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In Search of Balance:
Local Knowledge within Global Organisations

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In Search of Balance: Local Knowledge within Global Organisations

Abstract

This paper analyses the global-local tensions that emerge within the context of knowledge communities in global organisations. Our research findings provide key insights into why global organisations find it challenging to address these tensions and suggest what may be done to overcome them. In particular we pay close attention to the cultural and technical tools that play a critical role in supporting global knowledge communities. The rationale behind this particular course of enquiry is to problematise the 'one-size-fits-all' perspective on organisation-wide implementation of knowledge-sharing initiatives. We situate this within the context of an interpretive cross-case analysis of three diverse global organisations, each with its own integrated information system in place. The contributions emerging from this paper are two-fold. The first refers to our theoretical lens, which brings together the literatures on activity theory and tacit knowing, thus providing a unique analytic tool that addresses both the mediation of and motivation behind knowledge-sharing activity. The second contribution provides insight into the resistance associated with the imbalance between global and local priorities in global organisations.

Keywords: Knowledge, knowing, community, activity theory, tacit knowledge, information & communication technologies, local – global, mediation, culture

1. Introduction

Global organisations today face an inherent dilemma between distance and closeness with their stakeholders, as they witness an increase in the geographic reach of their operations. While there is the desire to retain the traditional economy of scale based on extensive routinisation and standardisation, in order to present a reasonably coherent and uniform face or identity (Leidner 1993; Ger 1999), there exists the ever-increasing pressure from local partners to pay closer attention to contextual details and to support different, often conflicting needs. This is captured by the frequently used adage, 'Think *global*, act *local*'. The dilemma thus is one of balancing the complexities that go with the territory of global organisations, working towards a certain degree of consistency and coherence in operations. While the literature on global information systems and infrastructures has sought to address this complexity, it still remains in many ways limited in terms of the extent of contextual diversity it ends up capturing (see Pan and Leidner, 2003). In this paper we seek to address this complexity by critically examining three unique cases that provide services across distributed global sites. More specifically we examine the role played by mediating tools (both cultural and technical) in facilitating flows of knowledge. Our focus lies on the processes wherein tensions between the global and local are resolved.

Associated with this, and central from the point of view of our research, is the emphasis placed in current literature on the need for adaptation of information systems to local contextual demands. Typically this is discussed with reference to the heterogeneity of information systems and the subsequent need to adapt to local needs (Davenport, 1998; Ciborra 1994; Kyng & Mathiassen, 1997); the inscription of interests into artefacts (Sahay, 1998; Bloomfield et al., 1997); and local resistance to top-down initiatives (Ciborra, 1994, 2000). Not surprisingly then, it has almost become a truism to underscore that design and management

of this patchwork of interconnected information systems found in many organisations are deeply embedded in social, political and strategic issues. Our intention here is to go beyond this acknowledgement of the situated nature of information systems and the dichotomy of global-local narratives, which is indeed relevant in terms of design and implementation of large scale information systems. We venture further into asking how a 'pragmatic balance' (Rolland and Monteiro, 2002) can be reached between the uniqueness of local context and the implied uniformity of globally applicable 'solutions'.

In order to carry out this research enquiry, we draw upon material from three case studies of global organisations, each with their own distinct information system in place. The first case is that of a public health sector organisation, which we call the Global Development Agency (GDA). Aspects of the information architecture it has in place for sharing and building knowledge communities are the focus of our analysis. The second case is that of a leading pharmaceutical company working within the private sector, which we refer to as GlobalPharma (GP). The use of an integrated information system to provide its communicators worldwide with the opportunity to share knowledge through a standardised interface forms our primary focus. The third and final case study we examine is that of a not-for-profit organisation working within the context of open source certification, which we will refer to in this paper as LinuxCert (LC). We focus here on the electronic mailing lists used by LC for both internal communications and product development.

In order to interrogate our findings from the above case studies, along the thematic strains of global organisational activity and knowledge sharing, we employ the analytical lens of activity theory. However, we complement our understanding of the motivations and personal interpretations that underlie activity systems by drawing on the literature of tacit knowing and knowledge

management. The paper begins with a theoretical discussion on the key themes we seek to examine with regard to knowledge flows and global organisations. We next provide a brief outline of our case context and a description of methodology, before we move on to the analysis of our research findings. We conclude by drawing some implications for theory and practice, and some conclusions on the contribution of our research.

