



Northern Ireland  
Assembly



The Open University



## Knowledge Exchange Seminar Series (KESS)

### Abstract

The current Programme for Government 2011-15 focuses on growing a sustainable economy and investing in the future of Northern Ireland. To recover from the current economic downturn organisations strive to become more innovative, streamlined and focused, providing high quality value-added goods/services to customers, in an efficient yet achievable way. To grow a strong, modern and sustainable economy many organisations are turning to Knowledge Management for business improvement and refinement. This seminar will explore Knowledge Management strategy and implementation as a building block for public, private and voluntary sector innovation. Theoretical underpinnings will be supported by UK case studies, with key lessons proposed for participant consideration.

**Keywords:** Knowledge Management, factors, analysis, implementation

### 1. Introduction

The essence of managing knowledge is concerned with deciding with whom to share, what is to be shared, how it is to be shared, and ultimately sharing and using it. Producing value when shared knowledge is used and reused. Consistent value occurs when there is an atmosphere of trust and motivation for people to share and use knowledge, when there are systematic processes to find and create knowledge, and, when needed, there is technology to store and make knowledge relatively simple to find and share (CIO Council, 2001). Knowledge Management (KM) involves systematic approaches to find, understand, and use knowledge to achieve organisational objectives. Managing knowledge creates value by reducing the time and expense of trial and error or reinvention of the wheel (CIO Council, 2001). The management of knowledge is of increasing importance for governments in dealing with the challenges created by the knowledge economy (OECD 2003; Traummuller, 2012).

KM is based on the idea that an organisation's most valuable resource is the knowledge of its people, thus KM is 'getting the right information to the right people at the right time' (Davenport and Prusak, 1998). KM has potential to strengthen organisation effectiveness and competitiveness in the current changing environment. Within the United Kingdom the MeCTIP model and supporting 'Benchmarking KM' assessment tool (Moffett et al., 2000) provide a framework for organisations to identify KM implementation opportunities, gaps and limitations. Based on the MeCTIP concept, following a large-scale empirical study undertaken in 2009 with 588 UK organisations from various organisations types, sizes and sectors, a knowledge taxonomy was created based on success of KM implementation. Each of the 588 participant organisations were classified across a KM continuum, six categories existed namely beginners, laggards, non-viewers, emergers, progressors and achievers. Categorisation focused on the implementation approach that each organisation adopted from non-viewer, ad-hoc implementation to those that focused on KM elements, such as cultural aspects or technical approaches, to those that had a strong combination of people, process and technology for successful KM initiatives.

From each category a number of companies were selected for further in-depth qualitative review. Case study research was conducted to obtain a deep, qualitative analysis of KM implementation processes. A total of eight

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organisations were selected for multi-level analysis, gaining in-depth views of strategic and operational KM from a range of employees. This paper presents the findings of this 'KM in Action' approach, identifying KM implementation strategies. Qualitative findings are applied to support current literature, anecdotal quotations provide insight into the views of those involved in the KM implementation journey.

## 2. The MeCTIP Knowledge Management Model

Current KM literature outlines a number of aspects that contribute to KM implementation, these are summarised in table 1 below.

