KM) was once a very popular buzzword. However, failure of KM projects contributed to its drop in popularity. This paper aims to synthesise and organise the failure factors that have been discussed in KM literature since the discipline began to gain popularity in the late 90s.

The failure factors are organised into two broad categories: causal and resultant. Causal factors refer to the broad organisational and managerial issues that are required to implement KM successfully. Resultant factors on the other hand deal with specific problems and can be regarded more like the symptoms rather than the disease.

The following failure factors are identified and discussed in the paper:

Causal Failure Factors:

1. Lack of performance indicators and measurable benefits
2. Inadequate management support
3. Improper planning, design, coordination, and evaluation
4. Inadequate skill of knowledge managers and workers
5. Problems with organisational culture
6. Improper organisational structure

Resultant Failure Factors:

1. Lack of widespread contribution
2. Lack of relevance, quality, and usability
3. Overemphasis on formal learning, systematisation, and determinant needs
4. Improper implementation of technology
5. Improper budgeting and excessive costs
6. Lack of responsibility and ownership
7. Loss of knowledge from staff defection and retirement

In the conclusion, it is suggested that further research is needed to improve our understanding of the cause and effect between different failure factors, as well as to identify relationships between these factors and specific operating environments.

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Introduction

The story of knowledge management (KM) can hardly be characterised as a smooth ride. The term exploded in popularity in the late 90s and early 2000s, becoming one of the main buzzwords of the time. Then, as with most buzzwords, the lofty promises and general euphoria began to be eclipsed by the reality that KM initiatives often resulted in outright failure. Some researchers indicate that the failure rate is 50%, but this number could be even higher if failure is defined more broadly so as to include all projects that did not live up to their expectations (Akhavan, Jafari, and Fathian, 2005: 1).

To illustrate the drop in popularity, have a look at the Google Trends graph depicting the relative number of searches for the term "knowledge management" since 2004.

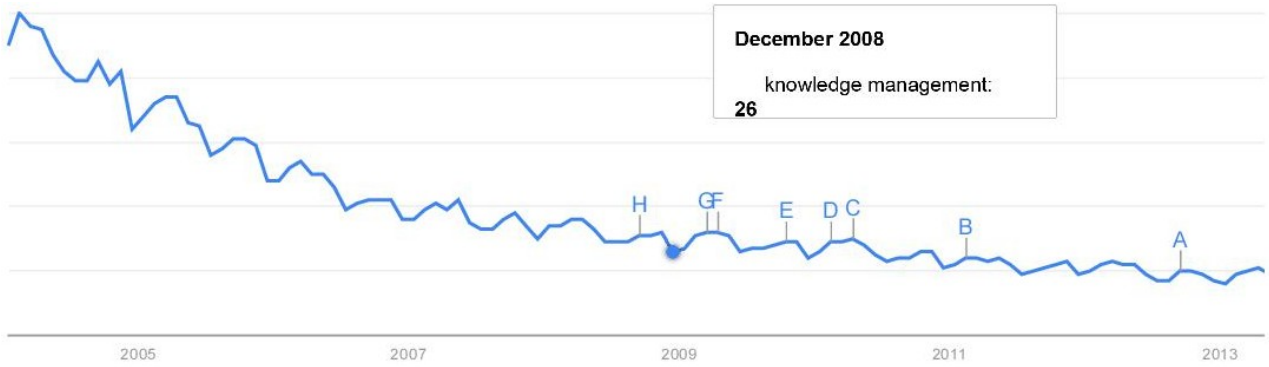

Figure 1 (Google Trends™): Representation of the relative popularity of "knowledge management" as a search term from 2004 to present. Google and the Google logo are registered trademarks of Google Inc., used with permission. Accessed January 2014.

So, what are the reasons for these KM failures? In this article I will discuss this question by reviewing the lessons we have learned over the last 15 years or so. The purpose of this paper is not to show that KM is a dead or dying discipline, nor is it to deter companies from implementing a KM programme; rather it is to bring to light the most common problems that may be encountered, in the hope of increasing the success rate of future endeavours.

Before proceeding, I will offer two key definitions for the sake of clarity:

Knowledge (Davenport and Prusak, 2000: 5): "Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms."

