# INTRODUCTION

An increasing number of knowledge management (KM) projects have failed to achieve the expected benefits from the technology[[1]](#footnote-2) and at times, encountered critical failures (Malhotra, 2005). But is this primarily a failure of technology, organization or both? As Roell (2004: 1) contends: “*tools that have been developed in KM focused on information management and do not support many of the key knowledge work processes”*. Past explorations have indicated that failure is in part attributable to problems in understanding the situated work practices of the intended user communities (Grudin, 1994; Schultze and Boland, 2000; Suchman, 1995).

One way to examine the KM projects is to adopt a practice-oriented approach, which, as Townley (1993: 235) asserts, should focus not just on what people ‘actually’ do, but also on *‘what doing it does’*. Suchman (1995) suggests that this approach is particularly suitable for KM system developers because of the largely invisible and complex nature of knowledge work. Although the concepts of ‘situated knowledge work context’ and ‘practice’ have been central in the writings of Orlikowski (1996), Majchrzak et al. (2000), Schultze and Boland (2000) and Orlikowski (2002), there has been far less application of these concepts to understanding the success or failure of KM projects. In this regard, Schultze and Boland’s (2000) study was arguably the first to explicitly look at conflicts or in their words ‘incongruences’ arising from the mimicry of an existing work context and practice with the potentiality of KM technology. Their study, however, was not without its limitations. It focused only on a small group of knowledge workers and a specific practice of *‘gate-keeping’*, set during the initial pilot stage of a KM project. Their research setting – a large building material manufacturing firm – also failed to fully represent a knowledge-intensive organization consisting of multiple communities of practice (Alvesson, 1993).

 In this paper our aim is to explore an on-going implementation of a KM project, in the form of a knowledge portal, into a complex and geographically diverse global IT-management consulting company undergoing significant growth through mergers and acquisitions. More specifically, we explore how this knowledge portal was used by the center to generate new work practices that conflicted with the situated local practices of the organization. Our approach is informed by Orlikowski’s (2002) ‘knowing-in-practice’ (KIP) lens which was developed to help explore knowledge work practice as an on-going and situated accomplishment constituted and re-constituted in daily practice. Here we examine the ‘incongruences’ (i.e. the clash of goals or orientation) arising from the differing and often conflicting, situational contexts within the organization: between different user groups and between central administrators and local administrators. We believe that exploring how this organization dealt with incongruence exposes the nature of strategic alignment of IT at the operational level. To do so, following Dulipovici and Robey (2013), we adopt a work process-level view of alignment between a KM system and the organization. This work process-level view is appropriate for our research because it encourages us to look more closely at the relationship between IT and individual processes and practices rather than at how IT can support an entire organizational business strategy (Tallon, 2007).

Our contributions are therefore twofold. First, we provide a comprehensive view of a KM software adoption project spanning from the pilot to the roll-out stage in a global, knowledge-intensive organization. So far, there has been no detailed study of KM software adoption in such a setting. Second, our research enriches understanding of the causes of failure of KM software projects by introducing a new factor – the incongruence between different user groups and between the center and its locality rather than a widely-known failure by enterprise software developers to understand users’ needs or an unwillingness by users to adopt software. In examining a number of incongruences using a KIP lens, we highlight some issues that make a significant impact on the approach to the design and adoption of KM software in knowledge-intensive organizations.

Our discussion proceeds as follows. Section 2 reviews the concepts of ‘knowing-in-practice’. Section 3 introduces our research methodology and the framework. Section 4 introduces briefly the case company and then presents our data analysis and findings. Section 5 discusses the key issues arising from the findings and the last section provides conclusions and suggestions for future research.

# UNDERSTANDING MISALIGNMENTs relating to

# the SITUATED KNOWLEDGE WORK CONTEXT

Knowledge, be it object, cognition or capability, is both endorsed and performed by people’s practices and resides in a particular work context (Orlikowski, 2002; See also Suchman, 1987). As Alavi and Leidner (2001:114) have commented: *“Knowledge management is largely regarded as a process involving various activities…At a minimum, one considers the four basic processes of creating, storing/retrieving, transferring, and applying knowledge.”* In this regard, to implement KM initiatives effectively, analyzing what knowledge workers do in situ is crucial for understanding how their practices are embedded in, and shaped by, their work contexts (Hsiao, Tsai and Lee, 2006; See also Suchman, 1987; Leonardi and Barley, 2008). People, in working together, both legitimize what they currently do and, in the reiterative practice of doing, also influence the broader context within which such actions take place. This can be extended into people’s interaction with technology, as with the work of Orlikowski (2000 and 2002) who argues that this ongoing interaction is “situated” or influenced by the underlying confluence of the work context and individuals’ often unwitting absorption of their experience and unwritten norms of social interaction which provides a structure for doing. Indeed, the “sticky” and contextualized nature of knowledge (Szulanski, 1996), exacerbates the differences in knowledge work practices from other work practices (Schultze, 2000). If people and their practices cannot be separated from the embedded work contexts (Lam, 1997; Tyre and von Hippel, 1997), then a mere understanding of what ‘people do’ is often not adequate in helping organizations to anticipate the long-term impacts of technology, both intended and unintended (Schultze and Boland, 2000; Orlikowski, 2007).

Different expert groups may employ different types of knowledge (such as more or less tacit, decontextualized versus context specific) under different work contexts (Bogenrieder and Nooteboom, 2004, Garud and Kumaraswamy, 2005). This is because, from the ‘epistemic cultures’ perspective, different professions (i.e. social sciences such as business/management/law versus natural sciences and engineering) hold differing approaches to learning and creating new knowledge (Knorr-Cetina, 1999). Moreover, under different work contexts, knowledge can reside in physical processes, social communities and industrial contexts (Lam, 1997; Tyre and von Hippel, 1997). Thus, to acquire ‘situated’ knowledge for a particular project, experts must participate in different working situations (Lave and Wenger, 1991; Tyre and von Hippel, 1997). The work context helps to explain why one group can employ technology to collaborate, share, and reuse knowledge effectively whilst another group struggles with the same technology (e.g. Huber, 2001); individual cognition may not be that useful in transferring knowledge as an object when detached from practice (Hsiao et al, 2006). However, encouraging learning amongst individuals helps to enact ‘doable practices’ in any particular context (Orlikowski, 2002). This suggests that problems in aligning one work context with another, for example that of users and system developers or different sets of users within the same organization or geographically dispersed groups, may stem from an over emphasis on the transfer of information (facts, data) rather than knowledge (awareness, understanding). Put a different way, such problems may arise in the imposition of the abstract over the contextual; the difference for example, between an intended plan and an emergent strategy (Mintzberg and Walter, 1985). This can give rise to misalignments between an organization’s business strategy and processes with its intended IT strategy and infrastructure (Henderson and Venkatraman, 1999; Chan and Reich, 2007).