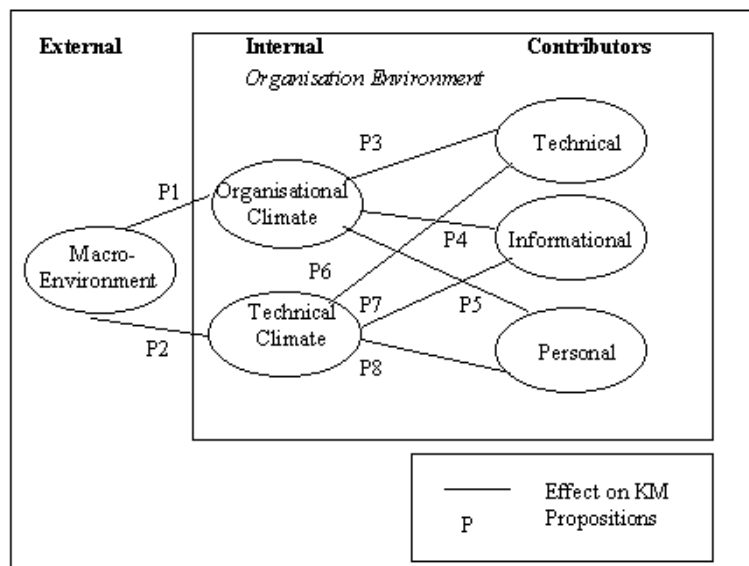
**Table 1 – Key contributors to KM**

Title	Theme	Content	References
<b>Macro-environment</b>	Economic, technical and social agents of change	Includes globalisation and the recession, emergence of new technology such as the Internet, market orientations	Johnston, (2009) Obeng and Crainer, (1996) Ward, (1994)
<b>Internal organisational development</b>	Culture and organisation climate	Includes organisational structure, strategy, goals, culture, employee emancipation, change management and business improvement initiatives	Vorakulpipat and Rezgui, (2008) Moffett et al., (2003) Davenport and Prusak, (1998) Lank, (1997)
<b>Overall management approach</b>	Link between strategy and operations	Includes business improvement initiatives (TQM, the Learning Organisation, Business Process Re-engineering), continuous improvement, leadership and facilitation, knowledge-orientated direction	Fernandez et al., (2006) Moffett et al., (2003) Normann, (2001) Davenport and Prusak, (1998) Powell, (1995)
<b>Customer focus</b>	Interface between internal operations and customer /client	Includes satisfaction, loyalty, customer relationship management	Johnston, (2009) Johnston and Clark, (2001) Liljander and Strandvik, (1997)
<b>Quality focus</b>	TQM, Business Process Re-engineering, production improvement	Includes production and manufacturing processes, service delivery, outsourcing, partnerships and alliances, new product design, research and development	Fernandez et al., (2006) Moffett et al., (2003) Kurland, (1992) Crosby, (1979)
<b>Knowledge focus</b>	KM concepts, tools and applications, implementation, knowledge drivers of change	Includes tacit and explicit knowledge, knowledge roles, knowledge-based systems, information management, employee emancipation	Borges Tiago et al., (2007) Dunford, (2000) Davenport and Prusak, (1998) Quintas et al., (1997)
<b>Technical focus</b>	Internal technical climate, technical contributors to change	Includes technological infrastructure, response to technical change, system standardisation and compatibility, technical usability, technological tools and software applications	Jennex, (2005) Davenport and Prusak, (1998) Shenk, (1997)
<b>Informational Contributors</b>	Creating, storing, disseminating and using information	Includes information fatigue, infoglut, knowledge silos and power-bases and information auditing	Ajmal and Koskinen, (2008) Borghoff and Pareschi, (1999) Offsey, (1997)
<b>Personal Contributors</b>	Human Resource Management, people and working practices	Includes knowledge roles and skills, motivation and self-reflection, empowerment, learning networks and communities of practice, dialogue, collaboration and innovation	Sarro et al., (2008) Lustri et al., (2007) Scarborough et al., (1999) Zuboff, (1998) Peters, (1992)

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Moffett et al., (2002; 2003) grouped these into five key categories that can either support or hinder KM implementation, forming the basis of the MeCTIP model (shown in figure 1). MeCTIP is an acronym of model components, namely,

Me	Macro Environment
C	Culture
T	Technology
I	Information
P	People



**Figure 1 The MeCTIP model**

Organisations must be aware of external, macro-environmental factors that will have an impact on organisational climate/culture and technical climate/ infrastructure, both of which further impinge on technical, informational and personal processes internally. A successful knowledge-orientated organisation is one which has strong information practices and technical resources to support employees in decision making processes.

