MANAGING ORGANIZATIONAL KNOWLEDGE AND COMPETENCE POST-MERGER: PRACTICE, CONTEXT AND LAYERS

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Abstract

The aim of this paper is to explore the meaning of 'knowledge' and 'management'. It does so, through discussing the case study of a collaborative action-research project which worked with a post-merger organization. The paper takes a practice perspective (Brown and Diguid, 2001) and takes the reader through the post-merger attempts to manage the knowledge and capabilities constituting the new organization. The paper proposes looking at post-merger organizational processes, such as integration, as a 'web-spinning' process. It is suggested that paying attention to context and 'layers of relevance' (Schuetz, 1944) may enrich the 'knowledge management' literature.

Keywords: collaborative action research, mergers and acquisitions (M&A), integration, web-spinning, context, layers.

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Suggested track: A Managing organizational knowledge and competence

1. Introduction

To talk about 'knowledge' in the organizational literature has become commonplace over the last decade. The development of various information and communication technologies has lead to the burgeoning of the field of 'knowledge management' both from the perspective of technology, as well as people. The assumption is based on emergent ideas of the so-called 'information/knowledge economy' and proposes that if, organizational knowledge can be managed better, then the organization will thrive. The unit of analysis tends to be the single organization.

The ideas and challenges underlying the management of knowledge in organizations, however, are older and much broader (Alavi & Leidner, 2001; Land, Nolas, & Amjad, 2004) than some of the technologically orientated literature allows for, or the people-centered approach suggests. For the most part, the current literature leaves unquestioned its own assumptions. The resulting 'narrative' assumes that knowledge is for the most part 'good', as well as objective (Land et al., 2004). On the one hand, such an assumption raises serious ethical questions (Land et al., 2004).

Conversely, leaving these assumptions unquestioned, will also eventually obscure the *meaning* of what it is we are actually referring to, when we speak of ‘knowledge’ management in organizations. Emphasis on meaning, allows us to move away from an ‘objective’ and ‘given’ reality, towards one which is negotiated on a daily basis. Alvesson and Karreman (2001:1004), for instance, suggest that ‘how people relate to KM is more ‘explicitly discursive’’ – in other words, that KM is not a ‘thing’, a given technology with ‘innate’ characteristics. Instead KM is a construct, developed through the way people relate to and talk about the tools which are used to facilitate KM.

The aim of this paper is to explore the meaning of ‘knowledge’ and ‘management’. It does so, through discussing the case study of a collaborative action-research project which worked with a post-merger organization. The paper takes a practice perspective (Brown and Diguid, 2001), and, in the first instance, describes how the organization attempted to address its post-merger concerns. The paper then suggests why a merger and acquisition is particularly insightful on the subject of knowledge, and knowledge management in organizations, and proposes looking at post-merger organizational processes, such as integration, as a ‘web-spinning’ process. The events of the action research project, and their implications, are then discussed in terms of the new organization looking for context-appropriate ways of ‘web-spinning’. Finally, with the knowledge of the case study the paper reflects on some possible implications for the KM field of study.

2. The case study

The case study is part of a 3-year collaborative action research project, Integrating Complex Social Systems (ICoSS), started in September 2001. The project used the principles of complexity (Mitleton-Kelly, 2003a, 2003b, 2004) to explore the conditions that facilitate and support the emergence of new organizational forms after a change event – in this case a merger and acquisition (M&A). The way the project aimed to facilitate and support the emergence of a new organizational form was by introducing a different type of *discourse* into the organization; namely a discourse informed by complexity thinking,.

Within the context of supporting the emergence of a new organizational form, the ICoSS research looked at ‘knowledge exchange’. Knowledge exchange refers to ‘new ways of seeing’ and ‘new ways of thinking’ of organisational challenges during the post-merger period. Its success would be largely dependent on the right enabling environment, on human relationships and the ways of working[1] in the organization. The partners in the project wished to (a) understand a self-defined problem in greater depth; (b) find an appropriate language to express the issues and formulate answers and (c) create an enabling environment for a knowledge sharing culture.