This is explicit in Orlikowski’s (2002) ‘knowing-in-practice’ (KIP) lens in which ‘knowledgeability’ is continually (re)generated via individuals’ daily activities, their local habits, assumptions and taken-for-granted contexts. Focusing on the ‘knowledgeability’ of action, Orlikowski distinguishes between ‘knowing’, connoting doing/performing and ‘knowledge’ connoting know-how/know-what. Interestingly, this ‘knowledgeability’ of action is associated with user’s feeling, reflection and experimentation. Such thoughts and behaviors related to the work context emerge through the on-going social and physical interactions that are enacted and re-enacted in people’s everyday situated practices. Eventually knowledgeability is not stable and may be altered (Orlikowski, 2002).

Knowledgeability is made up of the situated, on-going interrelationships of context across time and space, human agency (i.e. reflected in individual/group propositions and intentions), activity stream (i.e. a series of activities conducted by users), and social structures[[2]](#footnote-3) (i.e. normative, authoritative or interpretive). To illustrate, we can explore how the knowledgeability of using Google’s search engine is constituted and reconstituted by the situated, on-going practices of a diverse and distributed community of users and designers (see e.g. Orlikowski and Scott, 2008). Here we can differentiate between the interrelationships between any particular user and the search engine (software), represented by the continual reconfiguration of this search engine enacted and re-enacted by this very user’s activity stream (i.e. identifying and inputting search criteria; refining or rephrasing the keywords to receive the most relevant content; clicking the links to access the webpages) and many other users’ activity streams across space and time (i.e. doing similar search activities or even manipulating page ranks), which are situated and on-going; and the propositions and intentions[[3]](#footnote-4) of designers embedded into the search engine as algorithms (i.e. Google’s page rank). We can also point to the role played by social structures that are authoritative – giving preferences to larger, wealthier, and more well-known sites, enabling ‘systematic prominence’ for some sites (such as CNN, MSN, YouTube, governmental agencies); or normative – Google being strongly regulated by the Chinese government (Introna and Nissenaum, 2000). Such social structures are eventually embedded into the search engine, subsequently influencing users’ propositions, intentions, and activity streams.

Additionally, IS planning and local improvisations also shapes context and impacts on knowledgeability (See e.g. Suchman, 2002). Specifically, Suchman (2007) argues for a view of plans, as imposing prerequisite rational action: *“as formulations of antecedent conditions and consequences of action that account for action in a plausible way”*(Suchman, 2007: 31). In other words, a plan, incorporated with past experiences (i.e. success or failure), describes how the actions (or the ‘activity streams’ as described by Orlikowski) should occur in practice and predicts the outcomes of such an action. Suchman also contends that to deal with a user’s situated context effectively, a sensitivity to local contexts is indispensable from the design of the technology itself. This sensitivity to local context implies that users may craft local improvisations in an effort to be more locally efficient (Suchman, 2002). A lack of sensitivity to users and the local context can give rise to a perceived failure of IS initiatives as intended plans are supplanted by emergent local practices (Mintzberg and Waters, 1985; Schultze and Boland, 2000).

To conclude this section, understanding the organizational knowledgeability of using IS is challenging due to the inherent complexity, multiplicity, and dissemination of resources and conditions (Orlikowski, 2002). Consequently, as Orlikowski points out, most studies concentrate on the work practices of individuals or on focal groups proximate in time and space (for groups, see e.g. Majchrzak et al., 2000; for groups and individuals, see e.g. Schultze and Boland, 2000). A lack of understanding of an organization’s knowledgeability, particularly of local users, is typically cited as an explanation of the failure of IS projects to deliver Information Technologies fully integrated or aligned with the organization’s intended business strategy and on-going business processes. At a work process-level, such incongruences may reflect differing discrete ‘social representations’ – a kind of shared understanding or belief within selected communities – of how to use IT for a specific work context (Dulipovici and Robey, 2013).

Our review of the literature has suggested that organizations contain within them a varying number of differing knowledge work practices continually enacting and interacting with each other in differing situated contexts, such as through hierarchy and location. Individuals and groups also interact or are entangled in a dance with material artifacts such as technology that shapes practice (Marabelli and Newell, 2012). These interactions can be congruent or incongruent in character constructively reinforcing each other in a state of resonance or destructive in fomenting dissonance between differing sets of knowledgeability.

# research framework and methodology

Viewed from the KIP perspective, the state of interaction (or congruence) between the adopting organization and the KM software (in our case, the knowledge portal) is represented as follows.

*Interrelationship*

Social structures: normative/authoritative/interpretive

Propositions, intentions

**Congruence?**

**Adopting organization**

**Knowledge**

**portal**

Software

modification

Organizational

adaptation

*Situated knowledge work*

**Figure 1.** Congruence between portal & situated work practices of the organization

First, the situated, on-going interrelationship between users and the portal is represented by the knowledgeability constituted and re-constituted by users of the case company. Knowledgeability can be demonstrated by the activities stream (i.e. searching, extracting and sharing content; updating, classifying and archiving content) that occurs across space and time. The adopting organization in Fig. 1 forms the users’ domain.

Second, the KM software domain is represented by the knowledge portal in Fig. 1. Organizations adopting enterprise software are strongly encouraged to opt for the ‘vanilla system’[[4]](#footnote-5) as the standard product incorporating the ‘best’ industry approach. Here the propositions and intentions of designers are embedded as algorithms into the portal which are subsequently enacted and re-enacted by users. The propositions and intentions of designers are a form of best practice[[5]](#footnote-6) that enterprise software vendors and designers alike acquire from frequent interactions with key customers and by holding memberships of industry associations and professions (see e.g. Gratton and Ghoshal, 2005). A common pathway for enterprise software development is that a vendor chooses to partner with a typical or big client organization in a particular industry and try to learn, model and embed the practices of this organization into a ‘best practice’ software product for marketing as this vendor’s ‘industry solution’ (See e.g. Lee and Lee, 2000; Wagner, Scott and Galliers, 2006).

Nonetheless, users may also attempt to embed their own propositions and intentions into the portal. As discussed at the end of section 2, these propositions and intentions in effect reflect their feeling about and reflection on their current work context, both physical and social (i.e. experience of how things happened in the past, prediction of the outcome of the suggested actions, sensitivity or local improvisation to changes and requirements of the emergent work context).