Knowledge management (Skyrme, 2011b): "Knowledge Management is the *explicit* and *systematic* management of *vital knowledge* - and its associated *processes* of creation, organisation, diffusion, use and exploitation - in pursuit of business objectives."

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It is important to note that the very issue of defining KM (and often simply of defining knowledge) can be a great source of confusion. What is knowledge or knowledge management to one person may be information or information management to another. Similarly, the breadth of the KM discipline is also debatable. To read more about this, please see the article titled Lack of a Universal Definition.

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Knowledge Management Failure Factors: Lessons from History

KM failures and successes have been a topic of research and debate for many years. Based on this prior body of knowledge, I have defined two general categories of failure factors: causal and resultant.

Causal factors refer to broad organisational and managerial issues necessary for the successful implementation of KM. They are by definition rather general and theoretical. However, an understanding of the overall causal factors would provide a solid foundation upon which to approach any KM initiative or to troubleshoot any emerging problem.

Each causal factor can lead to a number of possible failure factors within KM implementation. In this article, I have synthesised the most common of these into seven "resultant failure factors".

Please note that the resultant failure factors do not necessarily correspond to one single causal factor. Similarly, complex relationships may exist between several of these factors, which I have not attempted to capture, e.g. budget problems, which may result from poor planning or leadership, will in turn affect other factors such as technology development (Anantatmula and Kanungo, 2007: 6). Furthermore, due to this interrelatedness, there will occasionally be a small degree of overlap between various factors.

The categories are as follows:

Causal Failure Factors:

1. Lack of performance indicators and measurable benefits
2. Inadequate management support
3. Improper planning, design, coordination, and evaluation
4. Inadequate skill of knowledge managers and workers
5. Problems with organisational culture
6. Improper organisational structure

Resultant Failure Factors:

1. Lack of widespread contribution
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Causal Failure Factors

1. Lack of Performance Indicators and Measurable Benefits

The ability to determine whether a project or initiative is succeeding or failing and whether it is a worthwhile endeavour for the organisation is crucial for its long-term success. Performance indicators are therefore required so as to assess progress, devise improvements, and compare one's own situation to that of a different organisation (Wu et al, 2010: 272). KM must be linked to economics, meaning that its value must be made apparent (Botha, Kourie, and Snyman, 2008: 57).

Although performance indicators are not always listed among the top failure reasons, I have chosen to outline them first since they influence several other causal factors, including management support and the ability to plan and evaluate.

The effect of KM is notoriously difficult to evaluate, particularly in monetary terms. The intangible nature of knowledge (Ahn and Chang, 2004: 403) and the fact that value creation is often indirect and long term (Carlucci et al, 2004: 577) makes such an assessment very difficult. Yet performance indicators are crucial for management to continue investing in KM (Wu et al, 2010: 272). In their study, Heaidari, Moghimi, and Khanifar (2011: 71) found strong support for performance measurement as a KM success factor.

2. Inadequate Management Support

The dependence of successful KM initiatives on management backing is something that has been discussed extensively in the past (Davenport, De Long, and Beer, 1998; Chong and Choi, 2005; Wu et al, 2010, Heaidari, Moghimi, and Khanifar, 2011; Yazdani, Yaghoubi, and Hajiabadi, 2011; Danesh et al, 2012), and similarly, so has failure as a consequence of inadequate management support (Akhavan, Jafari, and Fathian, 2005; Chua and Lam, 2005; Singh and Kant, 2008; Weber, 2007; Pettersson, 2009).

The implementation of a KM programme involves the creation, acceptance, and adoption of processes, values, and systems that are either company-wide or in the very least span across functions, departments, and communities. The implementation and long term success of such far-reaching changes require top and central management backing, both from the perspective of resource and political support but also to ensure day-to-day acceptance of such measures.