### 3. Research Methodology

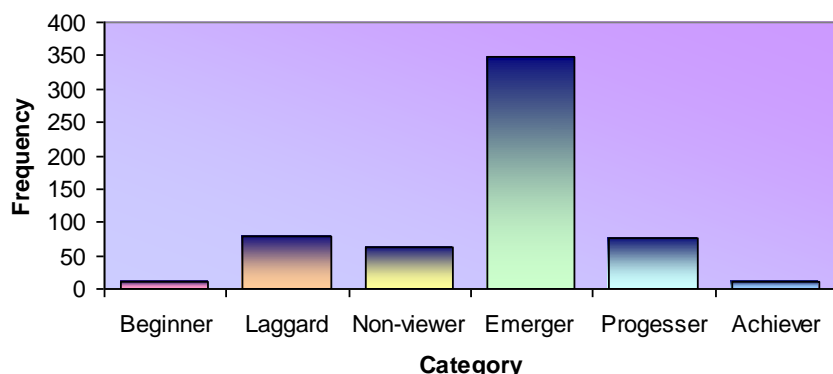
The MeCTIP model informed the development of an on-line survey based measurement instrument, known as the 'Benchmarking KM' tool, available at <http://www.business.ulster.ac.uk/questionnaires/moffett/> (last accessed 07/05/2013). Quantitative research was undertaken with 588 UK organisations and used for organisation size comparison (Moffett et al., 2011) and organisation sector comparison (Moffett et al., 2009), details of the statistical analysis process and results can be obtained from Moffett et al., (2009, 2010).

For each respondent organisation, a total score for KM was derived based on cultural, technological and informational scores. Organisations were classified as either poor (three low scores, or two low and one medium score), developing (two medium and one low score, or three medium) or potential (one or more high score in any category). When grouped according to these classifications 27% of respondent organisations are deemed poor at KM, 15% have developed some KM initiatives, though the approaches were ad-hoc and not part of a strategic KM plan (more by chance than with vision) and 57% exhibited KM potential, where at least one category scored highly showing success at KM activity.

Taking this a stage further participant organisations were re-classified on a knowledge taxonomy basis. Depending on the activity undertaken, strategic and operational vision, and success to date organisations were categorised as beginners, laggards, non-viewers, emergers, progressors and achievers. Figure 2 shows the results of this categorisation.

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**KM Categories**



**Figure 2 – Knowledge Taxonomy**

The results of the knowledge taxonomy classification indicate that:

- 2% of respondents are **'beginners'** with little KM implementation
- 14% are deemed to be **'laggards'**, they have low focus on at least two of the three elements necessary (technology, information and people) for KM implementation.
- 11% have a key driver for KM implementation, receiving a high score in one element, but are not seeing the bigger picture **'non-viewers'** which requires focus on all three elements
- 59% scored medium on either two or three of the elements showing that some form of KM implementation was in motion **'emergers'**, this activity needs to be nurtured to move towards progresser/achiever status
- 13% are organisations with high KM activity in two of the elements **'progressors'**. While these organisations will see benefit to KM implementation the third element in which they are lacking needs attention.
- 2% are deemed **'achievers'** received a high factor score in all three elements. These organisations should be exemplars of KM implementation and practice.

## 4. KM in Cases

Further support for quantitative findings was derived from qualitative cases. As part of the quantitative data collection organisations were asked to express an interest in participating in further research identifying a contact person as gatekeeper. From the 588 organisations employed in the empirical study 53% expressed an interest in further research, from these ten were selected as they represent organisations at various stages of KM implementation, ranging from those who claim to have limited KM in place (poor) to those deemed successful (achiever) equally merging people, process, information and technological applications. Contact was made with the gatekeeper to arrange visits, he/she was asked to nominate up to 6 people in the organisation most knowledgeable in KM. A total of 44 managers/public sector officials, those with KM responsibility in areas such as HR, IT, operations, business intelligence and general management were involved in the qualitative process, as shown in table 2.