Congruence between the two domains (here the knowledge portal and the adopting organization) depends upon a shared understanding of either the propositions and intentions of designers or users, or both. Without a shared understanding, incongruence ensues requiring resolution through organizational adaptation, technology modification, or both. Viewed from a KIP perspective, clashes between the differing propositions and intentions dominating the software and the propositions and intentions of users existing practice have to be resolved in which one or more of domains have to adapt. Put a different way, incongruence in knowledgeabilities (as reflected by propositions and intentions) between domains generates dissonance that the organization then has to bring back into some form of harmony or resonance.

Third, various social structures influence this alignment between the two domains: [i] authoritative, i.e. designers’ giving preferences and rights to modify or control certain areas or functions of the portal to a group of users within the organization; [ii] normative, i.e. under external influences (i.e. new governmental or industry rules/regulations), designers enforce or impose certain rules that those who interact with the portal must abide or follow; or [iii] interpretive, i.e. users’ shared belief about how to use the portal and such a belief is based on how they perceive their work context. Similar to the propositions and intentions, these social structures have to be selected to be embedded into the portal, subsequently changing users’ behaviors and activities.

We adopted a case study strategy (Yin, 1994). This is a well-accepted approach to study the complex phenomena of IT implementation in an organization (Orlikowski and Baroudi, 1991; Yin, 1994). PelicanAce[[6]](#footnote-7), our case company, divided its portal adoption and implementation project into four phases running sequentially one after the other. Phase I, the preparation phase, involved gathering and defining the business case and solution constraints. Phase II, the pilot phase, included the trialing of the portal in selected sites across PelicanAce. Phase III, the implementation phase, involved rolling out the portal across the organization. The last phase maintains normal operation until the system is replaced by an upgrade or a different system. Our fieldwork began near the end of phase II. We chose PelicanAce based on a combination of accessibility and representativeness: consulting firms are commonly seen as the archetype of knowledge-intensive firms (CoPs) (Alvesson, 1993); PelicanAce was advanced in its KM implementation project; it has a large-scale technology infrastructure in terms of its user base as well as a global operational context.

PelicanAce’s KM program is run by the KM group consisting of a number of senior management positions, many of whom are also senior consultants. In supporting the activities of the company’s KM program, these positions can be described as in Figure 2below.

The roles and responsibilities are as follows based on company documentation):

* *KM steering committee:* This body champions the causes for any KM-related strategies and plans, makes decision, drives behavioral change and ultimately leverages business values from KM program.



**Figure 2**: The managerial organization of the KM program (company documents).

* *Group KM program:* This group is responsible for KM technology installation, integration and adoption. It also is responsible for training, monitoring and supporting rollout.
* *Local roll-out managers:* These managers are responsible for local rollout.
* *KM co-ordinators:* These staff support the KM roll-out managers in their markets. The KM coordinator is responsible for preparation of a plan, gaining the buy-in and commitment from the country sales and marketing teams, and agreeing targets for the generation of collateral for all countries. This includes liaison with the Group KM functional owner and the offshore service team, progress tracking and reporting.
* *KM content managers:* These managers are responsible for the validity and appropriateness of the content. They are also responsible for archiving documents across the company.
* *Local champion:* Plan and implement local rollout activities.

To better understand incongruence, we need to know how well the knowledge portal matched existing and emergent work practices. For that, we focused our analysis on requests for changes to the KM software made by PelicanAce’s staff using their so called Change Request Forms (CRFs) during phase I-III. A CRF was submitted to the KM group[[7]](#footnote-8) when staff felt that the portal did not support a specific work requirement. Each CRF included sections where the requestors described how they want to change the existing work practices within the portal, why such changes should happen and the expected benefits to or impacts on the knowledge work performance of PelicanAce. As part of the submission process, each CRF was also sent to the appropriate peer groups or Communities of Practice across PelicanAce to gauge the strength of support for the request. PelicanAce had over a hundred CoPs comprised of consultants sharing similar interests, background and experience. The KM group consisted of a number of senior management positions, many of whom also acted as senior consultants across a range of PelicanAce’s key markets. This group reported directly to the organization’s executive committee.

In practical terms we defined potential incongruences as change requests submitted to and then reviewed and accepted by the KM group and recorded in the standardized CRFs. The KM group and members drawn from the organization’s IT department discussed and decided with each other whether to accept, put on hold or reject each change request submitted to them; the KM group then discussed such requests with the vendor’s representatives to decide whether to adapt to or modify the portal. The KM group’s discussions were recorded in meeting minutes to which we gained access. We also had access to the organization’s weekly issue logs in which staff members were encouraged to reflect on the performance and effectiveness of the portal.



**TABLE I:** Interviewees & their roles/positions

The field work, which took place during January–November 2008 and again during February–May 2010, comprised of familiarizing ourselves with the company’s business processes, reviewing the portal and documentation (e.g. portal’s use, company’s documentation, contracts, project files, meeting minutes, requirements analysis, issues logs and video recordings of the negotiation/meeting between the KM group and vendor’s consultants), and interviewing 19 key stakeholders to explore different perspectives relating to not only the organization’s KM processes and practices but also the organization’s broader strategic priorities. The stakeholders included 17 members of the KM group[[8]](#footnote-9), (the manager, 12 coordinators, 2 content managers, and 2 IT/IS professionals, one of them is also a senior staff of the CIO’s office) and 2 software vendor engineers (See Table I above).

We conducted 27 semi-structured interviews, which lasted between 45 minutes and 135 minutes and were then transcribed and checked with participants for accuracy. For further clarification, we also conducted brief follow-up interviews with eight participants (normally via the company’s internal VOIP system).

Our approach to data collection and analysis was exploratory, intended to generate insights into the practices and conditions that resulted in the requests for change. In all, we found 31 distinct instances of incongruence, of which 22 surfaced during phase III, the implementation phase. This means that the majority of incongruences only arose during actual interaction with the business or operational context. The remaining instances submitted during phase I-II were requested by the consultants on the basis of their prior experiences with similar projects. We followed an iterative approach to the data analysis with each cycle of analysis attempting to uncover the situated knowledge work context underlying the change requests. Initial data analysis focused on identifying the emerging key issues, for instance, workspace access control, managing and collaborating in workspaces, ease of use, effective seeking and extracting content, and managing content lifecycle. We then sought to understand the underlying reasons for the incongruences between the portal and the users by asking a series of probing questions, e.g. Is it true that the identified incongruence is between the portal and users or between different groups of users across the company? Why is this feature needed and what would happen if it were missing in the portal? What are the designers’ assumptions underlying their choice of features and were they familiar with the industry requirements?