There are several reasons as to why sustained management support is necessary:

Leadership, acceptance, and responsibility: KM requires strong guidance, decision-making, change implementation, and so on. KM efforts require a clear vision (Singh and Kant, 2008: 143; Botha, Kourie, and Snyman, 2008: 57), and the example set by management, as well as their policies, serve as a way to legitimise KM and highlight its importance in the organisation (Wu et al., 2010: 262; Tan, 2011: 77). The importance of top management backing has been supported in several studies (Heaidari, Moghimi, and Khanifar, 2011; Khalifa and Jamaluddin, 2012; Danesh et

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al, 2012). Additionally, Chua and Lam (2005: 12) point to the need for conflict management to resolve issues between stakeholders.

Finally, there is the issue of management responsibility, with Weber (2007: 335) pointing to the lack of enforcement of such responsibilities and Pettersson (2009: 1742) citing a lack central management responsibility as failure factors.

Support: Failure can occur due to a lack of leadership support in the organisation (Disterer, 2001 in Weber, 2007: 334) as well as when KM is used as a political instrument to gain power (Chua and Lam, 2005: 12). Furthermore, it is important that the support is long-term, since management commitment to KM can at times wane when the first problems begin to appear (Chua and Lam, 2005: 12).

Motivational incentives & punishments: Reward and punishment standards that enforce appropriate behaviour need to be set by management (Wu et al, 2010: 263). The extent to which these are useful and how prominent the punishment aspect should be are both highly debated topics. However, for the purpose of this paper, it is enough to say that "non-trivial motivational aids" are necessary (Botha, Kourie, and Snyman, 2008: 57).

Resource allocation: Management must provide the resources necessary for KM implementation. KM requires a great deal of financial, human, and material resources; this includes the assignment of competent professionals and a sufficient budget (Wu et al, 2010: 262). It also includes any resources needed for motivational support.

As one can see, although all levels of management play a role, failure hinges particularly on top management. Leadership, resources, planning, politics, and general long-term commitment are all necessary components for a properly implemented KM programme.

So why does this happen? There are several general areas that have been highlighted in KM literature:

- **Lack of understanding:** Includes the lack of understanding of the benefits of knowledge sharing (Nonaka and Konno, 1998 in Weber, 2007: 334) or the lack of understanding of the complexity and requirements of KM (Akhavan, Jafari, and Fathian, 2005: 6). Another potential problem might stem from the lack of a common understanding of what KM actually is, as discussed in an earlier section.
- **Lack of performance indicators and ability to calculate ROI:** See causal factor 1 above. Suffice it to say, that without solid performance indicators it is extremely difficult for management to continue investing in KM (Wu et al, 2010: 272).
- **Political manoeuvring:** Sometimes the KM project may be used as a means of gaining power within the organisation (Chua and Lam, 2005: 12). Alternatively, the struggle for power within the organisation may directly conflict with some of the basic premises of KM – e.g. sharing knowledge freely and improving the organisation in ways that are not always easily linked to specific people or job functions (Guptara, 1999: 26).
- **Lack of time:** Sometimes, managers simply do not have the time that it takes to properly implement and manage KM efforts. This may be particularly true for companies which emphasise leanness (Guptara, 1999: 26).

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3. Improper Planning, Design, Coordination, and Evaluation

Successful KM implementation depends upon the integration of many different aspects of an organisation. Waltz (2003: 102) indicates that "KM provides a strategy and organisational discipline for the integration of people, processes, and IT into an effective enterprise."

Proper planning and continuous evaluation are needed to ensure that all aspects of KM are being implemented effectively and work well together. Moreover, the implementation of KM needs to be focused on the organisation's strategic business objectives and critical business problems (Fontaine and Lesser, 2002: 1). In other words, the implementation of KM requires a long-term and practical outlook.

In their case study, Yaghoubi and Maleki (2012: 12028) found the architecture of KM and overall strategy to be two of the most important success factors. Danesh et al. (2012: 3894) found a positive correlation between operation control & evaluation and project knowledge management effectiveness.

The ability to evaluate progress depends on having good performance indicators (discussed in causal factor 1). Without these, it becomes extremely difficult for management to track the effectiveness of the program. Therefore, very broadly, inadequate evaluation can result either from a lack of ability, due to the absence of solid performance indicators (Wu et al, 2010: 272), or alternatively, due to a lack of a systemised approach during the implementation of the KM initiative (Chua and Lam, 2005: 13; Pettersson, 2009: 1742).