2. Theoretical Framework

The overlapping frames of activity and knowledge shed light on three distinct areas of enquiry that we consider to be significant within this paper. First, they both tease out the tensions between the individual and the collective unit of analysis. Second, they both demonstrate the importance of context sensitivity and the subjective nature of knowledge creation and sharing. Third, they illuminate the mediating role played by cultural (e.g. language, local work-environments) and technical (e.g. information systems) tools that form the central focus of these theories. In addition to these similarities, the two theoretical frames are bridged by the focal point of attention being on individual motivations and intentions that underpin collective activity systems and their outcomes.

i. A Review of Activity Theory

Broadly defined, activity theory is a philosophical framework for studying different forms of human praxis as developmental processes, with both individual and social levels interlinked at the same time. It incorporates different psychological, educational, cultural and developmental approaches on human activity, based on Vygotsky (1978), Leontiev (1978) and more recently Engeström's (1987; 1990; 1999) theoretical contributions. It offers a unique conceptual frame to examine

how cultural and technical tools mediate the relationship between human agents and their objectives, within a given environment. Figure 1 shows the interrelation of the nodes of this framework in Engeström's classic diagram:

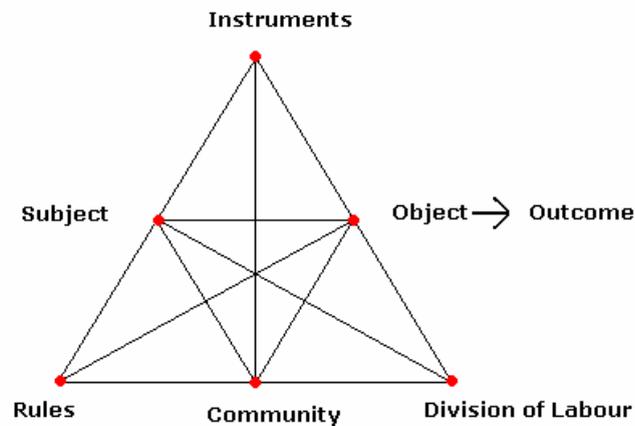


Figure 1: The Activity Model, Engeström (1987, p.78)

At the apex of the model lies the mediating tool itself (instrument) which is situated between the group undertaking the activity (subject) and their desired goals and motivations (object). While the constraints and access points (rules) determine the interactions between the subject group and the stakeholders (community), the hierarchies of power and expertise within an organisation (division of labour) mediate between the stakeholder communities and the overarching outcomes of the activity.

What makes the activity framework of particular relevance to this research paper is that it allows us to theorise the complexity of social networks and personal identifications. It presents us with a set of new possibilities when analysing the spatially dislocated nature of community and the identifications built around the supposed commonality in experience and practice. This is of particular interest to us as we consider the context of 'knowledge communities' within global organisations. Offering us an invaluable insight into the overlapping domains of

knowledge and activity here is Nardi (1996). She identifies the basic tenet of activity theory to be individual perception, stressing on individual (knowledge) representations as the fundamental locus of study.

Having moved from its original application context (i.e. cognitive psychology), to the highly distributed work context of present day global organisations, activity theory faces the daunting task of responding to cultural heterogeneity and the complexity of individual perspectives in the work place. Engeström (1999) rightly identifies the need to address the multiple perspectives of participants in a way that allows for distinctions between types of shared and non-shared inputs to activity. To evaluate this in a practical context we examine three diverse global organisations as our case studies, demonstrating the heterogeneity in interpretation of objectives and outcomes, as well as the competing and often conflicting stakeholder interests, all of which are impacted by a range of cultural factors (both organisational and country-specific). The four key characteristics of activity theory that emerge as particularly relevant from the point of view of our study are therefore:

- Activity always takes place within a *context*, thereby providing an intermediate concept between individual and collective networks;
- Activity is *mediated* by tools or artefacts, both external and internal (tacit);
- Activity is directed towards a material or conceptual goal (object), underlying which are the *motives* or *intentions* of those that undertake the activity
- Activity outcomes are further influenced by *rules* and *divisions of labour*, *hierarchies* of expertise and power.

ii. Tacit Knowledge

We complement activity theory with the literature on tacit knowledge to allow us to analyse both cultural diversity, as well as to identify the tensions between individual and collective units of analysis. Several views of knowledge have been explored in the knowledge management literature, often in terms of polarities, such as the distinction between individual and collective knowledge (Spender, 1996), and between tacit and explicit knowledge (Nonaka and Takeuchi, 1995). Polanyi (1969, p.195) offered a view which was much less polar, suggesting that there could be no objective, explicit knowledge independent of an individual's tacit *knowing*. He states that the idea of strictly explicit knowledge is self-contradictory and in effect meaningless.

An increasing focus on codified and explicit knowledge has led to the widely misunderstood view that tacit knowing can in some way be captured, translated, or converted through the facilitation offered by collaborative work technologies. We are in strong disagreement with this position (as is Tsoukas 2003) and believe that the tacit element of knowledge is inseparable from (and not in opposition to) explicit knowledge. In other words, individuals themselves are knowledgeable, but their tacit knowing cannot be neatly 'captured', or 'transferred' as explicit knowledge in any strict sense. This is absolutely fundamental for those seeking to design and deploy knowledge management solutions and knowledge elicitation practices within organisations. Polanyi instead draws our attention to the processes of *knowing* (the action of acquiring and using knowledge), which offers us a bridge between the activity and knowledge frames. Orlikowski (2002) adds to this discussion by highlighting the relationship between diverse contexts and the processes of knowing:

“As people continually reconstitute their knowing over time and across contexts, they also modify their knowing as they change their practices.” (P. 253)

The key elements from the discussion above, which need to be considered in the analysis that follows, are:

- *The bridge of knowing* – The concept of *knowing* offers us an invaluable link between knowledge and activity frames; an intermediate concept avoiding the polarising of knowledge
- *Individual perception* – The focal point of analysis remains at the level of individual knowledge representations
- *Cultural sensitivity* – The tacit elements that underpin cultural and contextual knowledge need to be accounted for.