The organization is an International Engineering Company (IEC) with a reputation for engineering excellence. The IEC, in its entirety, is made up of four businesses - the ones which are relevant to this paper are the aerospace and marine (naval and commercial) businesses. The company dates back to the late 1800s and is well-known, and respected, for its gas turbine technology. The collaborative action research focuses on the post-merger period in the IEC's marine business. The IEC acquired a collective of Scandinavian companies scattered across Norway, Sweden and Finland. The acquisition was completed in 1999; it brought with it the expansion for the IEC's capabilities into the commercial marine market, almost doubling the marine business's capabilities. Prior to the acquisition the IEC's marine business catered solely for the naval market, working mainly with the UK MoD and the US market, and represented 10 % of the IEC's annual turnover. The new IEC marine business now consists of a naval marine component and a commercial marine component.

The project can be described through a recollection of various events which start with a set of eight (8) pilot interviews in the summer of 2002. The interviews, and subsequent reflect-back workshop[2], triggered the idea of involving the organization's 'High Flyer' programme in the collaborative research. The 'High Flyer' programme is an internal IEC programme aimed at the development of leadership capabilities amongst junior and middle management. In the autumn of 2002, the joint research endeavour was launched. The entire research group consisted of 18 people, split into four teams. Making up one team were the three 'outside' LSE researchers, while the other three teams were made up of the 15 company High Flyers, who were acting as researchers for the duration of the research collaboration.

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[1] ICoSS Project Proposal, September 2001.
[2] The 'reflect-back workshop' is part of the ICoSS methodology (Mitleton-Kelly, 2003). The overall analysis is then presented to all interviewees in a 'reflect-back workshop'. The 'Reflect-back Workshop' may also be described as a 'focus group' discussion. The purpose it two-fold. On the level of the analysis, it serves to validate the findings and negotiate any contested meaning. On the level of the action research it serves as an opportunity for the exchange of views and ideas amongst members of the organization, who otherwise, may not be discussing the issue under investigation.

The four teams conducted 44 interviews with senior management in the new 'merged' organization. The interviews were designed to elicit discussion around organizational culture, organizational structure, ICTs and communication, and enabling and inhibiting working conditions. Interviews were recorded, with the interviewees permission and transcribed verbatim. Analyses were conducted at the individual, team and entire group level (cf. Mitleton-Kelly, 2003 for details about the ICoSS methodology). For the purposes of this paper 20 out of the 44 interviews were analysed by the author with the help of Atlas/ti (Muir, 1997). Six months after the 'official' closure of the research collaboration, a set of fourteen (14) evaluative interviews were also conducted with the group of High Flyers who took part in the project. The purpose of these interviews was to find out about the internal researchers' experiences of having participated in the project and whether there had been any changes in the IEC organization since the end of the research collaboration. It was also hoped that the interviews could potentially elicit the further involvement of the High Flyers in any changes that were taking place in the organization. Interviews were also recorded, transcribed, and analysed, as above. Finally, in terms of data, the various events, such as meetings, conferences and presentations, which took place throughout the collaboration with the IEC, also inform the present discussion.

3. A practice perspective

Practice is the 'point of engagement' between the individual and the organization (Brown and Diguid, 2001:201). It is what individuals *do* together, or in coordination with each other. As such, practice does not take place in isolation, and becoming a skilled professional – a skilled practitioner - entails an element of recognition and acceptance from others in that profession (Brown and Diguid, 2001). The collective and social endeavor required for becoming a skilled practitioner, further points towards the context in which the profession is practiced. Each profession has its own criteria of operation, criteria which differentiate it from other professions. Such criteria become manifest in the context of practice. Therefore, if we are investigating 'the flow and acquisition of knowledge both within and between firms' (Brown and Diguid, 2001), we need look at the context in which their work is carried out.

3.1 Contexts of practice

A context is provided by all societal levels. It is for the researcher to decide, according to what she observes, which levels are the most salient for analysing ‘knowledge’ in a particular organization. Government departments (or ministries), for example, are a good indicator of a country’s societal organization, and reflect ‘special’ capabilities or relationships between sectors or industries. In the case of IEC, the industry level and government organizational level provide an initial, relevant context of analysis because industry and government contexts constrain the IEC’s knowledge processes.