**Table 2 – Case Study Participants**

Case No	Sector	KSM Implementation Stage	No of interviewees
1	Engineering	Poor	5 – coded A1 to A5
2	Engineering/Manufacturing	Emerger	6 – coded B1 to B6
3	Financial Services	Emerger	1 – coded C1
4	Engineering	Emerger	3 – coded D1 to D3
5	Higher Education	Progressor	4 – coded E1 to E4
6	Health Inspection	Progressor	5 – coded F1 to F5
7	Financial Services	Progressor	5 – coded G1 to G5
8	Aerospace Manufacturer	Achiever	4 – coded H1 to H4
9	Public Authority	Progressor	5 – coded I1 to I5
10	Public Authority	Progressor	6 – coded J1 to J6

In keeping with the theme of this paper, components of the KM MeCTIP model will now be discussed from a qualitative viewpoint.

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## 4.1 Macro-Environment (Me)

Organisations are not 'black boxes' so attention must be paid to the external environment and changes therein. One factor that is having extreme effect on organisations at present is the recession. As interviewee B1 states, *'The trouble comes in a recession, when you have £150 million of fleet, depreciating at £15million per year, sitting in a yard not being used'*. While the recession can be an inspiration for some to seek new business/contracts as outlined by A2 *'For quite a small company, we are out there trying to get business'*, the push to drum up business is not welcomed by all, as commented by A1 *'I don't see the point in going all out for Sales, we don't have the capacity to deliver, in the current market we should just focus on the work we have got'*. Sustainability is a consideration for most UK companies in the current business climate, as G1 outlines *'When there's less capacity in the market, you need to be able to change more, and start going back up the cycle. So I guess our plan right now is hold tight, pull back on the stuff that is 'dangerous', the highly risky stuff, and be ready to expand into the market when it (improvement) happens again'*. Interviewee F1 comments on efficiency as being key in the current climate, *'increasingly we are looking at our spend, we must at all times demonstrate that what we do spend is value for money. We are trying to work smarter and cheaper'*. This concept was also commented on in public sector organisations, for example I1 finds that *'increasingly we are looking at all our spend: VFM [value for money], we must at all times demonstrate that what we do spend is value for money. We are trying to work smarter and cheaper'*. However, the recession is not viewed by all as having a negative impact, C1 looks positively towards the current economic situation, *'It has been a difficult period over the last 12 to 18 months. We have ridden that quite well, and I think that there are opportunities that will come out of that'*. C1 contributes being 'able to ride the storm' to conservatism *'that steady hand has now paid off'* while H1 contributes their success to innovation, *'What did we need to do to become more innovative? Knowledge Management was identified as an enabler, now it is one of our core themes'*. Within the same organisation, H2 adds *'We started looking at what other people do, what might be out there, what we really need, and we add detail to those. We have a plan now for future innovation'*.

Application of KM should lead to a well-designed/managed change programme, responsive to environmental changes external to the organisation. Aspects for development include sustainability, cost reduction and efficiencies, conservatism, ability to work smarter, and innovation.

## 4.2 Organisational Climate (OC)

Within organisations conflict exists regarding external pressures, reflected on internal organisation climate (OC). On one hand, OC is viewed as positive, expressed in flexible working practices, employee loyalty, low staff turnover, etc. while on the other, it is viewed as static and stale, stifling creativity and innovation. While one staff member may describe OC as *'interesting'* another refers to it as *'cynical'*. One way to reduce such varied approaches is via company strategy/mission statement.