3. Case Outline

Before we begin our analysis in light of the thematic strains outlined above, we provide a brief description of our case contexts, along with their integrated technical and cultural tools for mediation, to serve as a contextual background for our detailed discussion on the overlapping frames of activity and knowledge.

i. Global Development Agency (GDA)

The GDA is, as the name suggests, a global organisation, whose mandate is developing health services and infrastructures across regional and country sites. It is structured with their headquarters in a European country, regional offices in the main regions of the world such as Africa, Asia and Latin America, and country offices in most countries of the world. As with most organizations in the contemporary world, the GDA is in a state of flux, trying hard to respond to

changing circumstances and pressures. In particular, with respect to the work of country offices, a widespread view at the time of the research was that more effort needed to be directed to this level. It was felt that interventions were needed in the area of knowledge management, and the role of ICTs was also under scrutiny. This made the case ideal from our point of view, as it afforded us an understanding of both knowledge management initiatives, geared towards 'knowledge-sharing', as well as on the role played by technical tools in mediating this activity.

With regard to the technical tools of mediation, we focus on a particular information system within GDA, called NetWork, which was connected to all the above change initiatives. The aim of the system was to support improved communication and knowledge sharing between the heads of the country offices by providing them with a tailored intranet application for the exchange of personal views, questions and answers, and relevant documents. The application was developed centrally and rolled out across the country offices. Despite a successful technical implementation, the system was little used. In early 2003 all headquarters technical programmes were allocated a 'virtual room' in NetWork, related to their area of work. Access to NetWork was limited to GDA country representatives and local officers, regional programme managers, focal points in technical programmes, and GDA staff in headquarters. Guidelines were prepared on which information to display. By November 2003 seven of 29 technical programmes had placed satisfactory materials in their virtual work space. Actual use of NetWork remained less than expected. This was largely attributed to the lack of satisfactory internet connectivity and IT support in many of the country offices. We examine in more detail, in the later analysis section of this paper, the reasons for the low adoption rate of NetWork, when seen through our theoretical lens of activity systems and tacit knowing, and question whether the above assumptions regarding underutilisation were correct.

ii. GlobalPharma (GP)

In addition to being a world leader in the discovery, development, manufacture, and marketing of prescription medicine, GP's core business interest lies in pharmaceuticals, consumer health, and generics. With a heavy investment in Research & Development, GP also contributes as an organization to the areas of corporate responsibility and investor relationships. With such a large mandate it faces the challenge of maintaining uniformity in how its product line is represented in media across diverse local sites. Thus, not surprisingly, the global communications team within GP plays a critical role in ensuring that a certain standard of information delivery is met in terms of consistent media relations across the globe. This global communicators group within GP forms the focus of our case study; in particular we examine the design and use of the information system NX across this group. Globally, the communicators group has three sub-groupings, which are global, regional and divisional media (the latter referring to the divisions relating to specific health areas, such as vision, infant-care, neuroscience and so on).

GP was of particular interest to our research project, as it not only highlighted the private sector commercial interests of a leading global organisation, but also showcased the inherent tensions with regard to a call for more fluid knowledge flows, while retaining a traditional, structured and hierarchical frame of activity.

iii. LinuxCert (LC)

LinuxCert (LC) is a not for profit organisation serving the community of open source software users, vendors and developers, in the interest of increasing and supporting professional use of such software throughout the world. It is essentially involved in the building and sustaining of standards for the global open source community through its examinations and certification programmes. What sets LC aside from the rest of the Linux certification programmes in the market is that LC is completely vendor independent and distribution neutral. It works with a large list of companies which acts as a virtual community representing the IT industry, and the exams themselves have been developed specifically to test competence across all Linux platforms.

A relatively young company (set up in 1999) LC was built around three core ideals:

- i. Community defined standard – participative processes in exam development allow for a representational standard that is in the interest of the end users;
- ii. Peer-reviewed sensibility – the exams are passed through a high level of scrutiny by experts before being released, thereby contributing to the professional status associated with the end product;
- iii. Separation of training and testing – LC doesn't provide any training; its mandate is to solely provide the exams, thereby avoiding lock-ins and maintaining high standards.

