Networks of organizational learning and adaptation in retail TNCs

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Abstract *In this article we contribute to a growing body of literature concerned with the socio-cultural dynamics of learning and adaptation inside firms. Specifically, we apply a 'competence-based' view of the firm to a newly emerging breed of retail-industry transnational corporations (TNCs). We situate these firms within the context of 'relational networks' and then consider – from a geographical perspective – the complex interplay between 'extra-firm' networks and 'intra-firm' networks, and between store-based learning and organizational adaptation. We argue that the competitiveness of the retail TNC increasingly rests upon its ability to adapt the portfolio of retail formats to different and rapidly changing business environments by mobilizing and blending knowledge from multiple locations. This, it is suggested, is leading to the emergence of a 'reflexive' or 'hybridized' model of retail globalization.*

In recent years, there has been an important reconsideration and reconceptualization of the firm in economic geography (Taylor and Asheim 2001). Recognition that 'the firm is more than … an efficient manager of transaction costs' (Amin and Thrift 2000: 6) has brought to the fore questions of organizational knowledge and the socio-cultural dynamics of learning and adaptation inside the firm. As Gibson-Graham (1996: 15) noted, the firm has 'no invariant inside': it is characterized by hybridity and fluidity, by ongoing interactions between social actors at different organizational and geographical scales, interactions that can lead to cultural conflict, instability and even organizational failure (Schoenberger 1997). Thus, recent work has sought to deconstruct 'executive talk' in order to destabilize notions of the firm as rational, progressive and unproblematic (O'Neill and Gibson-Graham 1999; O'Neill 2001).

More specifically, the firm has been viewed from a relational perspective, as a 'sociospatial construction' embedded in broader discourses and practices, which are played out by social actors across multiple and overlapping intra-firm, inter-firm and extra-firm network relationships (Dicken et al. 2001; Yeung 1998). According to this view, the firm is best understood as a 'living' entity. Its behaviour and direction in the marketplace – in other words, its capacity to learn and adapt to competitive pressures – is steered by a complex community of social actors, who are themselves enrolled in an intricate web of relations with other colleagues, members of other firms, institutional and governmental elites, and so on. It is widely argued that firms are now in a permanent state of emergency and must therefore be prepared for constant learning and adaptation (Thrift 2000).

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And yet, in spite – or perhaps because – of this new level of interest, the knowledge-driven firm remains a 'fuzzy concept' in economic geography (Markusen 1999). Further work is required to advance our understanding of the micro-practices of organizational learning – that is, how 'competencies [are] built within the firm as it learns from the repetition of tasks' in the market (Maskell 2001: 336) – and in turn, of the dynamic role of geography in shaping processes of learning and adaptation (Taylor and Asheim 2001). Our purpose in this article is to contribute to these debates by applying a 'competence-based' view of the firm (Maskell 2001) to a newly emerging breed of retail-industry transnational corporations (TNCs). We critically analyse and contextualize the geographies of organizational learning and adaptation among those retail TNCs and, in doing so, attempt to raise awareness of their wider conceptual importance. This is a task that we see as being vital to economic geography, not least because of the productivist bias of contemporary academic debates on global economic change.

Elsewhere we have argued that a distinctive organizational challenge of the 'distribution-based' retail TNC arises from a need to embed itself, to an unusual extent relative to the production-based TNC, in the markets and local cultures of consumption in which it operates (Wrigley and Currah 2003a). In that paper, we deployed the concept of intra-firm, inter-firm and extra-firm relational networks to shed light on the nature of that embeddedness in different business environments (Whitley 2001). In addition, we emphasized the implications of that essential embeddedness for the geographies of learning and adaptation in the retail TNCs. In this article, we pursue that theme in more detail by focusing explicitly on the interplay between extra-firm (or firm-place) networks of store-based learning and intra-firm networks of knowledge exchange and organizational adaptation. We argue that the competitive strategy of the retail TNC increasingly rests on its ability to adapt its retail formats to different and rapidly changing consumer landscapes by extracting, distributing and blending 'best practice' knowledge from multiple locations. In our view, this skill is critical to the development of distinctive organizational capabilities that are attuned to the rhythms of the local context.