From the above, we can infer that planning and evaluation are crucial for:

- Setting goals and delegating responsibility.
- Integrating the different KM enablers into a KM strategy.
- Aligning the KM strategy to the overall organisational strategy.
- Improving KM effectiveness at the project level.
- Anticipating/detecting problems.
- Determining successes/failures.
- Forecasting costs and determining budgets.
- Implementing corrective measures.

However, there is no specific formula for the implementation of KM, and each organisation should tailor its methodology to its specific situation (Singh and Kant, 2008: 143).

4. Inadequate Skill of Knowledge Managers and Workers

Knowledge managers and knowledge workers comprise the entire spectrum of KM-related positions, and may include such titles/roles as Chief Knowledge Officer (CKO), knowledge broker (Dalkir, 2005: 34), knowledge analyst (Skyrme, 2011c), knowledge systems engineer (Civilian Career Path Guide, 2002: 37), etc.

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The skills required of knowledge managers and knowledge workers can be broken down into the following broad categories (KM Skills Map, 2000):

- Strategic and Business Skills
- Management Skills
- Intellectual and Learning Skills
- Communication and Interpersonal Skills
- Information Management Skills
- IT skills

The skill requirements for a knowledge manager / worker could vary drastically depending on his specific areas of responsibility. For instance, a CKO would require very strong strategy and business skills, as well as management, learning, and communication (KM Skills Map, 2000). The CKO would not need to be as strong in IT skills as, for example, a systems engineer in charge of developing a knowledge management system.

KM is likely to fail if there is a:

Lack of availability of relevant skills: The right business and technical skills must be present to sustain the project (Chua and Lam, 2005: 12). Skills can also be developed through training, providing that this is implemented with clear, measurable goals (Wu et al, 2010: 271).

Improper selection of knowledge managers (Akhavan, Jafari, and Fathian, 2005: 6). I.e. the skills must correspond to the role that the individual knowledge manager or worker will play within the KM initiative. Al-Hakim and Hassan (2011: 87) stress the importance of the middle manager, highlighting three key qualities: analytic, intuitive, and pragmatic.

5. Problems with Organisational Culture

The presence of an appropriate organisational culture is almost universally accepted as one of the key aspects of successful KM implementation (Bukowitz and Williams, 1999; Davenport and Prusak, 2000; Gamble and Blackwell, 2001; Botha, Kourie, and Snyman, 2008; Wellman 2009; Heaidari, Moghimi, and Khanifar, 2011; Yaghoubi and Maleki, 2012; Danesh et al. 2012). Organisational culture consists of the values and beliefs of its members as well as of artefacts, e.g. symbols, events, behaviours, etc. (Dalkir, 2005: 179). According to the author, culture persists through social interaction and is communicated through a shared language or "jargon".

Culture plays a critical role in the willingness of organisational members to share knowledge since it affects:

- Trust (Davenport and Prusak, 2000: 31). The authors link trust to the three motivators for knowledge sharing: reciprocity (i.e. the trust that knowledge shared today will have a return in the present or future), repute, and altruism.
- The willingness to accept knowledge from others, without it being perceived as a personal deficiency (Chua and Lam, 2005: 12).
- The willingness and ability to learn on an individual, group, and organisational level (Wu et al, 2010: 272).

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- The support of informal communication, mistake tolerance, positive project culture, and senior management commitment (Danesh et al, 2012: 3894).
- Openness to change (Weber, 2007: 336).
- The desire and ability to experiment, learn, and innovate (Skyrme, 2011a).
- The willingness to be open and honest and to admit mistakes (Pettersson, 2009: 1742).
- Management of business processes and reaction to external changes (Wu et al, 2010: 268).

Culture can vary on an organisational or community level. Since knowledge management initiatives span functions and departments, an understanding of all the facets of an organisation's culture is critical. The process of changing culture is particularly difficult due to the fact that it is history dependent and used as a socialising mechanism for new organisational members (Beitler, 2005). It also reaffirms itself, since cultural misfits are less likely to be recruited in the organisation or promoted to a higher position (Gamble and Blackwell, 2001: 93-94). However, the management of culture is essential for successful implementation of KM.