With its headquarters in North America, the organisation found itself with affiliates in as diverse a range of countries as India, Brazil, Jamaica, Venezuela, Japan, China, Taiwan, Singapore, Thailand, South Africa, Australia, Germany, Bulgaria, UK and Francophone nations (e.g. Senegal, Mali, Morocco and France).

These affiliates have the responsibility to proctor local exams, market LC as a brand, conduct exam-writing workshops and labs, as well as liaise with HQ regarding issues such as translation and customisation of the (exam) product. The richness and diversity captured within this case study is reflected in the myriad tools, both cultural and technical that are employed for mediation. In particular, we focussed on the electronic mailing lists (EML) used by LC for both internal communications and product development. This integrated information and communication medium was designed in order to facilitate community based negotiations and for sharing stocks of knowledge and expertise.

4. Methodology

Our research can broadly be described as interpretive in style (Walsham 1993), with much emphasis being given to accessing the interpretations of people in the field situations through in-depth interviews. The field research for the three cases took place over a two-year period from 2003 to 2005. During this time, we interviewed people at all levels of the organisational hierarchy, including senior management at the headquarters, executives at the region and country level, down to lower level staff officers in the various affiliate locations. Most of the interviews were tape-recorded and transcribed, while others were recorded by taking extensive field notes, when it was felt that some respondents would be more likely to be open in their opinions if the interviews were not taped. Below in table 1, we provide a summary of the formal interviews conducted:

Level/Case	GDA	GP	LC	Role of Contacts
Headquarters	18	12	10	Heads of departments, senior officials, staff officers, IT staff
Regional	5	2	2	Heads of section, project managers, staff officers
Country	21	12	15	Heads of country offices, IT staff, library staff, staff of partner agencies/ affiliates

Table 1: Summary of formal interviews conducted

In addition to the above interviews, we had a wide range of additional contacts with staff of the three organisations. These included informal discussions with a number of staff members, during our visit to headquarters, for example at mealtimes. We also had audio-conferences with our primary contacts and colleagues at headquarters over the course of the research project, focused on discussing our research findings to date. The flow of communication in these audio-conferences was designed to be two-way. Hence we would report our findings and recommendations from our visits to country affiliate offices, while we would receive updates and relevant information keeping us abreast of the organisation's development and strategic intent.

In terms of analysis, this took place in an iterative way throughout the research. We generated sets of themes from each of the major field visits, and discussed these amongst members of our research team and, as noted above, at times with staff from the case studies as well. Outputs from our project, including this article, are an end product of a process of engagement between our field data and theoretical constructs.

5. Analysis

In this analysis section, we focus on three broad thematic streams running across our case studies:

- Community and Identity: cultural diversity in global organisations
- Objectives versus Outcomes: inherent tensions between intention and realised action
- System Imbalances: global-local priorities and the need for mediation

Given the broad terrain of our research enquiry, we have had to leave out many contextual details that were not immediately relevant to the remit of this paper.

i. Community and Identity: cultural diversity in global organisations

Identity is a crucial factor in influencing how globally dispersed organisations are able to find common meeting ground and motivations for collaborative work. We begin with the case of LC, where the global community was bound together by an over-arching ideological affiliation to open source knowledge networks. The affiliates in partner countries, as well as the core group of LC, held a strong commitment to Linux and software solutions that were not 'locked-in'. Often this shared identification was further reinforced by a rejection of proprietary alternatives in the software industry, and also by certification. This aspect of identity of the broader community was articulated at many levels within LC's internal communications.

Moreover, while a great portion of LC revenue, time and effort were dedicated towards exam development, it was the more intangible 'buy-in' and 'perceived credibility' from the Linux community, that emerged as a rallying point for the

group. A senior member of the LC core team identified the collective commitment LC felt:

'... we are more committed to developing a community standard than selling a product.'

By 'community standard' the interviewee above was referring to a shared understanding and a community-wide objective. In effect what LC was offering was a standard of 'professionalism' that would apply globally, a consistent outcome in activity theory terms. However, in setting this global standard, they encountered many forms of resistance from local sites in terms of the rules and division of labour within the organisational setting. For instance, the Japanese affiliate of LC had been credited with raising the bar of quality when it came to exam delivery and sustaining a local brand identity. Their local head of operations was also a member of the LC Board. However when LC opted for a rubber stamp for its logo in one of its certifications, rather than a separate printed item, LC Japan found this to be unprofessional and hence unacceptable. For countries such as China, Brazil, South Africa and India though, the rubber stamp meant lower prices and hence was seen as cost-effective. Thus it emerged that quality control came with a price, which not everyone could afford.

Thus the desired outcome of establishing a community standard emerged as variable, depending on local context. The management of skills and the meaning of 'professionalism' were open to interpretation across affiliates, thereby conflicting with LC headquarters motivation of creating a universally acceptable standard. Theoretically, this reflects our earlier critique regarding the lack of attention paid within the activity theory literature to cultural variations among groups, and points to the importance of the subjective aspect of tacit knowing and sharing.