The need for strategic positioning is raised in the qualitative cases. B2 states, *'everyone is aware of the mission statement and organisation values. We (board members) come up with a three year plan once a year'*. While this is useful for strategic direction, B4 states, *'When speed is of the essence, sometimes not all procedures are followed'*. Therefore flexibility is key when environments are turbulent. Interviewee A3 comments on issues surrounding lack of strategy, stating *'That is a hot topic at the moment. There isn't a set strategy in place, we have been led by XXX (founder of the business), but we realise this is something we need to focus on'*. Within the same organisation, A1 outlines, *'We know what our strategy is – to survive, to grow, build up the business, make money ... the question is whether we need to put that down on paper'*. C1 also comments on the need for a more formal strategic position, *'There hasn't been a coherent strategy across the group that you would put your finger on and say that's our strategy. However it has been identified that we need to refocus on what is our strategy. We all consciously know that, but I think it has never been defined clearly, so we are going through a period of work where we are doing that. We are having sessions about things like missions and values. I think it will give everybody a bit more of a focus on where we want to get to, because there is some debate about whether we are a reactionary organisation, where we see opportunities and move for them, or do we go out and find them'*.

Communication is identified as a key issue to develop positive organisational climate. C1 highlights the need to be in touch with colleagues, outlining *'We did a staff survey recently. It provided a few surprises, but for a lot of it you could have predicted some of the answers. It give us a bit of focus on some development areas for the business, things like communication. With it being a small business you assume everyone knows what is going on. That is an assumption that was not right. There was not enough communication and we were not conscious that that was the case. Little things like that have come out, and we have rectified them. We consciously made an effort to be visible in doing these things, and it has really helped.'* This quotation also highlights the need for transparency within organisations.

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## 4.3 Technical Climate (TC)

In smaller organisations codification of tacit knowledge can take place in meetings, conversations, notes, etc. so the need for technological aids is not as crucial as in larger organisations. A5 comments on this point, *'Technology is poor, we don't even have a website. IT systems is one area where we need much more, we really need a system (in manufacturing) to capture all our system data to enable us to use it better, you know, identify trends, streamline processes, etc.'* Within the same company, A2 outlines the downside to lack of technical climate, *'Most of our communication takes place by phone or face-to-face. The downside to this is that we don't have a record of what is happening, decisions can be made between two people but that is not communicated to the rest of the team, if they (the person with the tacit knowledge) don't pass it on no-one else knows'.*

Embedding technical climate into organisations is challenging, E1 declares, *'There seems to be initial excitement and then organisations become complacent'.* However E3 claims this should be the case, *'What I like here is that we don't talk about IT. It really annoys my colleagues but I feel it shouldn't be mentioned, it should just work. For me, that is IT'.* Summarising the IT challenge J3 states, *'I am interested in terms of the integration story. I think that is the key thing in our organisation at the moment. This is our utopia, to have all the systems integrated; information is the key'.*

Overall, technical climate is key for promoting KM. Scalability tends to depend on organisation size, while smaller organisations focus on information storage and communication, larger organisations are seeking robust, integrated systems that can be utilised globally for information storage, share and application.

## 4.4 Technology

Technological tools for KM can be classified into three categories, namely, intelligent tools, support tools and web-based tools. Not surprisingly the four most popular tools are those which organisations provide most training in. For KM to be successful organisations must select tools which are not only familiar to the employees but of use. The KM arena has suffered in recent years with the re-branding of traditional tools (such as office automation systems) as KM systems. Organisations need to look at their information needs, choosing technology systems and applications to further advance the knowledge agenda.

ICT systems are used for information capture, storage and use, to obtain expertise into and within the organisation. G2 comments on knowledge acquisition, *'Building the information into an industry-level discipline is a challenge. The information is out there. In some markets, it is just built into their DNA to use information, it is not yet like that in the commercial market that we are in. A lot of the market is based on tacit knowledge. There is a lot of knowledge which cannot be codified, which is actually quite valuable. IT professionals need to use technologies that will capture that tacit knowledge, no matter how limited that may be, providing information that makes sense, processed in a way that is currently possible'.* Another main reason is communication, *'Email is accessed from the internet, which provides the opportunity for connection from any location' (E2) and 'email is the main driver of communication' (G3).*

Security of technological systems/tools is a problem which many organisations face. As H4 states, *'We don't want a walled garden or a silo, but a controlled membrane surrounding the whole organisation, so that you know with confidence that information can be quite safely circulated to the audience to engage the maximum degree of expertise, but not go out to your competitors. This is starting to be a problem'.* Security can have a detrimental effect on knowledge sharing if it is too controlled.