Our analysis of the incongruences then led us to dig deeper into clashes of the knowledgeabilities either embedded by portal designers or favorably exercised by different groups of users across the company. We paid special attention to how and why the knowledgeabilities of different groups of users were shaped or emerged and which knowledgeability was at odds with other knowledgeabilities. We wanted to assess which knowledgeability was eventually accepted by the KM group and subsequently (re)enacted and (re)constituted by the community. To gain a better understanding of the change requests, we re-enacted 22 CRFs. For example, if a specific CRF mentioned a difficulty in searching for specific types of content, we would then try searching for such specific types of content to get a sense of what was described in the CRF. Contextual data that further explained the observations made were taken into account (Klein and Myers, 1999). Follow-up discussions were arranged with a member of KM group and a vendor’s representative. Findings were also discussed with two industry experts. One was an expert on the document management system of a well-known publisher. The other was an enterprise consultant for the university-industry collaboration scheme hosted within the authors’ university.

Although, for reasons of commercial sensitivity, we were unable to collect detailed data from the vendors’ representatives, our understanding of the CRFs (i.e. from the vendor’s perspective) comes primarily from interview data and from the traces of work evident in the portal’s documentation. This is a limitation of the study. Nevertheless, the findings of this initial study provide interesting points for understanding our research objectives.

# Case Study Analysis

## **A. Case company’s profile**

*PelicanAce* is a global IT-Management consultancy firm with operations in over 30 countries and was ranked among the world’s top 20 in revenue. It provides business consulting, systems integration and IT and business process outsourcing services across diverse markets including telecoms and media (T&M), financial services (FS), energy and utilities (E&U), industry, distribution and transport (IDT), space and defense (S&D) and the public sector (PS). PelicanAce formally launched its KM portal in 2005 although portal technology had been in use since mid-2003. In making this investment, the intention of the senior management team was to improve coordination, information sharing and knowledge management across the organization. There were two main components to the KM software package: the corporate portal and the associated Enterprise Content Management (ECM) package; both Microsoft products using the *SharePoint 2007* platform, an open-ended and customisable technology. Five KM Group members directly made decisions on selecting, testing and installing: the KM manager; two IT/IS professionals; and two senior consultants in the public and financial service sectors. During 2007-2009, the company grew through a series of acquisitions in Portugal, Spain, France, Holland, Germany, Sweden, Australia and the US. This strategy was widely seen by senior management as having resulted in a reduced bid win rate while also lowering the effectiveness of project delivery. In anticipation of the acquisition strategy, senior management decided in late 2006 to migrate onto an upgraded version of the portal with many enhanced features and a new front end design in order to facilitate and improve staff performance and use of the portal. The portal is divided into three environments: *My Information;* *Workspaces;* and *Our Knowledge.* *My Information* provides a personal storage space for shared and private documents and allows for the management of an individual’s company profile. *Workspaces* are web-based environments that enable teams to share information and to collaborate. *Our Knowledge* is a central store of publications categorized by subject, such as sales and marketing and market intelligence.

## **B. Discussion**

The incongruence themes emerged from our analysis of the CRFs. In this study, given the space limitation, we decided to focus our discussion on three typical themes relating to incongruences between the knowledge portal and the situated work practices of users: [I] capturing organizational metadata[[9]](#footnote-10); [II] management of workspaces’ access and [III] management of workspaces’ metadata. For each theme, we will choose and analyze one particular incongruence instance representing that theme (See Table II).

Theme [I] is represented by the task of capturing organizational metadata. Initially the KM group gave the task of categorizing documents to content managers. Classifying documents in PelicanAce is an important task requiring in-depth expertise and experience of projects and service areas to systematically categorize and store documents for fast extraction. For this reason, content managers are either former senior consultants or those who spend up to 30% of their full-time work for current projects of PelicanAce. A senior consultant in PelicanAce’s PS unit in Holland reflected: *“Well, for sure, context is a vital component of our knowledge and providing context to [captured] data and information allows recipients to gain insights into how knowledge was obtained and applied. Here is an example. Tim is the author of two documents on Intelligent Transport Systems (ITS) in Holland and Singapore…There are certainly many common attributes within [these documents]. However, the context [between them] is slightly different and the technologists should address this [contextual] information. I mean, users need to know how, what and why behind the work [of ITS] is being undertaken in those countries or [they] need to know for each work’s context, what decisions were made in the first place so that our company can begin and continue to learn”.*



**TABLE II:** The three typical incongruence themes

Content managers used their background, expertise and experience to manually identify and define or update the metadata which was then approved by the KM group. The portal used this metadata to classify content. Viewed through the KIP lens, content managers enacted their knowledgeability of how to seek for content effectively and quickly based on a set of organizational metadata. This knowledgeability was constituted and reconstituted by how and what content managers searched for in the past and how the outcome of their searches followed their anticipated course of action (i.e. defining and refining the keywords; assessing the relevancy of the returned hits). For instance, when we pointed to the metadata of a document displayed on the desktop and queried the accuracy of their meanings, a content manager in the UK responded, *“We’ve been in the industry long enough to know what’s happening out there and what’s required. When in doubt, we can call or chat with them [consultants] to double-check”.* When asked about their experience, a content manager from India explained, *“If you search ‘lessons learned’, you may use keywords or author [name]. If you search a project summary, you may want to pay attention to [its] priority, project or customer ID, or publishing date…So basically, we need to understand how people search to do the job”.*

As such, identifying and defining organizational metadata appears to be dependent on how content managers ‘see and feel’ their work context. For instance, being in the industry for some time lets them know that for a certain type of document such as a lesson learned, they need to decide the appropriate keywords that link with the context of the project work undertaken. This course of action is thus based on how they interpret the work context around the project, challenges and opportunities, the solution deployed, and particularly, clients’ feedback.

However, after just a couple of months implementing this kind of practice in the portal, there were many complaints from project managers, especially those in larger markets such as the UK, France and the Nordic countries. Reviewing PelicanAce’s issue logs of the service team[[10]](#footnote-11), we repeatedly found words such as ‘confusion’, ‘inefficiency’, and ‘disagreement’ in the comments made by the majority of project managers on the classification of organizational metadata. The problem was elaborated by Joe, a senior consultant in the Public Sector and project manager in Sweden: *“Tim [a senior consultant in IDT in Holland] told me a couple of times that the [current] system and metadata could not help classify the documents effectively…The problem here is [that] some project leaders are unhappy [with this classification], and so they attempted to do it [classify the documents] without waiting for content managers”*.