A second example of the importance of local tacit knowing is provided by the Chinese chapter of LC in Beijing. In addition to the issue of exam costs (which were deemed unaffordable), language emerged as a critical factor, especially within communication on the electronic mailing lists (EML). The LC Chinese staff articulated their exclusion from key decision-making discussions and exam development sessions on the EML, which were conducted only in English, thereby adding to their feeling of alienation from their organisational 'community'.

In the case of GlobalPharma (GP) Japan, the community of stakeholders (communicators) used two mediating information tools in their day-to-day work activity. For communicating with HQ and within the organisation (globally) they engaged with the NX information system, and for their interactions with local media they engaged with an internal database, which was in the Japanese language. The justifications offered for this dual use were captured in the following statement by one of the communicators in the Japan office,

"Because local journalists only use the Japanese language, to translate material constantly is a slow process. It is additional work. So for us, the Japanese database is consistent and relevant to our local needs as hardly anyone here communicates in English."

From the above statement, what emerges is a split in perception regarding the role of NX. While the subject group of designers and managers, based at HQ, felt NX to be a unifying tool which would mediate between communicators globally, the local context of Japan viewed it as 'an addition' to their existing information system. In terms of activity theory, what is demonstrated here is that the NX system was not only intended as a mediating tool, but also expected to challenge

many of the existing rules, hierarchies and stakeholder communities within the local branches of GP. The relevance and value of the mediating tool in this case were determined by cultural factors such as language and local media preferences. NX as a tool within this context presented us with a conflicting relationship between the local and global community, as it digressed from the overall desired outcome of consistent knowledge sharing practices.

The Jamaican chapter of LC painted a more optimistic picture of the partnership between global and local, where the global brand of LC was seen as providing legitimacy and credibility to local initiatives in open source. The affiliate members here saw themselves as 'partners' and were positive about the autonomy they enjoyed. A large part of this was attributed to the fact that the local affiliate had managed to secure substantial funding from a UN-based development organisation, thanks to the help from the LC core group. LC Jamaica suggested the idea of forming regional affiliates to build on this success. In direct contrast with the Japanese and Chinese view, which believed national distinctions should be respected and maintained, was the position of the Jamaican LC affiliate. A senior member at the local Jamaican office explained why:

"Every region within the world has some sort of glue that holds them together. Ours is culture."

The above sentiment is of key significance as it demonstrates how culture here is perceived as a key variable in the successful integration of a global organisational initiative within a local context.

Key factors emerging from the above discussion are:

- Although explicitly similar, there can be significant differences in the underlying motivations for knowledge sharing as local cultural variations emerge when global standards apply across diverse sites
- Explicit and overt attention needs to be paid to local knowledge, contextual details and diversity, to underline the importance of local input in order to avoid duplication of effort
- Resource allocation and knowledge based support for local initiatives reinforces the relationship between the subject group and the stakeholder community

ii. Objectives versus Outcomes: inherent tensions between intention and action

The motivation and individual interpretation of the objectives, as discussed within the activity theory and tacit knowledge literatures, varies within and across organisational groups. The case of GDA reflected this dynamic, in its information system (NetWork), which was based on a collaborative work package. The main objectives here, from the viewpoint of headquarters staff, were to establish, firstly, a mechanism for two way communications between country offices, regions and technical programmes and, secondly, between the GDA (country) representatives and other local officers. The sharing of knowledge resources was seen here as a key mechanism in building a community within GDA. However, it was the differences in access to the very tools of connectivity that played a critical role in the degree of realisation of this objective. As many of the GDA offices were situated in the 'developing world', where access to technical tools of mediation was limited, the adoption of this system suffered to a great degree. The local variations met with, in terms of internet connectivity, language accessibility, maintenance and skill support had a direct bearing on the global

headquarters' desired outcome of a collective communications system that would be uniform and built on shared knowledge resources.

There existed a tacit belief that better technical communications and a better network would help the 'One GDA' slogan to become more of a reality, subsequently enabling the whole organisation to focus clearly on country priorities rather than those proposed more independently from headquarters by the technical programmes. In addition, better communications, it was argued by the subject group, could strengthen the role of the country offices in relation to regions and headquarters, as well as empowering them in implementing organisational and managerial reforms. However, one year of experience showed that the use made of NetWork was slower than expected. An important explanation for this was that there was inadequate initial assessment of the communication and IT needs of local country representatives and their teams. Thus the assumption made here was that an information system, designed and deployed solely from GDA headquarters, would be adopted and used spontaneously by local officers and country representatives. This, it was presumed, would enable further growth in system usage, allowing for feed-back and modifications for further development. This assumption proved to be flawed. Despite the high priority given by GDA headquarters to improving global connectivity, many country offices still reported major difficulties with basic elements such as computer hardware, software, internet service providers, download times, paper supplies and printer ink refills. In addition, other local needs included IT training and orientation for staff and IT support from a trained national staff member.