The Department of Trade and Industry’s (DTI) website is helpful for providing an understanding of the IEC’s ‘merger’ with relation to the industrial context. The predominant part of the IEC’s business is in the aerospace industry. The aerospace industry, in DTI terms, is an industry sector in its own right, thus making it particularly visible. As such, and because of the high risks involved in engineering failure in the sector, the standards and quality assurance the IEC has to impose on its products and engineering practices, are very high. As a result, procedures and business processes are also affected:

> *“One thing with a huge merger like that is that we try and bring in the IEC culture of doing things… and these other companies don't work that culture, they don't use our processes and it's quite difficult really because we're an aerospace business where the processes are very, very tightly controlled because of safety issues…”* (Head of Engineering; Acquirer company, UK; 11:64)

The part of the IEC’s business that merged was the marine business. The IEC marine business is a smaller component of the IEC overall and one which, until the merger, was a naval marine business alone. The IEC naval marine business’s main customer was the MoD. The relationship with the customer is formalised in contracts which run over a long period of time; product turn over is slow. As such, the naval business’s work practices are organized along extended time horizons, and are constrained by the security issues associated with the needs of their customer(s) and contracts:

> *“So the threat is if we should go back and try to put it together, if we look only [at the marine business], we have two divisions… it's the naval and commercial business and if*

we should try to play the same [inaudible] practices in these two organisations, I believe that would be a mistake because we have some different processes and the naval business is working with the MOD and working at Minister level and we have a relation business. We have more than 2,000 customers and the naval business have maybe 20…" (Executive Vice President of a Business Division; Acquired company, Norway; 3:38)

The 'commercial marine' business, acquired by the IEC, does not fall into a separate UK industry sector according to DTI categorisations. In the past, shipping was conducted using the country's strong naval fleet – the merchant navy. However, the later half of the 20th century saw the closing down of the ship yards and a decline in the UK shipping industry. Instead, the commercial marine sector in the UK comes under the auspice of the Department for Transport which, since the late 1990s, has been trying to revive the declining shipping industry through an 'integrated transport policy'.

Changes in the industry environment can prompt change in the organization's strategic directions, and by extension, the context in which work practices take place. The point here is not to determine whether there is a causal link between the government's decision to boost the shipping industry, and the IEC's decision to acquire additional skill and capacity in the commercial marine area – it would be naïve to think that other factors, such as environmental considerations and technological development, or the down turn in the aerospace industry, did not effect the decision. The point here is that, as a result of the merger, the new IEC finds itself in an unknown context, both at macro and micro level of organization, which is governed by different work practices, pressures and constraints. The industrial context alludes to the organization's external constraints.

The acquisition created for the IEC thousands of new customers, hundreds of new products, commercial quality standards and an international business. However, by comparison to the naval business, the commercial marine business works on much shorter time horizons, has a much bigger customer base and a faster turn over of contracts and products:

"So it takes time to get decisions through and our shipping environment is not used to that, it's used to that people are empowered and in position to make quick decisions. So

> *it has to do with empowerment of business managers."* (Executive Vice President of a Business Division; Acquired company, Norway; 3:16)

The products acquired are not only leading market brands, in both naval and commercial marine systems, but are also very closely linked to the sites and communities in which they are produced. For example, one of the Scandinavian companies acquired, has a history which pre-dates the IEC. The work practices in the commercial marine business are based on the build up, over time, of relationships with the customers:

> *"Our products last for quite a long time…so it's not necessary to have, let's say, a new product in the market every year and every half year but we have to be able to develop products according to our customer's needs and also in close cooperation with our customers and to do that, we need resources and over the last year there has been, let's say, limited possibility to at least increase the resources…"* (Factory Site Manager; Acquired company, Norway; 2:5)

Despite the fact that both naval and commercial parts of the organization are engineering businesses, the different contexts in which they operate, result in different work practices beyond the level of engineering practice. In order to further understand each business's work practices in context, we need to look at what each business considers as its 'best' practice. In other words, the criteria, and internal constraints, that make the business that particular business, and not any other.

3.2 The 'best' practice

The industry level of context provides insights into the external constraints on the organization's work practices. However, we also need to look at how practices are used within the organizational context. 'Identity' emerges through practice and the way practices are used, constitutes an organizational identity. The way in which the identity is articulated, provides information about the 'criteria' which makes the organization what it is. Although both parts of the IEC's marine business are engineering and business professionals, their identities are articulated and used differently, therefore the criteria of being a naval or commercial organization are also different.