The problem got worse as PelicanAce continued to pursue growth through an international M&A strategy. For example, in the E&U sector, many projects and differing requirements from diverse clients produced a high volume of content, prompting the need for more efficient classification. To further clarify the problem, we extract here the feedback recorded in the CRFs. In this, “Joe” is a roll-out project manager and senior consultant in the PS unit in Sweden; “Tom” is a content manager and a consultant in the FS sector in the US; “Bhavi” is a content manager and head of service team in India:

*[Joe]: We need to do something to assist our content managers. For example, currently, there are about 200 files about RFID-enabled systems in Germany and Singapore and this number is increasing. I am aware that many project leaders in Portugal, Germany, Singapore and the Philippines are involved in classifying the content [200 documents] as they cannot wait for content managers. This fact caused many troubles for our content managers. Some [content managers] told me that “They do not understand this work! We have to re-do it all the time. Why? There should be a more effective technological solution to help us, not sharing this work with those who do not have previous experience”.*

*[Tom]: I like this approach. The key is about our practice, our system, not our people [content managers]. The projects are getting more complex. We do not need more people to help. I mean we need to ‘tell’ the system where and how to look for the meta-data. If this system could find more [contextual] information, then our efficiency could be improved. There are complaints about the quality of content and delay…We are very concerned about the complaints as it is an important part of our KPI (Knowledge Performance Indicator).*

*[Bhavi]: This is the outcome of our experience, expertise and discussion of the current situation. A discussion of the current [work] context prompts us to improve how we review and identify the [contextual] information. Our experience enables us to combine our practices with the use of the portal. It’s great if this solution can go ‘live’ next month. Give us the tools and our team will do the rest…We don’t want them to help in that way [classifying documents].*

The ‘solution’ or ‘approach’ that Bhavi or Tom mentioned above was the content managers’ request to equip the portal with the capabilities to assist themselves in capturing metadata automatically. These content managers wanted to strengthen their positions and at the same time address project managers’ concern about the quality of their work. To do so, a list of themes of prominent or newly-emerging issues and the ‘information in context’, which appears unique and situational, would be defined and reviewed each month by active[[11]](#footnote-12) leading experts in each industry sector. Based on this list, the portal would automatically scan any new document to identify and suggest metadata which would then be reviewed by content managers for accuracy and completeness. Finally, the metadata list would be updated on the portal and used to (re)classify content, both existing and new, into relevant updated categories. In so doing, the workload for content managers would be restored to reviewing the metadata, their assumed role prior to the installation of the portal.

Exploring the data using the KIP lens, we found that the portal, as originally designed by the KM Group, reflected the manual processes deployed in a local context for classifying organizational content based on metadata into the software. In our case company, when the new situation emerged (i.e. the company pursued M&A aggressively), the consequent increase in the scale and scope of new documentation led to an increasingly inefficient and error-prone manual process for identifying and updating metadata. This created an incongruence between the portal as implemented and the new situated context of the organization.

To tackle the problem, project managers constituted their ongoing, situated knowledgeabilities of how to identify and capture contextual information over time (e.g. both of the current and new information about project). Their propositions and intentions were based on their experiences of managing many projects in different service sectors as well as knowing the fast changing business and operational contexts of their company. They understood, for example, the different, dynamic content management standards and clients’ requirements. A project manager in Switzerland recalled, *“A staff in Denmark said ‘I am looking for a reference’ in Our Knowledge. But in fact, we call it [reference] ‘case study’…To address [differences in language], we try to have a meta-data classification at two levels: one is unified for corporate level and a subset [of this corporate level] for local level”,* recalled. Whilst a content manager in the UK further elaborated, *“In some countries, IDT is very big and in others it is not. So, in a country, where IDT is big, we get a lot of information…So, the use of the content [for specifying metadata] of such countries will be based on how big the sectors are”*.

The immediate reaction then was a change in the situated work practice of project managers who attempted to incorporate classification into their day to day activities. They though lacked the knowledgeability of the content managers and so further adaptation was required. This adaptation took the form of changes to both the portal and the work practices of content managers: the portal’s functionality was adjusted to include the automatic scanning and classification of content; the content managers’ practice was adjusted from the manual scanning and classification of content to providing the contextual knowledgeability for the automation process. In acceding to the content managers’ request for change, the KM group effectively accepted a new knowledgeability which was enacted by not only by content managers but also leading experts in different service sectors of PelicanAce. In sum, under the influence of PelicanAce’s expanding pool of international clients and projects, an interpretive structure was chosen to replace what had been an authoritative structure. A summary of this incongruence using Orlikowski’s KIP lens is provided in Table III.



**TABLE III:** Capturing contextual organizational metadata: Initial & Requested Knowledgeability

Our analysis now turns to an introduction of the contexts where incongruence themes [II] and [III] emerged, respectively. From there, we will move on to analyze the data from the KIP perspective.

The instance of incongruence representing theme [II] relates to the local management of access to workspaces. There were requests to have a single and centralized point for managing workspaces at the corporate level. The portal was initially designed to give flexibility for local administrators (i.e. France, Germany, Australia and Nordic countries) so that they could (i) amend the member list of a particular workspace when a local super-user[[12]](#footnote-13) was added to this workspace for collaboration, and (ii) define the scope or area of workspaces which any new members could access. According to the KM group manager, from phase II of the portal implementation, local administrators quickly found that such a flexible design favorably enabled them to actively strengthen collaboration activities among members working on a specific project. Such collaboration is particularly significant for project teams and also for those working in the local environment. For instance, if a project of the IDT sector in Brazil needs a local expert to give advice, then having local authority to control access could help save substantial time waiting for corporate administrators’ approval[[13]](#footnote-14). The issue was described by a local administrator from Brazil, who is also a KM roll-out project manager: *“We know him [the local super-user] pretty well. This guy is really good and has literally saved us many thousands of pounds; he knows his stuff, our environment, our client…But they [corporate administrators] always ask ‘How do you know?’, or say ‘We’ll decide later’”.*

Another voice from a vendor’s representative clarifies the context:

*“We understand their requests. However, we think [that] this would not work. I mean, we have rich experience of this matter. I can give you one example. A multinational [enterprise] customer with a branch in Shanghai (China) called our team some months ago, asking us to develop more functions to do [some] new works…They [business unit in Shanghai] did not expect this case. They said that some guys in the head office could not understand ‘urgent’ needs of the local teams to modify workspaces’ metadata. So, back to your question, we tell him [the assistant to the KM manager], ‘You may need to take this issue into account. We believe, sooner or later, it would happen. Please let them do the job at their level”.*

What the two software vendor representative mean here is that, through their frequent interactions with many past clients, they were convinced that empowering the local administrators to make decisions on the workspaces would benefit the organization. In this case, the vendor appeared to understand the local situated practices better than the center. This became a conflict between the center and local users, with the vendors aligned with the locality in opposition to the corporate administrators.