6. Improper Organisational Structure

The structure of the organisation plays an important role in determining how power is distributed, how decisions are made, the degree of "freedom" in the company, and the barriers between different groups and individuals. Organisational structure therefore strongly influences the ability and willingness of people and communities to share and create knowledge, and it also determines how the KM programme is actually managed. Organisational structure has been listed by numerous authors as an important element in the implementation of KM (Guptara, 1999; Lee and Choi, 2000; Davenport and Vopel, 2001; Singh and Kant, 2008; Wu et al, 2010, Tan, 2011; Yazdani, Yaghoubi, and Hajiabadi, 2011).

Wu et al, (2010: 265) identify three dimensions of organisational structure: centralisation, formalisation, and complexity.

Centralisation: The degree to which decision making is centralised. In highly centralised organisations, decisions are made by few managers at the top of the organisation. This puts a heavy demand on the cognitive capacity of these managers (Fredrickson, 1986 in Mukherji et al, 2004: 185). Various authors have identified decentralised structures as being more suited for KM (Lee and Choi, 2000; Claver-Cortés, Zaragoza-Sáez, and Pertusa-Ortega, 2007; Chen and Huang, 2007; Yazdani, Yaghoubi, and Hajiabadi, 2011).

Formalisation: The extent to which behaviours in an organisation are governed by rules, policies, and so on (Wu et al, 2010: 265). Conversely, it can be the degree to which informal networks are discouraged, tolerated, or encouraged within the organisation. These aspects are closely linked to what Brown and Duguid (1991) call canonical and non-canonical practice, where the former refers to adherence to formal rules and procedures, while the latter refers to the informal routines that are the true source of problem-solving and innovation. In general, rigid, formal structures are regarded as being detrimental to KM (Guptara, 1999: 26; Singh and Kant 2008: 143; Yazdani, Yaghoubi, and Hajiabadi, 2011: 105).

Complexity: This is "the condition of being composed of many, usually, though not necessarily, interrelated parts" (Mukherji et al., 2004: 185). Companies are usually divided by function, region,

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business unit, or division, and this tends to hinder KM because each of these is usually worried about its own bottom line (Guptara, 1999: 26). Simpler structures make it easier for KM to be implemented (Tan, 2011). The complexity of the organisational structure also affects how it must be managed and what managerial roles are necessary to effectively implement KM.

There is no specific formula regarding organisational structure. However, there is no question that structure influences KM on many levels, and an improper structure can lead to a variety of problems with knowledge sharing, organisational learning, effective decision-making, effective management of KM initiatives, and so on.

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Resultant Failure Factors

1. Lack of Widespread Contribution

Lack of contribution from members/stakeholders of the organisation has been listed as a failure factor by several authors, albeit in different ways.

The available theory can be organised into three general categories:

1. Lack of contribution because stakeholders were not asked/encouraged to contribute.
2. Lack of contribution because stakeholders were unable to contribute.
3. Lack of contribution because stakeholders were unwilling to contribute.

"Contribution" in this case refers to *adding* knowledge to KM processes/systems or *improving* KM initiatives. Issues concerning the lack of *use* of the knowledge are dealt with under resultant factor 2.

Lack of contribution because stakeholders were not asked/encouraged to contribute:
Weber (2007: 334) indicates that KM initiatives risk failure when they are designed without input from all the organisation's stakeholders, pointing to the importance of community processes and organisational culture. Yip, Ng, and Lau (2012: 264) found that employee contribution raised the perceived benefits of KM. Other recent studies have also correlated employee contribution to KM success (Heaidari, Moghimi, and Khanifar, 2011; Yazdani, Yaghoubi, and Hajiabadi, 2011).

Finally, Fontaine and Lesser (2002: 3) list the limitation of KM activities to organisational boundaries as a failure factor since this ignores valuable external sources such as customers.

Lack of contribution because stakeholders were unable to contribute:
A lack of involvement can also occur when organisational members are unable to contribute with their knowledge. Chua and Lam (2005: 12) present a case where valuable knowledge remained untapped because of ineffective means of extracting it from discussions. Ölçer (2007: 260) lists 27 barriers to KM, the third highest of which is a lack of contact between employees to the detriment of knowledge sharing. Weber (2007:334) points to inadequate technology as another failure factor that may impose limitations on how users can share their knowledge (more on this under resultant factor 4).