The point can be clearly illustrated by analyzing the weight interviewees put on each business's capabilities. Through the interviews it becomes clear that the term ‘engineering excellence’ used to describe the IEC organization, is more than just a marketing phrase. The IEC established engineering success, combined with the major role it played in engineering innovation during the Second World War, turned what was previously a small business, into a major contender in the aero propulsion industry. The gas turbine became the IEC’s trade mark product. The IEC’s historical legacy is encompassed in the term ‘engineering excellence’ and signals membership to the IEC community:

> *“I think that across the whole of IEC there is a strong pride in the product and the technical excellence of the company and the history of the company and that is independent of the site that you work at or the product you're involved with, whether it's a gas turbine or a nuclear reactor.”* (Programme Director of a Business Division, Acquirer company, UK; 10:14)

Conversely, the commercial marine business describes itself in terms of the in-depth knowledge of the marine market and the close relationships with the customer:

> *“The offshore business has historically a very strong and close relationship with our client base…”* (Executive Vice President of a Business Division; Acquired Company, Norway; 1:52)

> *“We are not working with the customer to be responsive, we are working with the customer to understand his needs and where he wants to go and where we might lead him to go. So it's not only to be responsive but it's to understand his business and understand our capability to maybe improve his business. That's slightly different.”* (Executive Vice President of a Business Division; Acquired company, Norway; 3:75)

Another way of expressing the differences between the two businesses is in terms of their different orientation. The ‘best’ practice of the naval side has an internal orientation. The criteria for being a naval business are derived from the technology itself, and the security standards dictated by the broader environment. The practice by which the commercial business chooses to describe itself, has an external orientation. Here the criteria are determined by customer needs and market forces.

Whereas, the difference may appear obvious to the reader, it was particularly important to understand the underlying significance of this difference. The tension between the naval and commercial businesses was most prominent in interviewee accounts of the post-merger situation. The new IEC marine business aspires towards a common practice of a 'system's integrator'. A 'system's integrator' entails providing everything from the ship design to the engine and after-market services and maintenance. Such a practice would involve using the knowledge and expertise of both the naval and the commercial sides of the business. As such, the need to resolve the naval/commercial tension is of particular importance to the new organization, hence the particular concern with 'integration'. The question then becomes how are different practices coordinated across different contexts without destroying the knowledge, skills and expertise these practices entail?

3.3 Practicing integration, by assimilation

According to Wenger (2000:232) 'shared practice by its very nature creates boundaries'. Boundaries have a dual function: they keep things out by keeping things in (or vice versa). The tension between naval and commercial business practices can be understood as a clash of contexts and an attempt to overcome the clash by creating a new boundary. Organizational boundaries function to keep knowledge and experience in the organization, thus providing the organization with its competitive edge. "The essential managerial task in a new organization is to create a set of system characteristics - authority relations, role definition, and so forth - that are congruent with each stage of the organizational life cycle. At the inception of a new organization, this means creating boundaries where none previously existed" (Shinn & Perkins, 2000). Integration, then, is the practice of creating new boundaries, through 'shared' work practices.

However, integrating and achieving success in a merger is challenging because it involves combining firms with their 'own idiosyncratic fashion and which contain different people that 'know' different things' (Allen, Ramlogan, & Randles, 2002). A merger, or acquisition, creates a new collective high in variety but low in coordination. The merger event brings together a lot of new and different experiences; yet, to begin with, other than the merger event itself, none of the experiences are collectively shared by the new organization. In creating a new context for an organization, the merger also creates uncertainty. Faced with uncertainty, the tendency is to try to manage through the exercise of control. However, control may well damage the knowledge and capabilities the firm wants to develop.

In a merger, what may have been competing organizations, are now faced with the challenge of re-defining their boundaries in order to function as a new 'integrated' organization. Originally, the way the IEC tried to create the new organization was by imposing its organizational structure, and the standards embodied in the structure, onto the new collective. The organizational structure that the IEC tried to impose was a 'matrix' structure. The 'matrix' however, as interviewees told us, was far from clear, both in terms of a structure, as well as in terms of acting within it.

An organization's structure reflects its division of labour. In the case of the IEC the organizational structure was described by interviewees as a 'hybrid matrix'. 'Matrix' refers to the separation of the functions from the business. The 'hybrid' part of the name refers to the further division within the business, between production and customer interface. Neither division is particularly curious in itself. However, it would appear that the label taken as a whole, and as used by interviewees, has another, further connotation and is used more to refer to the organization's 'complicated' or 'messy' structure:

> *"the problem with the matrix is…they're hybrids that UK again is establishing, that they are establishing a lot of exceptions instead of…which I call hybrids, instead of having a clean, matrix organisation…there are a lot of examples…this organisation has been established, no one understands why it should be like that."* (Executive Vice President of a Business Division; Acquired Company, Norway; 1:42)

> *"it needs to be more consistent. I think we proudly say we're a matrix organisation but I think the interpretation of what matrix should look like and who sits on which side of the matrix and how many matrices sit on top…"* (Programme Director of a Business Division, Acquirer company, UK; 10:25)