The instance of incongruence representing theme [III] relates to the corporate administrators’ requests to have the authority to manage workspaces’ metadata[[14]](#footnote-15) at the corporate level. The portal was originally designed to enable local administrators to edit, update, filter or sort metadata in accordance with special criteria defined by the local project teams. This is important because there are hundreds of workspaces run by teams at the local level, and the ‘context’ provided by the ‘local’ information helps distinguish between two seemingly similar workspaces. For local administrators who clearly understand such ‘context’, the authority to handle the workspaces’ metadata is therefore significant in facilitating teams across PelicanAce to search and access workspaces quickly and effectively. All interviewees except the two IT professionals[[15]](#footnote-16) acknowledged the importance of local administrators’ participation in defining local workspaces’ metadata. To demonstrate how important the knowledge of the local environment is, the KM manager, for instance, pointed to the staff member sitting next to him as he recalled how this person (a senior consultant in T&M sector in the UAE market) helped him to differentiate between the three workspaces, which he called WU1, WU10 and WU11, *“Because of the language, the local teams use different versions of the software [for each of the three projects] and there are even three different business groups [that own workspaces]. So he told me: [To find these workspaces], the ‘software version’ and names of the group could help”*. The interviewees mentioned above including the KM group manager agreed that, similar to theme [II], such a design to empower the local administrators in defining workspaces’ metadata may again prompt conflict between local administrators, who favored the design, and center administrators, who clearly opposed the design.

The above incongruences arose because the corporate administrators did not believe that the portal designs and functions could help them to manage workspaces. These administrators argued that [i] giving local flexibility may seriously affect long established administrative mechanism and [ii] working with workspaces’ metadata is a high priority for those at the corporate level and having local administrators involved in such tasks could potentially cause confusion over the meanings of the metadata. The existing administrative mechanism meant that only administrators with in-depth experience of at least three service sectors and who had worked for PelicanAce for at least seven years were responsible for workspaces’ metadata and access control. These professional roles were initially assigned by the KM group and approved by the CIO office. Interestingly, as far as point [ii] is concerned, we found no clear and convincing evidence by the corporate administrators (e.g. meeting minutes, project files, issue logs, or CRFs) establishing how local administrators could cause confusion through defining the workspaces’ metadata.,

We extract here the written feedback recorded in the CRF to further clarify these two instances. In the following feedback, “Cheng”, “John” and “George” are corporate administrators:

*[Cheng]: I noticed this problem right from the beginning [phase I of implementation]. This is unacceptable from our point of view. Since 2006, the CIO office and the KM group have agreed that the authority to change the workspace’s configuration at the local level should be given to us only. As we all know, this job needs a corporate view and experience. How can they do the job if they do not know what their colleagues in other countries are thinking? We need to change this function as soon as we can…*

*[John]: Their [local administrators] reasoning does not sound convincing. This is our administrative mechanism that defines who should do this job. All people here [corporate administrators] have worked in at least 3 service sectors. We can handle the job very well. There’s no point to share this authority [to work with workspaces] with others.*

*[George]: Our objective is to be ‘One Company’, and so centralization is the key. I am very concerned that [the] involvement of both parties in changing or extending workspaces’ metadata could likely cause conflicts over the meanings [of the metadata]. So how can ‘One Company’ work in this case?*

Viewing the data through the KIP lens, local administrators effectively sought to constitute and re-constitute their collective, situated, ongoing knowledgeability of [i] managing workspaces’ metadata; [ii] assisting the collaboration in local workspaces; and [iii] facilitating members to access workspaces effectively across space and time. This was embraced by the portal designers whose proposition and intention were aligned with those of local administrators. The local administrators understood the problems and challenges of project work, had insights into local resources, demand and supply (i.e. establishing and maintaining good relationships with local super-users), knew how local groups own the operation and business of project work, and how they dealt effectively with clients’ requirements, industry, social and cultural backgrounds, as well as helping to resolve word use or language differences.

In other words, the knowledgeability enacted by the local administrators implied a sensitivity to local contexts. For instance, in the CRFs, local administrators provided feedback and comments regarding how potential changes to the metadata could happen due to changes in the rules and regulation of the local environment where the project works took place. One comment recorded, *“They [corporate administrators] come here a couple of times a year but do not live here…This is where we live and work. We have friends and partners [here] and so we know if we develop in-depth knowledge of our environment, it can enable us to give our best to help manage workspaces’ metadata better”*.

Using the KIP lens, corporate administrators wanted to constitute a new knowledgeability based on their experience of managing workspaces’ metadata and access, one that was dependent on their status as defined by the administrative mechanism set out by the KM group and the CIO office. They believed that they had a clear of view of their course of action and the outcome of it. However, this did not include sensitivity to local context and consideration of effectiveness using local resources. As analyzed above, this is an important difference between the knowledgeability that was embedded and enacted by portal designers and subsequently constituted by the local administrators and the knowledgeability promoted by the corporate’s administrators.

**TABLE IV**. Local Management of Workspaces’ Metadata & Access:

Initial & Requested Knowledgeability

To resolve these two instances of incongruence, the KM group decided that they would adapt their work practices to the portal. When reviewing the request and particularly feedback from local administrators[[16]](#footnote-17), the KM group acknowledged that the initial portal design (i.e. controlling workspaces’ access and metadata) provided the basis for a continued and evolving sense of trust and efficiency important for knowledge sharing and collaboration and significantly facilitated the conduct of complex and distributed project work at the local level of PelicanAce. As such, by continuing to engage in these ongoing, highly situated practices, local administrators were expected to reinforce their presence and enrich their understanding of PelicanAce’s project work and clients. The KM group also decided that they would work with the CIO office to revise and update the above mentioned administrative mechanism so as to avoid any potential issue in terms of the roles and responsibility related to the corporate administrators. This meant that the administrative mechanism allowed local administrators to be mainly responsible for managing their workspaces. The corporate administrators could still be involved in this process as advisors but their role was no longer decisive.