Within the context of GlobalPharma, the individual-group dynamic played out in the rigidity of the rules that mediated its activity system. The rules of GP's information system, NX, required the communicators to input local media queries

into the system via a predetermined format. The three key constraints that we received from the local communicators in this regard were that this format did not allow them to present 'the local side of the picture', the technical system was too slow, and that the relevance of this input was not made clear by the subject group. In activity theory terms, while the subject was clear, the outcome was not, and the instruments of mediation were not widely accepted or flexible enough. The rules, community and division of labour within this case context also lacked clarity. As a result, not surprisingly, knowledge transfer was sub-optimal. A member of the NX communicators group articulated her concern regarding these constraints:

"It would be very useful if HQ would give us some standards or guidelines as to what they're looking for. At the moment we're a bit lost as to the relevance of this information to anyone."

What we have here then is a clear disconnect between the global headquarters of GP and its local country sites. The desired goal of providing a 'one-size-fits-all' solution towards knowledge sharing and global communications was challenged by the inflexibility of the rules and the inability of the system to adapt to local variations. This is ironic given that the rationale offered for NX was precisely that it would link diverse local sites through a common platform. The perceived status of 'global' offered by NX to GP's communicators was often expressed as its biggest selling point. Communicators within China, Brazil, India and Japan remarked often how it was a learning tool in the sense that it allowed them to compare their approaches with those at a global level and infer innovative ways of dealing with common problems locally. However, there existed certain barriers to engagement within this mediating system, such as the lack of flexibility (or

customisability) of the interface, and the ability of individual communicators to 'make sense of it, in order to contribute meaningfully to the intended dialogue.

What emerged from our discussions with NX users in the various local sites (ranging from Japan, China and India to Brazil, Jamaica and the UK) was that, at an implicit level, GlobalPharma's information platform (NX) was a mediating tool by which communicator performances could be tracked and inputs monitored. In order to maintain consistency throughout the organisation, NX was also aimed to provide a measure against which contextual local information could be mapped. In other words, NX had the mandate of providing standards within a complex organisation growing globally across cultures. While there existed a genuine need within GP to document and consolidate knowledge resources, and NX was seen as an integrating tool that would weave together diverse information threads, at the (individual) local level, many communicators felt NX to be a tool put forward by HQ to document and monitor information flows alone. In activity theory terms, there were two distinct outcomes which were not always complementary. This perceived motivation and intent, attributed to GP global, caused many of the users of NX to hold back from using the system fully.

It is clear that a key reason for the disconnect between the desired object of activity and the outcome, is the lack of attention paid by global organisations (still operating predominantly from headquarters), to local contextual detail. Furthermore, if there is an imbalance between the organisational culture (hierarchical) and the desired objectives of transparency and freer knowledge flows, there is little change that can be brought about by technical tools (such as the information systems discussed so far). In summary:

- *Bridging the Gap*: If the organisational activity object of providing integrated tools for knowledge sharing is perceived as monitoring & documentation, this leads to the outcome of limited use
- *One size does not fit all*: If local contextual details are ignored (e.g. access to tools of mediation) adoption and local use of global information system are jeopardised

iii. System Imbalances: global-local priorities and the need for mediation

Boundaries, often based on cultural factors such as language, political climate and work practices, play a significant role in influencing the uptake of and adaptation to new technical solutions within global organisations. Having examined individual/community perceptions as well as cultural dynamics within global organisations, we now devote our attention, in this sub-section, to identifying the various imbalances that emerge when global organisations attempt to consolidate and 'standardise' operations across diverse local sites.

We begin with the case of GlobalPharma here, where individual tacit knowing and particular job roles (division of labour), influenced the uptake of the system in unique and non-homogeneous ways. We found that when the same communicator was posted in HQ, she used different functions of the NX system than she did in the local Brazil affiliate. The reasons for this depended on what was perceived as mandatory or required at HQ level and what was perceived as being locally relevant. A lack of clarity about the precise purpose or object of NX emerged as a strong source of tension for communicators within GP Brazil. One member of this community of users expressed her frustration:

"We need to think globally but I won't have time to do my local job if it is imposed that we feed back everything (to head office). Global (HQ) should help us to act locally. "You have to do that" would not be the best way."

Thus the pressure to feedback to HQ with little or no understanding of the relevance of this input, proved to be problematic for the communicators concerned. Ironically this perception that HQ was being somewhat paternalistic in its directives was in direct conflict with the articulated object of the entire NX activity system, which was to decentralise information flows and to allow for knowledge sharing across global platforms. This is resonant of our discussion in the previous section concerning GDA's rhetoric on empowering local country offices, without changing in any real way its control of operations from HQ. What this translates into is a tacit objective of keeping existing power hierarchies and mechanisms of control intact within global organisations. It is absolutely fundamental to understand this dichotomy if progress is to be made in the effective deployment of global information systems. The first demonstration of imbalance concerns local priorities on the one hand, and HQ mandates on the other. Depending on the relative autonomy of the local office, decisions and systems (instruments) are accepted, modified or rejected. This is not to underscore the marked power dynamic within organisations that makes it difficult for local communities of users to challenge the HQ directive. The tension that emerges here is one between the potentiality offered by technical mediation and the resistance to change offered by traditional cultural hierarchies of organisational practice.