An organization's structure, is 'an institutionalised template for social action' (Orlikowski & Yates, 1994) and creates a particular type of organizational 'genre…that shapes the ongoing communicative actions of community members through their use of it' (Orlikowski and Yates, 1994:542). In terms of practice it represents and encompasses a shared way of organizing at a formal level. The formal level of organization provides another relevant context of analysis. The formal level of practice frees up the organization to continue with the 'best' practice. However, when the IEC tried to 'impose' the 'institutionalised template', and therefore, the formal way of interacting and relating, it did so without fully realising its own informal forms of engagement, as well as those operating in the new context.

Organizational genre, in the way described by Orlikowski and Yates (1994) refers to social action – forms of engagement – at the institutional level. The institutional level represents formal ways of interacting in an organization, what one 'ought' to do. At the level of social practice, however, other forms of engagement operate which demonstrate an informal, 'tacit' knowledge at the collective, group level (Brown & Duguid, 2001). For example, interviewees from both the naval and commercial business talked about 'networks'. The network describes the way of working which, according to interviewees from the commercial marine business, was a practice developed and tailored to the commercial marine context. This way of working for the commercial business is an institutionalised form of engagement:

> *"We have a very well developed global network in our organisation and IEC has also developed their own system but I think our global network is tailor made for supporting the marine business and IEC is again looking for synergies that doesn't exist and I'm afraid they could end up again destroying the business by looking for non-existing synergies."* (Executive Vice President of a Business Division; Acquired Company, Norway; 1:17)

However, networking, used by members of the naval business referred to a social process of networking. Conversely, this was an informal way of working in the naval marine business based on relationships and acquaintance (Sell-Trujillo, 2001):

> *"So it does rely on networking a lot more than having a clear line of…a clear understanding of the organisation, it's just knowing the right people you may have been working with for some time."* (Programme Director of a Business Division, Acquirer company, UK; 10:67)

The above quotation, which refers to the 'network' as an informal way of working, sheds some light on why there is conflict caused by the imposition of matrix organizational structure. The 'formal' way of working – matrix – is contrary to the actual work *practice,* which is based on informal relationships, which in turn are guided by other 'rules of engagement'.

4. Why study a merger and acquisition (M&A)?

Elsewhere, we discuss the post-merger concerns at length, by looking at organizational culture(s) and sense-making processes as those are enacted through the narratives people produce (Garcia-Lorenzo & Nolas, 2004). Instead, this paper looks at the process of integration, post-merger, and what this tells us about the 'management' of organizational knowledge. A merger case is particularly interesting because it deviates from the usual discourse of the 'knowledge management' literature, which is based on the single unit organization. The merger provides a clear case for looking at knowledge in organizations as a *relationship* created by the union of two (or more) companies. Furthermore, a merger situation is interesting because it constitutes a significant change event for any organization. The outcome of an M&A entails a *combination* of human, material and financial assets of at least two organizations in a new legal and accounting entity (Hunt, 1998). The action of combining necessarily brings change. Change events bring us into contact with difference, both in terms of other people, processes and situations, but also in terms of revealing the taken-for-granted aspects of our own reality (Schuetz, 1944).

The post-merger period may be viewed as a period of trying to find a way of managing the new context. 'Integration' is the merger/post-merger activity of trying to manage knowledge in the new organization. It is an activity of developing shared practices and understandings. Integration is a practice of trying to make the unfamiliar, familiar and in doing so creates new organizational boundaries within which, old and new knowledge can begin to develop and grow. The most common enactment, however, of integration is through control. The relationship and interaction dimensions implied by an M&A – as old parts are brought together to create a new whole – tend to be ignored. So, in fact what usually happens in M&A is a process of 'assimilation', not integration. In other words one form, or model, of 'reality' is imposed onto another.

4.1 Labyrinths of change

New situations are labyrinths which make us lose our sense of bearings (Schuetz, 1944:507) and so the comfort zones of our familiar and habitual contexts are no longer relevant in the new context. What we used to know and rely on to get us through our everyday life, whether this is in a social or organizational context, will no longer be able to inform our actions in the same way. As such, an integration activity which aims to 'assimilate', as opposed to integrating, is doomed by default, because the model through which 'reality' was interpreted and recreated is no longer appropriate.