To sum up the instances of incongruence [II] and [III], upon consideration of the pros and cons of the portal design and the requests, the authoritative structure originally incorporated into the portal was retained and the requested interpretive structure was rejected. A summary of both instances of incongruence viewed from Orlikowski’s KIP lens is provided in Table IV.

Viewed through the KIP lens, the three instances of incongruence seen in the case company demonstrate not only the situated nature of knowledge work practices but also the need to take into account the knowledgeability of various user groups and potential conflicts arising from incongruences between them. Such incongruences had generated dissonance that our case company subsequently decided to bring back into some form of harmony or resonance. The distributed nature of PelicanAce’s knowledge workers and the company’s rapid growth through M&As led the KM Group to impose its vision on local user groups in two of the three instances of incongruence studied here. The choice of such interpretive structures was in direct conflict with the knowledgeability of many local user groups who had a better understanding of the local reality of business processes.

# V. implications

## **A. Insights into the sources and nature of misalignment**

Findings from this case company highlight interesting issues relating to the incongruences arising from differences in the situated knowledge work contexts of differing groups of users (i.e. corporate and local administrators). Compared with prior studies such as Schultze and Boland (2000) focusing on the incongruence of a single work practice, our work advances by presenting a more diversified, nuanced picture of incongruences that arise from various knowledge work practices in a global operational context comprising a large, diverse knowledge-intensive user base. For instance, in PelicanAce, we identified and examined instances related to access and control mechanism for workspaces and capturing organizational metadata.

Regarding the sources of incongruence, Orlikowski’s knowing-in-practice lens sheds light on how the knowledgeabilities of different groups of users (e.g., center versus local groups) of using the portal to do knowledge works are constituted and reconstituted in a globally distributed, knowledge-intensive organization. Suchman (1995) observed that work practices were subject to substantially different interpretations by actors who were differently positioned, with correspondingly differing interests regarding the works observed. In our case company, the portal developers’ view appeared to be close to that of local users, building in autonomy and flexibility into the portal design and operation. Conversely, the corporate administrators, concerned with harmonizing practice across an expanding and diverse set of mergers and acquisitions, appeared to be intent on using the portal to impose new practice on groups of local users that emphasized standardization over local variation. This required organizational practice to adapt to the embedded design of the portal.

Such an attempt appears to point to a conflict between the organization’s top level need for control and, at a work practice level, the knowledge workers’ need for flexibility and interpretability. While the tensions between the need for global standardization versus local flexibility has been recognized in the literature particularly relating to global systems (Kettinger and Marchand, 2005; Kettinger et al., 2010), the tacit nature of knowledge and the situatedness of knowledge work practices mean that a bottom-up approach to knowledge work has been seen as more effective (See e.g. Wang et al., 2013). Individuals draw upon their physical presence in a social setting, on their cultural background and experience, and on sentient and sensory information (Blackler, 1995; Tyre and von Hippel, 1997). As knowledge workers hold different positions, they also conduct work practices using KM technologies in various ways (See also Wagner and Newell, 2004). In other words, their knowledgeability of using the KM software is just provisional and does not hold true for everyone. For example, with exactly the same content, an IT consultant may require to have it extracted and presented in a way different from a sales and marketing staff member.

In particular, we anticipate that the incongruences resulting from differences in situated work context may be perpetual throughout the implementation on the following grounds. The on-going interaction between users and both of their immediate (i.e. their local environment such as departments, units or country where they reside) and broader contexts (i.e. PelicanAce’s global M&A strategy) may continually create new complexities because the portal in this case company opened up a new network of relationships across boundaries which eventually make uncertainties and instability become more prevalent (King and Star, 1990; See also Brown and Duguid, 2001). Moreover, knowledge work practice does not exist independent of social interaction (Dougherty, 2004; See also Dulipovici and Robey, 2013). As the company grew through a strategy of M&A over the past decade, new individuals and groups, who were not initially familiar with PelicanAce’s work practices and the portal, may increasingly question the logic behind the portal design, prompting the organization to re-assess its existing work practices (Jarzabkowski, 2004; See also Lave and Wenger, 1991; March, 1991; Mendoza, Carroll and Stern, 2010). These issues present practical problems for those who design and develop knowledge portals as they find it hard to generalize and forecast ‘who, at what time will request what kind of knowledge’ (Teo and Men, 2008: 558). In other words, alignment and implementation of a portal are of ‘intertwined nature’: They must occur simultaneously, not sequentially (Ravishankar, Pan and Leidner, 2011). These issues make the design and implementation of KM software different from those of traditional enterprise software. The experience of our case company also challenges the notion of KM systems as one-off projects decontextualized from people and practices, a view that often plagues KM projects (Alavi and Leidner, 2001). Instead KM systems may need to be seen as evolving and able to accommodate the generative practices of users (Chun et al., 2009).

## **B. Implications for designing, developing and using KM technologies**

Suddaby and Greenwood (2001) note that management knowledge ‘commodifies’ over time as firms try to colonize new knowledge territories, which inevitably leads to expansion in their scale and scope of practices. Such firms need to diversify in order to guard against potential reduction in the size of client markets and to exploit under-utilized firm resources (Hitt et al, 2001). For that, these organizations must continue to create new knowledge-based services to remain innovative and creative as well as to speed up responses. They can do so by developing new practice areas (Anand et al, 2007). By proactively engaging in emergent work practices, people may eventually constitute new knowledgeabilities of using IT to do knowledge works in their organizations. This implies again that the adoption of KM software in organizations, particularly the knowledge-intensive ones like PelicanAce, needs special attention from both academics and practitioners.

What’s more, Suchman (1995; See also Suchman, 2007) proposes that the extent to which users’ behaviors are encoded into the technology will reflect the power and effectiveness of the technology in supporting users to do knowledge works. Our study not only provides further support for her proposition but also elaborates as to why this is the case. For instance, the behaviors and actions of the local administrators in PelicanAce were apparently dependent on their roles along with the on-going interactions between them and their immediate (i.e. their local environment such as departments, units or country where they reside) and broader contexts (i.e. PelicanAce’s global business environment). Therefore, if their behaviors are encoded as correctly and as fully as possible, then the KM software can effectively support their work practices.