Lack of contribution because stakeholders where unwilling to contribute: Probably the most important failure factor is the lack of willingness of users to contribute to the KM efforts. As discussed earlier, knowledge sharing depends on organisational culture and its ability to foster reciprocity, openness, and trust. Several authors have discussed the factors leading to a lack of willingness to contribute:

- Weber (2007: 334) found that KM initiatives can fail when organisational members fear the consequences of their contributions. For example, they may fear criticism or they may see the knowledge itself as a means of obtaining influence (Disterer 2001 in Weber 2007: 334).
- Weber (2007: 335) found that KM initiatives can fail when there is no perceived value to contributing.

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- Akhavan, Jafari, and Fathian (2005: 6) found that resistance to change was a major impediment in the implementation of knowledge management systems.
- Wu et al (2010: 270) discuss how peer collaboration and open communication are dependent on organisational culture.
- Lee and Choi (2000: 226) found knowledge creation to be dependent on trust.
- Chua and Lam (2005: 12) and Ölçer (2007: 260) found the lack of willingness to share knowledge to be an important failure factor. This is a problem when knowledge is regarded as a source of power Ölçer (2007: 260) or when a corporate culture places value on individual genius rather than collective work (Dalkir, 2005: 133).
- Chua and Lam (2005: 12) found that in some cultures individuals may perceive accessing another member's knowledge as a sign of inadequacy.

2. Lack of Relevance, Quality, and Usability

The previous point dealt with the lack of contribution of stakeholders. This section deals with problems associated with using the resulting knowledge and knowledge repositories. However, accessibility issues related to technology are dealt with under resultant factor 4.

There are essentially three potential problems pertaining to relevance, quality, and usability:

1. When KM is not aligned to the organisational strategy.
2. When knowledge is not relevant to the user.
3. When knowledge is hard to understand or apply.

Lack of alignment to organisational strategy: To begin with, I would like to point the user once again to the knowledge management definition used in this article. There are two aspects of this definition that are crucial here, namely "vital knowledge" and "in pursuit of business objectives", both of which imply knowledge that is useful and critical for the organisation's success. No matter how well implemented a KM project is, if it fails to provide knowledge that fulfils these criteria, it will likely be deemed a failure.

Fontaine and Lesser (2002: 1) list failure to align KM to strategic objectives as a failure factor. They claim that this occurs, the organisation may waste resources on unimportant projects while neglecting key requirements.

When knowledge is not relevant to the user: The issue of relevance and/or refinement of knowledge and information is perhaps one of the most prevalent failure factors, and one which has been addressed by numerous authors (Fontaine and Lesser, 2002; Chua and Lam, 2005; Weber, 2007; Pettersson, 2009, Yazdani, Yaghoubi, and Hajiabadi, 2011).

Fontaine and Lesser (2002: 2) point to the lack of content management as a failure factor in KM, which leads to an overload of outdated content. Contextualisation and currency are also presented as a failure factor by Chua and Lam (2005: 12). Weber (2007: 335) links failure to a lack of monitoring of knowledge quality and goes on to mention that contributors must be aware of the specificity of when knowledge is worth transferring, so as to avoid sharing useless knowledge or not sharing at all.

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More generally, failure can occur due to a lack of connection between knowledge/information and the needs/work of individuals (Fontaine and Lesser, 2002: 2; Pettersson, 2009: 1742). Continuous evaluation and refinement of knowledge is therefore required (Yazdani, Yaghoubi, and Hajiabadi, 2011: 114). Khalifa and Jamaluddin (2012: 163) also correlated knowledge audits with successful KM implementation.