If, a labyrinth is a 'good' description of our experiences of the new, then we also need an analogous discourse with which to talk about what happens and how we deal with the labyrinth. We need to understand the experience in its own terms and not in light of another experience. In the spirit of labyrinths, this paper takes the view of organizations as 'webs of relationships and interactions'. The idea of 'a web of relationships and interactions' is not new, it is used as an expression to describe the intricate and overlapping connections – the interdependence - that create the social and cultural fabric of reality (Sell-Trujillo, 2001). The point is that the image of an organization as a 'web of relationships and interactions' is a powerful heuristic. In the context of research, thinking about labyrinths and 'web-spinning' allows us to focus the analysis on the relationships and interactions, between individuals and the organization, amongst individuals and between the organization and its environment. Furthermore, a web has a certain robustness which allows us to add to it or take away, to change the pattern, but still all along to continue to recognise this thing as a 'web'. To link this concept to others, the reader may want to think of Brown and Diguid (2001) choice of the term 'networks of practice' to describe loose epistemic groups or the concept of 'rhizome' used by Deleuze and Guattari (1987) (Eco, 1985; Humphreys & Lorac, 2002).

If, we accept the 'web of relationships and interactions' discourse, then we can start to think of the processes of management, organization, coordination, facilitation, control, as a processes of web-spinning. Web-spinning processes are carried out in order to move in different directions, to create and re-create reality, broaden or approach horizons. Each web-spinning process has its own criteria. For example to enable is not the same as to control, each process exerts different power relationships and produces a different lived experience. Not every web-spinning process is appropriate for every context, control may be suitable for operating machinery, but facilitation may not. Also, 'web-spinning' should not be interpreted as necessarily 'good' by default; web-spinning may be 'bad' particularly when the way organizations try to deal with change is not appropriate for the new context. The practice perspective way of approaching organizational knowledge can help us to further understand the ‘web spinning’ processes which people in organizations undertake as they create and recreate their web of relationships and interactions.

4.2 Navigating the labyrinth of change

Until now the paper has addressed organizational work practices in relation to different contexts and has looked at the organization’s original strategy of ‘integration by assimilation’. In this section, the paper discusses some preliminary observations arising from the research relationship developed between the organization and the ICoSS research group. The observations are discussed with the notion of ‘web-spinning’ in mind, and point to how people in the IEC marine business developed context appropriate ways to talk about the merger, and navigate the changes, since the ICoSS project.

As already mentioned, the project aimed to facilitate and support the emergence of a new organizational form by introducing a different type of *discourse*, namely one informed by complexity thinking, into the organization. The collaborative action research methodology in some ways, created a different context and provided new practices with which to address organizational concerns. The event – of collaboration – provided a shared context and practice for members of both the marine business (naval and commercial) and the aerospace business to address a real business concern. Furthermore, the research practice took place in parallel to people’s day jobs, thus embedding the practice within the already known context of work. Despite the event only occurring at a micro level, it received enough support from senior management in order to transform the project findings, from micro-level learning, to macro-level actions.

The new discourse, introduced by the project, was appropriated in various other contexts both within and outside the IEC marine business. For example, during the evaluative interviews some of the participants noted that they had used various aspects of the ICoSS approach in their everyday working practices. For example, the ‘facilitated brainstorm’, used as part of the collective analysis, was taken up by one High Flyer member in his everyday work setting:

> *“I thought [the facilitator/workshop], it was brilliant and a couple of times people have suggested brainstorming sessions about one or two particularly key things here and*

> *said, we should do it like that. We should get all these people in the room, rather than present summaries or proposals, try and construct sessions like that. I thought it was brilliant, I was knackered by the end of it…I was really quite impressed with the way that came together."* (Evaluative interview with action research participant; Aerospace 'High Flyer'; 3:30)

Furthermore, a year after the end of the research collaboration, the ICoSS team were invited to a 'management development consortium' to talk about the IEC marine business merger and the ICoSS methodology. The seminar to which the ICoSS team was invited to was run by one of the High Flyer members who had taken part in the project and who was interested in sharing the 'collaborative' experience with others outside the organization. These examples, suggest that, at least at a micro level, the new discourse had been useful – demonstrated by its subsequent use outside the context of the research.