Other technology challenges include location-based access to systems, single sign-on, better internet access and use in terms of content filtering, searching and semantic labelling, system access to areas that are off-limits, and reduction of corporate knowledge silos. However on a positive note most organisations interviewed found that *'employees are willing to accept new technological implementations' (G4) 'if provided with tools that make it easy for them' (B2) and are willing to 'actually relinquish some of what they perceive as control over the information and at least allow people to see it' (H3).* Business Intelligence is the goal for many organisations to fully understand company *'knowledge nuggets'.* Technology tools such as Internet and email enhance communication channels while information systems encourage content management, knowledge sharing and information accessibility. Security needs to be high yet flexible to encourage knowledge sharing and technological use.

## 4.5 Information

Information should flow easily around the organisation ensuring that people have access to *'the right knowledge in the right format at the right time' (Davenport and Prusak, 1998).* Systems to facilitate the capture and dissemination of information throughout the organisation facilitate information capture from both internal and external sources. One element to be considered in ensuring accurate information systems is that of content management. Responsibility must be taken to ensure that information sources are up-to-date and relevant preventing databases and other storage mechanisms from becoming static repositories of obsolete data (Davenport and Prusak, 1998). H5 comments on the vastness of the task in organising information content for user accessibility, *'We are currently looking at all*

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unstructured data, stored in electronic information such as emails, Word, Excel, Powerpoint, information in image format, etc. Anything that is held in databases in structured format does not come under the remit of content management: it is already searchable and available to users, hence content management is a challenge for most organisations, 'how do you bring all this together, ideally in one central place, so that users can get access to all of that information that is in there? How do you secure it so that only the right people can see the right information? How do you version control it so that obsolete information is superseded and that key, relevant, up-to-date information is always available at the front-end?' (H1). In the public sector key questions are asked regarding information content and use, J1 states 'Typically, questions are raised, such as What information do we have? Can we make sense of it? Is it useable? Can we present this information in an easy to understand way?'. Reflecting on the need for an information strategy Company E is an example of good practice as they have awarded considerable time and effort to creating an information strategy. E4 outlines, 'We wrote our information strategy about three or four years ago – we took a year writing it, going backwards and forwards, working out what we wanted to do – and it's a real, living document and strategy. And we are doing what it says we are going to do. And for me, that is really important'.

Information overload is a challenge for individuals in everyday life. E4 outlines one way they attempt to reduce overload, claiming, 'We have identified who the lead owner is for pieces of information. What that means is the person who own it knows they shouldn't throw it away, and everybody else knows they can. One of the issues I have, especially in a small institution, you feel you have to remember everything all the time. And you can't. What is important to me is I know what I need to keep, and what someone else knows and so I don't have to worry about any more, we can integrate things better, so we don't operate in silos but in a genuinely joined-up way, but no one individual needs to know all the joined up bits'. While G5 appreciates information overload within the organisation, he states 'people are used to this in their personal life, there is data smog everywhere'. Information overload seems to be a sign of the times.

## 4.6 People

Knowledge-oriented organisations respect employee emancipation and welfare, evidenced by informal interactions and practice (Haas and Hansen, 2007). G5 outlines some welfare benefits offered, 'All benefits are better than the norm. The organisation offer staff childcare vouchers, private medical insurance for members and their families, very good life insurance policy. There are also little things in the building, for example the company provides free fruit daily and a masseuse comes in once a month. People are well looked after though they may take it all for granted. The company is considering benefit statements, as way of reminding people of all they get in addition to salary and bonuses. Family friendly policies and flexible working hours are also the norm'. Providing such strong welfare practices results in low staff turnover, 'People see us as a good employer, absolutely. I think our pay rates are quite competitive. People say 'if I get into Company H I'm going to stay there forever'. We have plenty of guys who have been here 20+ years. That's the way it's always been. I'm certainly going to work here as long as I possibly can'.