The second imbalance that is demonstrated here is between the need to establish a 'global face', and the need for context sensitivity and diversity. LC Beijing did not have an independent country office, and this considerably worked against establishing its local presence. The contextual issues often got overlooked

because there was no single unit acting as a representative office in China. A representative from LC Beijing articulated his concerns:

“The ‘affiliate set up’ doesn’t work here. There is this push towards having ‘one global face’, but until we have a separate unit functioning here that is not dependent on another company for resources, that recognises local concerns, it will not work smoothly.”

By the ‘affiliate set up’, the above speaker refers to the rules, divisions of labour and stakeholder communities within the Chinese context, which were in conflict with the HQ model. Taking this a step further, a regional affiliate and LC partner in Japan, stressed the need for attention to detail within local contexts:

“What happens is that in global companies you tend to get a push towards ‘mass customisation’. However, I feel that even though we have a similar policy globally, we can still make the individual client feel different.”

Standardisation in this context is what the above speaker refers to as ‘mass customisation’. In his view the act of applying a uniform standard for all local LC partners translated in some way into weaker quality of service and less culturally sensitive or client-specific outputs and outcomes. The balance that is sought here is one between the need to respond to local contextual demands, to provide tailor-made services to clients and community members alike, while on the other hand maintaining a global brand that operated as a standard across global sites.

The third demonstration of imbalance occurs when there is greater attention and priority given to the instruments and tools rather than the context of mediation. The GDA case provides us an important lesson here regarding future adoption and use of technical tools of mediation. While a strong desire existed within

headquarters to see it continue as a global boundary spanning information system, low levels of current use did not serve as a good indicator for its future potential. One reason offered for this is that too much emphasis was placed on involving technical programmes rather than focusing on the needs of the countries themselves. Few country staff had any orientation and training and country level access has been too narrowly restricted. In response to this a solution was considered by the GDA team at HQ, which involved continuing to develop NetWork in conjunction with new and determined efforts to involve more of the country offices with acceptable levels of internet connectivity.

To summarise, with the help of our three case studies, we have demonstrated the tensions that emerge within global organisations attempting to balance the need to standardise operations across distributed sites, and the equally compelling need to be sensitive to local voices of their stakeholders and partners. We have given particular attention to cultural factors, such as language and local traditions, that go a long way in shaping the final outcomes of complex global activity systems. In summary, we have identified three key areas where these imbalances emerge:

- The potentiality offered by technical mediation and the resistance to change by traditional hierarchies of organisational practice
- The need to respond to contextual demands; to provide tailor-made services to clients, and the need to maintain a global standard/ brand
- The priority given to tools of mediation and the priority given to the context within which tools are used

6. Implications

Drawing on our analysis of the three case studies, we can develop two levels of implications, namely theoretical and practical. With regard to the former, we have engaged with a unique framework that has enabled us to theorise the complexity of social networks and personal identifications within global organisations. We have aimed to show the relevance of activity theory in its 'original' as well as its 'augmented' form. While analysing the mediation of activity within global knowledge communities, and the inherent tensions between objectives and outcomes, we have also embraced contextual heterogeneity that is lacking within the activity theoretical frame. Towards this end we have highlighted the literature on tacit knowing, thereby throwing more light on the personal identifications, motivations and intentions that all go on to shape the final activity outcomes. We offer this as a way of understanding the intangible elements that can not be articulated or transferred easily, but which go on to shape communication and knowledge sharing within global organisations. We have demonstrated through our case studies how unspoken intentions on the part of higher management, as well as conflicting perceptions on the activity objectives, translated into patterns of use and adoption for the information systems, that were often not in alignment with articulated interests. The tacit knowledge literature, with its recognition of individual interpretation and continuous re-negotiation of meaning, contributes greatly to the lack of attention paid within current activity theory to knowledge and individual perceptions that don't fall within the structures of articulated rules and objectives. By bringing these two frames together we have offered, within the remit of this paper, an augmented analytical lens through which knowledge flows within complex global organisations can be examined.

We also have placed emphasis in this paper on the importance of individual interpretive activity rather than on a collective organisational level. We call for

greater sensitivity towards the competing influences on individuals within larger organisational groupings. As was demonstrated by the GlobalPharma, GDA and LC cases, the adoption, use and integration of global information system tools is highly dependent on these individual voices of dissent or acceptance. Only when the systems are in tune with local needs and cultural specificities, can they be expected to achieve buy-in from the diverse community of stakeholders concerned. Often it would appear that organisations articulate their support for these principles but then fail to back them up with the appropriate financial, technical and human resources. Potentially this could be because their expected value is not understood, agreed or believed.