The article proceeds as follows. First, we outline the characteristics of the emerging retail TNCs. Second, we situate the retail TNCs within a relational network perspective. This provides a useful springboard for the third section, where we introduce the concept of 'knowledge management' and explain the strategic importance of 'intangible' knowledge assets to the retail TNCs. Fourth, in the main section of the article we focus on the mechanisms of knowledge management in the retail TNCs. Here we evaluate the challenges facing the management of 'bottom-up' store-based learning and then move on to examine the 'top-down' strategies that these firms use to realize a 'reflexive' or 'hybridized' model of globalization that mobilizes knowledge from multiple locations.

Portraying the retail TNCs

The late 1990s witnessed a powerful wave of merger/acquisition-driven consolidation in retail markets across the world, as leading retailers from Europe, and in part the USA, used the free cash flow generated from their domestic markets to enter new growth markets and realize the ‘hard’ synergies of global scale. This process of international merger/acquisition led to the emergence of an elite group of retail-industry TNCs (involved in the food and general merchandise sectors) with international capabilities and clearly stated ambitions for further expansion. By the beginning of the new century, these retailers (including Wal-Mart, Carrefour, Tesco, Ahold, Casino, Metro, Delhaize and Costco) were becoming powerful global operators, drawing an increasing proportion of sales from their international divisions and in turn, dramatically reshaping the corporate and physical landscapes of retailing in the emerging markets of East Asia, Latin America and Central Europe. Elsewhere, we have begun to document and conceptualize those emerging economic geographies of retail globalization (Wrigley 2000; Wrigley and Currah 2003a). Drawn from this work are tables 1 and 2. The former shows the world’s leading retailers, ranked by total revenues, while the latter uses market capitalization, a much more volatile metric, to rank the top ten world retailers.

Table 1: Top 15 world retailers ranked by total revenues in fiscal 2001 (US$ billion)

Rank	Firm	2001 Total revenues
1	Wal-Mart*	219.81
2	Carrefour	62.54
3	Royal Ahold	59.93
4	Home Depot	53.55
5	Kroger	50.10
6	Metro	44.57
7	Sears	41.35
8	Target	39.89
9	Albertson’s	37.93
10	Kmart	36.15
11	Costco	34.80
12	Tesco	34.53
13	Safeway	34.30
14	JCPenney	32.00
15	Ito Yokado	26.59

* Does not include Wal-Mart’s investment in Japan.
Source: adapted from Credit Suisse First Boston (2002: 5).

Table 2: Top ten world retailers ranked by market capitalization (US$ billion) in June 2001, February 2002 and September 2002[1]

June 2001		February 2002		September 2002	
Firm	Market cap.	Firm	Market cap.	Firm	Market cap.
Wal-Mart	230.2	Wal-Mart	268.9	Wal-Mart	231.3
Home Depot	118.4	Home Depot	121.6	Home Depot	75.3
Walgreen	41.8	Target	40.9	Walgreen	34.9
Carrefour	38.3	Walgreen	39.6	Lowe’s	32.8
Target	34.2	Lowe’s	36.1	Carrefour	31.0
Lowe’s	28.0	Carrefour	32.0	Target	30.3
Gap	27.7	Tesco	24.1	Seven Eleven Japan	29.2
Safeway US	26.6	Ahold	23.1	Kohl’s	23.0
Ahold	26.3	Kohl’s	23.0	Tesco	22.1
Tesco	25.0	Safeway US	21.6	Sysco	18.7

Source: Wrigley and Currah (2003a).

Three key points should be borne in mind when approaching the global retailing landscape as portrayed in these tables:

- The emerging elite of retail TNCs should not simply be equated with the world’s largest retailers, some of which are still entirely domestic US operators – for example, Home Depot, Kroger, Walgreen, Target, and Lowe’s. Of the retailers represented in Tables 1 and 2, only a few retailers (Wal-Mart, Carrefour, Tesco, Ahold, Metro and Costco) can really be considered truly committed globalizers. Nevertheless, it is important to recognize that the retail TNCs and the world’s largest retailers are increasingly converging.
- There has been a general perception among the management of the retail TNCs and the equity analysts of leading investment banks that by 2010 the global retail sector may be dominated by five to six ‘mega-groupings’. During the late 1990s, the potential future corporate parents of these groupings were widely identified as Carrefour, Wal-Mart and Ahold. However, by 2001/2, Tesco was also included in that list due to rapidly growing operations in markets that had considerable growth potential (Southeast and Northern Asia, Central Europe). And by early 2003, the claims of Ahold had been severely weakened following the disclosure of $880 million accounting irregularities in its US and Latin American divisions (see Wrigley and Currah 2003b).
- The competitive tensions between these proto corporate parents essentially revolve around their ‘corporate models’ of globalized retail operation and which

of these will prove the most effective. In turn, this largely depends on how successfully these firms can learn and innovate as global operators, and it is to this issue that the focus of the article now turns.