Views on flexible working practices seem to differ within participant organisations. For example, G3 states, 'home working is accepted but not encouraged. Too many home workers might lead to fragmentation. The view is that you are better at your job when you talk to people'. H2 states 'I do work from home quite a bit. Rather than stay at work longer, I go home early, sort out the family, then do a bit more. A lot of managers subsidise their hours in-house'.

Consistent with the literature (see Davenport and Prusak, 1998) much KM work takes place in teams. This is the case in company H where 'in a given programme there will be a team selected based on their function, role, knowledge and expertise'. Senior management tend to lead by example, creating an atmosphere where new employees soon feel settled and ready to participate in flexible work practices. C1 states, 'during induction we encourage new staff to sit with the other teams in the business for an hour or so, just to get an overview of what they do, how the whole thing hangs together'. H4 outlines flexibility as key to helping new staff fit in, 'I have an open door policy, I am glad to take the time to sort out issues with new staff, a fresh pair of eyes can be very useful'. Interviewee F1 also comments on leading by example, 'we have really improved in that area. It is very important. It's like a love or hate at first sight. I spent an hour yesterday just talking about the office environment, as a manager I have to devote time to staff issues, make sure I do it properly'.

Succession planning is one KM initiative most organisations are considering. F5 outlines the exit process, claiming 'Well I certainly believe that we are in a much stronger position: if I were to go tomorrow, I think that we now have strategies and plans in place, a person who met the job description could easily move in and say 'oh, that's what they were doing'. However, some organisations have not yet considered knowledge capture for future use, A2 states, 'No, we have nothing in place to do that. We simply wish them all the best, for whatever reason they are leaving, and then recruit someone in their place and start to train them up all over again'. Interviewee B5 also comments on lack of succession planning, 'When staff are retiring, you are aware that they are taking their knowledge. We currently have a few people approaching retirement age, and potentially they could all leave at the same time, causing a large gap'.

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People issues are the most stretching for organisations to adopt. Changing individual perspectives, gaining staff buy-in for change, and implementing change consistently across all levels of the organisation is challenging.

## 5. Strategies for KM Implementation

Current KM literature outlines a number of strategic approaches, for example Hansen et al., (1999) consider codification versus personalisation, Robertson, (2005) introduces a top-down and bottom-up approach and Choi and Lee, (2002) link strategy to the knowledge creation process, to name but a few. With no intention of re-inventing the wheel, this paper has identified a number of factors for KM implementation strategies, these are displayed in the following word tag (figure 3).



Figure 3 – KM strategies tag

## 6. Conclusion

While an increasing number of organisations are realising the benefits of active knowledge management they are also discovering the difficulty of KM implementation (Birkinshaw, 2001). Results from an empirical study conducted in early 2009 with 588 UK companies, applying the MeCTIP model and 'Benchmarking KM' online survey tool, provide insight into key elements which organisations must focus on for KM success. Two of these relate to the infrastructure of the organisation in terms of culture and technical infrastructure while three relate to process orientated activity for information, technology application and human expertise. The effective measurement of KM enables organisations to have a more upstream, predictor focus on business performance (Zack et al. 2009). As the creation of new knowledge and its embodiment within the organisation is likely to lead to new product/service development (Johnston and Clark, 2008), the measurement of knowledge activity within the organisation, resulting in increased business intelligence and sustainable competitive advantage (Tochtermann, 2011), will facilitate UK companies' sustainability, growth and maturity 'riding the storms' of the current economic climate.

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