It is important to stress that these insights are in no way 'unknown' to organisations operating within a global context. Rather, our contribution lies in our demonstration of the often unwitting resistance offered by global organisations in challenging or addressing the imbalances and global-local tensions identified within this paper. The seeming inability of organisations to bridge the gaps could be taken to reflect a lack of will on the part of their HQ organisations to transcend the rhetoric of change, towards a genuine upheaval of 'traditional' work practices and priorities. What this translates into is a different approach to resource allocation, greater transparency, attention to local detail and less hierarchical decision making within the organisational environment. This requires clear and explicit added value contribution from proposed new systems, together with demonstrable Return on Investment (ROI) to support the necessary decisions. Through the three cases we have considered in this paper, we have demonstrated successfully how these practical considerations are side-stepped by poor project management, and disregard for local priorities. While global organisations are increasingly articulating their intention to address these imbalances by introducing new organisation-wide policies and tools, the relative inability of our case study organisations to fully achieve their objectives is a clear

indication of no real shift taking place in balancing global-local priorities. Through the research context of our three global organisations, we have demonstrated the call for local-customisations, capital and knowledge support, as well as greater (and more genuine) membership of all local sites into the global organisational community. While the above insights are to a great extent acknowledged and accepted within global business models today, our contribution within this paper has been to expose why these intentions and motivations fail to translate into meaningful activity outcomes for the stakeholder community.

7. Conclusion

Recent research has sought to recommend tools to leverage knowledge so that organisations can identify, share, and process knowledge more effectively. The rationale for this is that, as organisations increasingly compete in changing stocks of knowledge, the management of this complex knowledge base is emerging as a major challenge in maintaining sustainable competitive advantage (see Pan and Leidner, 2003). In this paper we have demonstrated how global information systems designed and implemented for organisational knowledge sharing purposes, such as NX, EML and NetWork, struggle when introduced to local work contexts, because they do not sufficiently take into account the culturally defined practices of a work setting. A common theme that emerged from our investigations was how people invent ways of 'working around' the system, or how people do 'extra-work' by maintaining both the new, prescribed systems as well as their existing methods and practices. Case studies such as the ones examined in this paper serve to demonstrate the diversity of voices within global organisations seeking to standardise services. As discussed earlier in this paper, the 'one-size-fits-all' analogy simply does not work when local variations emerge as critical in shaping the adoption of a given brand or service.

The analytical frame of activity theory has helped us to understand that it does not make sense to analyse action, without taking into account the overall collective activity (or activities) which it realises. The key problematic here in our opinion is that systems, such as the ones we've discussed above, tend to only support a fragment of this web of actions. It is in response to this that we bring in the literature on tacit knowing, as we believe it augments our understanding of the processes and exchanges that go unarticulated within such organisations. The attempts of the NX subject group to generate a cooperative work environment in this context can be traced back to a narrow analysis looking only at the action of documenting information flows. While this intention was never clearly articulated, its effects were felt during the roll out and implementation stage of the project. Similarly, the NetWork system within GDA and the EML system within LC, while intended to be platforms via which subject groups and stakeholders could exchange information and produce new stocks of knowledge, ended up being seen by some local participants, and headquarters staff, as tools via which HQ could monitor and control local activity. Action within an activity system needs to be analysed as part of a volatile context consisting of other actions, activities and the artefacts mediating these activities, as well as the conditions of the work practice itself. What is needed here is a deeper understanding of the way in which cooperation and collaboration is achieved in practice within such distributed work contexts, especially where the interests of those in power to make decisions are directly challenged. For unless the conflicting interests and interpretations are considered, to expect universal *buy-in* across sites is at best naïve. The design of global information systems needs a persistent focus on the work practices at local level in order to achieve the intended support for the work, and in order to ensure that the system at least does not contradict the employees' own work practices. In addition, paying attention to the minor but locally relevant features of the system can go a long way in assisting the diffusion of such collaborative

technologies within a global organization.

To conclude, we would like to stress the need for acknowledging and embracing diversity within global organisations. While standardisation and uniformity are indeed tools that enable distributed work contexts to share stocks of knowledge, we have to recognise that a majority of factors, ranging from the quality of service, to work practices, and systems of meaning-making, are all subjectively determined. Hence, we recommend that for any real shift in practice to occur, a genuine local involvement in the development and use of operational systems needs to be favoured instead of the more one-sided directive from global headquarters with limited input from its local entities. Along with a more sharpened sensitivity to local context, we also recommend a greater allocation of resources towards drawing out this difference that emerges from the various sites, rather than 'rolling it out' in the name of uniformity. This resource allocation could translate in practice into language translation facilities, or better connectivity infrastructure, improved skills training, and the creation of improved platforms for dialogue between the various stakeholders in a global enterprise.

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