When we started the research, the belief in the IEC was that different national cultural differences were a problem. The most significant finding from the research was probably the discovery that national cultural differences were not as significant a factor as originally assumed:

> *"…[the dispelling of the 'different cultures are a problem' myth] was a good piece of learning from my point of view*" (Evaluative interview with action research participant and company 'High Flyer'; 1:5)

The message, that difference was not a significant problem, was then fed-back to the organization as a whole through internal publications and at the Annual General Meeting of IEC marine business. 'National culture' had been perceived as the main obstacle and constraint to the post-merger integration. Dissolving that particular constraint led to other ways of appreciating and, in turn, approaching the integration. One such way was the creation of 'programmes' which would address some of the post-merger concerns as those were demonstrated by the project findings. Twelve 'programmes' were created and cut across the naval and commercial parts of the business. The 'programmes' are being led by a variety of people from different parts of those business. The above activities are on-going. Addressing the new organization's concerns collectively, is another way, at a macro level of redefining the organization's boundaries and sharing practice.

One activity, which relates in particular to the exploration of a new 'organizational genre', emerged in the form of a PowerPoint presentation. When we first started working with the IEC marine business, the business was using a conventional organogram showing the senior management topography and lines of reporting. Over the period of time that we have been working with them they have developed other forms of visual representations to map and talk about the organization's topography. The conventional organogram developed into a rather more messy circular representation of the various company segments indicating the *relationships* between the segments, as well as between the segments and the customer. Eventually, a more formalised PowerPoint presentation of these relationships was developed. The material was designed by IEC as training material for managers to use in order to explore and talk about the various relationships in their own 'local' contexts.

What this material does, is to provide a map of the marine business context and provides a way of talking about the business context. It introduces a new, more dynamic discourse of 'relationships', emphasizing the relations between segments of the business, instead of the old 'reporting-control' discourse, which hinged on a language of 'role' and 'responsibility'. The focus on relationships for 'route-to-market' starts to become the new internal shared practice. Another similar visual representation of the new organization is used in some of the marine business's presentations, and consists of pictures of engines clearly indicating which part of the engine is supplied by which part of the new organization. The visual representation can be understood as another way of creating the ground for the new, *organizational* context of 'system integrator' and seeding common practice.

The main aim of the merger, according to the IEC, was to develop 'systems integrator' capabilities. However, although everybody talked about becoming a 'systems integrator' and understood what that meant in engineering terms, it was less clear what the implications of being a 'systems integrator' were, in organizational terms. What the research tentatively suggests is that the organization was introduced to a different discourse, which allowed them to create their own context-appropriate ways of addressing the 'integration' problem. As the new merged organization grows into what is being called a 'systems integrator' by its members, it will also change. The future challenge will lie in maintaining web-spinning practices that are suitable for each new context the organization finds itself in.

5. Discussion: 'knowledge management' as web-spinning through 'layers of relevance' (Schuetz, 1944)

The meaning of 'knowledge' and 'management' in this paper was developed through the discussion of a merger case study. The merger was analyzed by looking at organizational work practices as these were produced and constrained by different contexts. It was mentioned that all societal levels can provide a context for looking at organizational practices. The researcher's role is to decide which of these contexts are relevant for understanding knowledge production. In the discussion, the paper explored some of the relevant contexts for understanding the production of knowledge in the new merged organization. The paper then contrasted the IEC organization's initial approach to integration, with the new organization's approach developed through the new discourse. The paper will now conclude by discussing potential implications of this case study for 'knowledge management' in organizations and to do so, the paper proposes a particular reading of the KM literature.

The reading of the KM literature goes as follows: most of the literature attempts to define what 'knowledge management' *is* and not what it means or what organizations may be doing when we are talking about them in 'knowledge management' terms. Management tends to be treated as something that is either self-evident or unproblematic (Alvesson and Karreman, 2001:1000), with most approaches concentrating on 'knowledge'. It is agreed that 'knowledge' is not easily defined (Alvesson & Karreman, 2001; Swan & Scarbrough, 2001; Tsoukas & Vladimirou, 2001) and therefore, the literature can be 'read' as an attempt to find a definition. However, in searching for a definition, the body of literature in itself seems to, implicitly, create a model of knowledge. This paper suggests that the 'KM model of knowledge' can be mapped along five coordinates: individual/social, tacit/explicit, discrete/continuous, technological/ human, and objective/ subjective. The author's reading of the KM literature also proposes that, the implication of a less well-articulated position on 'management', leads to a two-fold assumption that a) 'knowledge management' is achievable by manipulating the various parts of the KM model of knowledge, and b) that some forms of knowledge are more desirable than others.