Notably this study may provide an important implication for implementing KM software for communities that are geographically dislocated. We not only subscribe to Huysman and Wulf’s (2006) proposition that by institutionalizing the role of a knowledge broker in the community an organization could improve the cognitive ability of individuals and groups, but also give more insight into their account. Cognitive ability, which refers to the extent to which members of a group or an organization connect with each other to understand what the others are doing (Huysman and Wulf, 2006), may help users, as in our case company, better explain and therefore achieve a consensus of which knowledgeability should be constituted, such as the knowledgeability of managing workspaces’ metadata and access between the center and local administrators. Knowledge brokers mediate communication by exploring shared stories and language in the workplace, and eventually use their reflection to provide bridges between the social system (i.e. communities or groups of users in our case) and the technical system (i.e. designers) (Ibid.). Our suggestion of knowledge brokers is somewhat in line with both Wasko and Faraj (2005) and Ravishankar, Pan and Leidner’s (2011) viewpoint that promotes formal mechanisms to help control employee behavior in an effort to ensure the strategic alignment of a KM technology in organizations.

# VI. Conclusion

In attempting to uncover sources of incongruence between IT-enabled KM system and organizational work practices, this study addresses Schultze and Boland’s (2000) assertion that exploring as well as understanding the unique knowledge work context is critical for the successful adoption and implementation of KM software packages. Our results are helpful in understanding the sources of incongruences arising from differences in situated work practices in a global operational context comprising a large, diverse user base; this in turn further enriches the literature of KM technology adoption and implementation. From an organizational perspective, such an understanding is highly salient as the issues of technology adoption *‘profoundly affect the manner, quality, and outcomes of organizational realities’* (Orlikowski and Scott, 2008: 5).

Interestingly, knowledge in the context of Knowledge Management software is perceived to constitute a new form of information that was not previously addressed in prior studies of widely adopted enterprise software such as Transaction Processing Systems, CRM, or ERP implementation (Alavi and Leidner, 1999). Besides Schultze and Boland’s (2000) and Dulipovici and Robey (2013)’s studies, our work is a serious attempt to explore KM technology design and adoption from the knowing-in-practice perspective. Understanding how KM software is designed and implemented is intertwined with the special features and characteristics of knowledge and knowledge work practice, not the information, data, and the ‘general’ work practice that have been long observed. The highly contextual and situated nature of knowledge work poses particular challenges in navigating between differing domains, most especially in our case company between differing groups of users.

We also make a methodological contribution by showing that studying the Change Request Forms (CRFs) in KM implementation projects can provide researchers with valuable insights into the context and possible outcomes of such KM initiatives. This approach may also offer a way of evaluating future KM initiatives.

Practically, studies of this nature should assist organizations towards a better understanding of the factors inherent in a successful KM technology implementation project in large or global firms, particularly those rich in high-value text-based knowledge for making decisions like professional service, R&D, military, and healthcare organizations.

Results of this study must be interpreted in the context of its limitations. First, this single case study has only explored instances of incongruence from the 2nd phase of the project to five months after the system’s roll out. Instances of incongruence arising outside of this period remain undetected and could provide a more complete assessment of the project. Second, due to constraints in the research setting’s, we could not interview more users in different countries to gain a better view of situated knowledge work practices, both current and emergent. We were also unable to fully engage with the portal vendors due to access issues, and could only interview two representatives. Future work could give equal attention to both the vendor firm and the case organization.

To end this paper, we would like to recall McDermott’s reflection, *“The great trap in knowledge management is using information management tools and concepts to design knowledge management systems”* (Lave and Wenger, 1991). Indeed, without insights into how people do knowledge work, the design, development and use of KM technologies can never really become truly successful.

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1. In this paper, we use the word ‘technology’, ‘software’ and ‘portal’ interchangeably. [↑](#footnote-ref-2)
2. Given the context of using an IS in an organization, normative structures represent the rules imposed by an institutional context or environment (which users must abide or follow) while authoritative structures refer to the norms and standards specified by designers. Additionally, interpretive structures denote users’ shared belief of how the work should be performed by using an IS to achieve their goals or objectives. Social structures also mean some forms of allocative ‘resources’ available for such rules, standards, norms and beliefs to be adopted and exercised (Orlikowski, 2002 and 2000). [↑](#footnote-ref-3)
3. Their propositions and intentions for instance involve making a number of choices about what pages to include and exclude in the reference database, and how to sort and rank such pages in the database. For more information about how Google search engine works and how users can even manipulate such page ranks for their own interests, please access: https://www.google.com/insidesearch/howsearchworks/thestory. [↑](#footnote-ref-4)
4. This is an industry term meaning without modifications. [↑](#footnote-ref-5)
5. Practice is defined as the *“organization’s routine use of knowledge and often has a tacit component, embedded partly in individual skills and party in collaborative social arrangements”* (Szulanski, 1996: 28). Generally, organizations, both software vendors and adopters alike, are attempting to adopt new managerial ideologies and practices in order to retain legitimacy within their particular field, rather than simply to improve efficiency (Meyer and Rowan, 1997). [↑](#footnote-ref-6)
6. The company name has been disguised to respect confidentiality. [↑](#footnote-ref-7)
7. Information about the KM group can be found in Table 1. [↑](#footnote-ref-8)
8. The KM group has 20 members who are also senior consultants in their service sectors. [↑](#footnote-ref-9)
9. Organizational metadata describes the name of the project bid and document, content type, author, service sector, publishing and modifying time, priority, keywords, etc. for effective classification and archiving. [↑](#footnote-ref-10)
10. There are two service teams: one in Bangalore, India and the other in the Philippines. These teams designed and developed archiving solutions for content and ‘cradle to grave’ content management lifecycles. In 2008, they were responsible for over 1.2 million documents held within PelicanAce’s group-wide workspaces environments and over 3,300 project summaries collected and published in the group knowledge repository. [↑](#footnote-ref-11)
11. ‘Active’ means that they spend 100% of their time on current or recently completed projects. [↑](#footnote-ref-12)
12. A super-user is a well-known or very experienced expert in a particular service sector who can provide advice to help resolve problems facing the project. [↑](#footnote-ref-13)
13. To receive approval, a report justifying adding the super-user to the project has to be filed to the center. It normally took at least 3 working days to know the decision. [↑](#footnote-ref-14)
14. Metadata helps to identify a particular workspace among hundreds of workspaces operated by teams throughout the world by including the title (URL) of the workspace, the name of the business group owning it, owning operation and owning business, active status, languages, keywords and sub-types, default reader group, and the default site collection admin group. [↑](#footnote-ref-15)
15. These two IT professionals are also member of the CIO office (See Table I). They neither opposed the views of central administrators, nor supported local administrators. [↑](#footnote-ref-16)
16. The KM group surveyed and received feedback from over 35 local administrators (out of 52 local administrators in total) in three key areas: The Nordic countries, the Middle East, and the central Europe (the UK, Germany and France). [↑](#footnote-ref-17)