When knowledge is hard to understand or access: Sometimes relevant knowledge can be hard to understand, apply, or access. Chua and Lam (2005: 12) found one of the failure factors to be improperly structure content, which made it difficult for the practitioner to use and apply the knowledge. Ölçer (2007: 260) found that four of the greatest barriers to KM were the inability to use information, the inability to interpret information, the lack of contact between employees for the purpose of knowledge sharing, and the inability to access knowledge. Similarly, Weber (2007: 334) talks of failure due to problems with knowledge transfer. These problems include both the context specific nature of knowledge - i.e. the difficulty for a different user to understand how to apply knowledge in a different circumstance - as well as problems with the second user's absorptive capacity.

3. Overemphasis on Formal Learning, Systematisation, and Determinant Needs

The problem is that the implementation of KM is often dominated by two camps, HR and IT, both of which strive to build tools for navigating knowledge in a systemised way, and both of which try to make knowledge searchable, retrievable, and replicable (Jackson and Williamson, 2011: 57). Fontaine and Lesser (2002:2) warn that over-emphasis on formal learning is a failure factor. They indicate that the majority of learning is informal and thus advocate an approach emphasising mentoring and communities of practice.

Jackson and Williamson (2011: 61) explain that a "fully systematized approach to knowledge management cannot materialize knowledge as a strategic asset... because it fails to satisfy the unanticipated, indeterminate needs that can only be met through communicative practices." These practices, which often become neglected or marginalised, create knowledge assets that are inimitable and non-substitutable, and which therefore are the source of strong competitive advantage (Jackson and Williamson, 2011: 66).

So, while the use of both strategies will yield advantages relative to focusing on just one (Storey and Kahn, 2010: 406), it is important that the pursuit of formal learning and systematisation does not stifle informal learning and indeterminate needs, as indicated by the authors above.

4. Improper Implementation of Technology

Technology has always been a rather tricky issue within KM, and it routinely appears as a key component (e.g. Gamble and Blackwell, 2001; Waltz, 2003; Botha, Kourie, and Snyman, 2008), as a success factor in several recent studies (Altaher, 2010; Allameh, Zare, and Davoodi, 2011; Heaidari, Moghimi, and Khanifar, 2011; Yaghoubi1 and Maleki, 2012), and as a potential failure factor (Benassi, Bouquet, and Cuel, 2003; Chua and Lam, 2005; Weber, 2007; Singh and Kant, 2008).

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There are three general problems that an organisation may encounter when implementing a knowledge management system (KMS):

1. Poor performance.
2. Poor fit with organisational processes and culture.
3. Over-reliance on technology.

Poor performance and acceptance: Problems related to KMS performance include: poor technical infrastructure (Chua and Lam, 2005: 12; Singh and Kant, 2008: 143), poor representation of knowledge (Benassi, Bouquet, and Cuel, 2003), and poor usability (Chua and Lam, 2005: 12). In other words, failure can occur due to IT systems that can either not handle the demand placed on them, that represent knowledge in a way that does not meet the needs of its users, or that are not user-friendly.

Poor fit with organisational processes and culture: Achieving organisational goals depends upon organisational processes, and therefore, failure will occur if KMS are not integrated with said processes (Weber, 2007:334). Benassi, Bouquet, and Cuel (2003) argue that the technological architectures must be compatible with the organisational model. According to the authors, failure can occur when a decentralised technology infrastructure is combined with a centralised organisational model or vice versa.

Furthermore, organisational culture plays a role in determining whether or not the system is accepted by members of the organisation (Gamble and Blackwell, 2001: 177; Hecht et al, 2011). The IT infrastructure plays a key role in KM, but it is not a solution in itself; it requires a pre-existing knowledge-sharing culture (Milovanovic, 2011).

Over-reliance on technology: Technology plays an important but limited role in KM, particularly when dealing with tacit knowledge. Chua and Lam (2005: 12) found that an over-emphasis on KMS led to a neglect of tacit knowledge. Botha, Kourie, and Snyman (2008: 132) warn that tacit knowledge is still best transmitted from person to person and "the more tacit the knowledge, the less high-tech the solution". The authors (2008: 124) also point out that although IT is an enabler of KM, it is not sufficient by itself.

The idea is that failure is likely to occur when the IT system is seen as a solution in itself. Moreover, failure can also occur if the limitations of the IT systems, particularly in regards to tacit knowledge, are not well understood. Weber (2007: 336) summarises this nicely by saying: "KM approaches should adopt technology only when it is suitable for a task."