The reading continues: manipulation of the model and desirability of outcome, are addressed through theorizing about the *transformation* of knowledge from a less desirable to a more desirable state. For example, the technological approach to knowledge management deals largely with the codification of tacit knowledge forms, which individuals ‘have’, into more explicit knowledge forms, which individuals can share with others through ICT platforms, such as information and data. (Boisot & Griffiths, 2001; Nonaka, 1994; Nonaka, Toyama, & Konno, 2000). The thrust of improvement to knowledge management in organizations, according to this approach, amounts to adopting and perfecting these transformational processes in the organization, in order to better the organization’s chance of achieving ‘knowledge fitness’.

Transformation, in the way discussed in the literature, relies on certain ontological assumptions about knowledge. For example, (Wood, 2002) has argued that most approaches to KM take an ‘ontologically discrete’ view of knowledge. The result is an understanding of organizational knowledge as something which can be collected and managed, as desired. According to Wood (2002:153) ‘knowledge is not a commodity existing ‘out there’…rather [knowledge] is the elusive subject of what happens ‘in-between’’. If knowledge is what happens in between then the appropriate level of analysis of organizational knowledge and its ‘management’ is at the level of action and interaction, amongst people and between people and ‘objects’ (if we are referring to technology). Transformation is the process that occurs across the five coordinates not at the level of the coordinates themselves.

The extended concentration of the KM debate on ‘knowledge’ alone, in some ways, has constrained the development of our understanding on the subject (Brown and Diguid, 2001:200). People orientated literature to KM, which explicitly situates knowledge at the level of the collective, tries to move away from the truncated, state-like (Wood, 2002), approach to KM by introducing a meso-level of analysis and focusing more on practice. For example, the ‘narrative’ approach broadens the debate by exploring one way in which knowledge is shared or circulated amongst members of particular milieu (Garcia-Lorenzo, 2001). Organizational knowledge and its ‘management’, looked at from the perspective of ‘networks of communities’ (Brown and Diguid, 2001) or ‘communities of practice’ (Brown & Duguid, 2001; Wenger, 2000), also tries to make the transformation process more visible. Looking at knowledge from a practice perspective is one way of going beyond arguments about ‘organizational knowledge’ and ‘knowledge management’ which are deeply entrenched in the various dichotomies referred to above as ‘coordinates’.

In view of the above reading of the KM literature, and following Schuetz's (1944) discussion on groups' cultural patterns, it has been suggested in this paper that change creates a labyrinth-like experience; an experience, which is layered and multidimensional. However, change is not just an one-off event in organizational life, but a constant of it (Tsoukas & Chia, 2002). Organizational processes, work practices, knowledge and capabilities are in a constant 'state' of motion and as such, the understanding of organizational knowledge and it's 'management' can not be satisfied by a static model, which treats transformation as a single event. Transformation, is a multidimensional, ongoing, layered event. However, although 'the idea of levels[3] [is] central to the study and practice of science, it is often missing in the discourse amongst scientists, and even less common in science classrooms or in the culture at large' (Wilensky & Resnick, 1999). Through the discussion of a post-merger case study, it has been suggested that thinking of organizational knowledge and its management can be enriched by thinking about 'knowledge management' in terms of 'layers of relevance': 'the world seems […] at any given moment as stratified in different layers of relevance each of them requiring a different degree of knowledge' (Schuetz, 1944:500). The case study demonstrated some of the stratifications involved in the combining of two companies during a merger.

The different debates about how best to handle knowledge in organizations may be viewed as attempts to better articulate context appropriate web-spinning processes. The tension between the, all-too-familiar, coordinates of the knowledge management literature, can be thought of as 'layers of relevance' of spatial, intentional and qualitative character. For example, the discussion about knowledge as a social or individual attribute, tacit or explicit, may be related to the location of knowledge, and can be thought of as both spatial or qualitative 'layer of relevance'. Debates about the ontological dimension of knowledge (Wood, 2002), whether it is continuous or discrete, or debates about whether knowledge is subjective or objective, relate to a qualitative 'level of relevance'. Context appropriate web-spinning is an intentional 'layer of relevance'. The importance in all of this, is not to define knowledge as more individual or more social, tacit or explicit, technical or human, but to understand whether, and what part of, the binary coordinates are relevant to what is being researched – to appreciate organizational knowledge through its constraints and possibilities. A layered approach can extend the scientific and practical discourse for talking about

[3] Layers and levels are used interchangeably in this paper.

knowledge in organizations, by helping us to focus on the transformational, 'in-between', processes.

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