5. Improper Budgeting and Excessive Costs

Successful KM requires adequate financing as well as sound financial management (Goodluck, 2011: 3). Appropriate or inappropriate budgeting depends on leadership and management support (Anantatmula and Kanungo, 2007: 6). Budgeting in turn affects the ability to develop technology (Anantatmula and Kanungo, 2007: 6) and encourages accountability (Goodluck, 2011: 8). However, traditional "negative" accountability and centralised budgets may be inappropriate in decentralised organisations and unstructured environments (Ballart and Zappico, 2005: 7).

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Resource- and budget-related failure factors include:

- Inappropriate method or lack of budgeting (Ballart and Zapico, 2005; Goodluck, 2011).
- Excessive cost of KM implementation (Chua and Lam, 2005: 12).
- Lack of a separate budget (Akhavan, Jafari, and Fathian, 2005: 6).
- Maintenance cost of KMS (Chua and Lam, 2005: 12).

6. Lack of Responsibility and Ownership

Without the enforcement of managerial responsibilities, an organisation may end up with no control of the shared or reused knowledge (Weber, 2007: 335). Various authors and studies have emphasised different managerial levels, with Pettersson (2009: 1742) pointing to the need for central management responsibility, Hasanali (2002: 2) emphasising the role of stewards present throughout the organisation and acting below the central KM team, and Weber (2007) as well as Rajender and Kumar (2012) who discuss managerial responsibilities at all levels. Structure and responsibility is another factor that affects accountability (Hasanali, 2002: 2-3).

The other aspect of this failure factor is the lack of ownership. Ownership in this case refers both to owning mistakes and also to the willingness to take up tasks proactively. Singh and Kant (2008: 144) identified the lack of willingness to assume responsibility among employees as a KM barrier, and one which is largely dependent on organisational culture. Similarly, Pettersson (2009: 1742) listed culture as the reason behind the reluctance to admit to mistakes for fear of the consequences.

7. Loss of Knowledge from Staff Defection and Retirement

Staff defection and retirement can lead to failure of KM implementation (Ölçer 2007: 260; Singh and Kant, 2008: 144). Failure to plan ahead and transfer key knowledge can lead to problems for the organisation. In his study of large Turkish companies, Ölçer (2007: 260) found that high staff defection was the second highest problem among the 27 barriers to KM that he investigated.

Ölçer (2007: 260) points to the need to transfer key knowledge before employees retire. The issue of knowledge retention has also been addressed by Liebowitz (2011: 1), who indicates that the process of retaining knowledge should be integrated into the organisation from the instant the employee is hired. According to Liebowitz, few organisations have formal strategies in place for knowledge retention. Once retired, key employees can still act as a valuable resource for the firm and can be brought back, for example as consultants (Liebowitz, 2009: 28; Yazdani, Yaghoubi, and Hajiabadi, 2011: 114)

The bottom line is that if the organisation does not plan ahead and identify and protect its key knowledge resources, its KM initiatives risk failure.

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Conclusion

In this article I have endeavoured to synthesise and organise the key failure factors from the abundant body of literature on KM. To do so, I presented six general factors, which I labelled "causal factors". These encompassed the governing aspects of a KM project and included areas such as management support, organisational culture, and organisational structure.

The latter part of this paper investigated the more specific problems, labelled "resultant failure factors". The problems outlined in these factors would generally come about as symptoms of deficiencies with one or more of the causal factors. For instance, losing knowledge due to staff retirement is a result of poor planning. Similarly, a lack of widespread contribution could be the result of an inadequate organisational culture.

The objective was not to provide an accurate simulation of the interaction of failure factors within the organisation, and no effort was made to establish specific links between different factors or to present any kind of cause and effect hierarchy. Rather, the aim was to synthesise existing theory in a logical and user-friendly way, for the benefit of practitioners and students alike.

On a final note, after reviewing much of the available literature, additional research is needed to more precisely identify the cause and effect between different failure factors. Similarly, further research in the relationships between failure/success factors and specific operating conditions would also be useful. Such conditions could include aspects such as technological intensiveness, company size, and even national culture.

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