Situating the retail TNCs within relational networks

One particularly rewarding way of conceptualizing the TNC is as a 'differentiated network' (Nohria and Ghoshal 1997) – a complex set of relational networks, comprising intra-firm, inter-firm, and extra-firm relationships, which are ongoing and inscribed in society and time/space at multiple scales through evolving power relations (Dicken et al. 2001). As Morgan (2001a: 120) argues, the 'structural framework of the global company opens up a new transnational space by creating multiple forms of linkages across sites' that are absent in other types of firm. The issue here, however, is to what extent do these perspectives on the structural organization of the global firm enrich the conceptualization of the retail TNC? And conversely, to what extent does the distinctive nature of the retail TNC help to advance our understanding of how relational networks vary between sectors?

Situating the retail TNC within the framework of intra-firm, inter-firm and extra-firm relational networks appears to have many conceptual advantages. Our understanding of *intra*-firm networks within the retail TNCs is poorly developed – in particular, the nature of bargaining processes within the 'transnational community' of the firm (Morgan 2001a). Intra-firm bargaining in the retail TNC tends to be in the form of competition between divisions for capital expenditure (cap-ex), either to upgrade or to expand their portfolio of retail space. During 2002/3 the international divisions of Wal-Mart have competed for a portion of a $10 billion cap-ex budget, an unparalleled level of capital investment in the sector that will allow the retailer to open an extra 46 million square feet of space. This type of competition for investment is intrinsically related to the *geography of trade* within the firm and in some respects is similar to the way divisions in production-based TNCs compete for international export contracts (Phelps and Fuller 2000; Pritchard 2000). In other words, the international divisions of retail TNCs essentially seek capital investment from the corporate headquarters to widen their market by entering new and profitable regions of growth.

But what of the *inter*-firm relational networks that bind the retail TNC to other firms? While there is certainly a more developed body of work concerning relationships at the retailer–supplier interface, namely in a European and US context (Doel 1999; Hughes 1999), our grasp of how these relationships vary across other types of business environments is actually very weak. Understanding such differences is critical to future conceptualizations of the retail TNC, not least because those firms have been forced to cultivate an array of inter-firm alliances with local suppliers, distributors and other stakeholders (including recruitment centres, marketing agencies and so forth) in each of their markets. In particular, the differential success of the retail TNCs' entry into the 'collaborative economies' (Whitley 2001) of East Asia has depended very much on inter-firm alliances – not least because of the importance of being associated with a local incumbent in bargaining with governmental elites and suppliers. Elsewhere, we have examined the key role of inter-firm relational networks in facilitating Tesco's entry into South Korea, Thailand and Malaysia (Wrigley and

Currah 2003c). Overall, what must be emphasized is that inter-firm networks are as central to the retail TNCs' quest for adaptability as the extra-firm/intra-firm relational networks that form the focus of this article.

Any assessment of *extra*-firm relational networks necessarily involves a focus on the 'firm–place' relationships of TNCs as they 'attempt to extract the maximum benefits from the communities in which they are embedded' (Dicken 2000: 285). Again, studies of such relationships in the context of the retail TNCs are underdeveloped – though attempts are being made to understand the firm–place relations underpinning Wal-Mart's entry into Europe (Burt and Sparks 2001; Christopherson 2002; Fernie and Arnold 2002; Hallsworth and Evers 2002). What is required, then, is a more detailed interrogation of the retail TNC as a multi-locational firm that has the power to manipulate geographical space and to insert places into its organizational structure in innovative ways as part of its competitive strategy.

More generally, the competitive advantages accruing to TNCs from place can be understood as fluctuating between two relatively opposed scalar imperatives: *motion* and *fixity* – a contradiction arising from 'capital's necessary dependence on territory or place and its space-annihilating tendencies' (Brenner 1998: 461). So, on the one hand TNCs are widely argued to control a shifting kaleidoscope of highly dispersed places, moving their capital and resources between those locations with relative ease as and when politico-economic conditions dictate, but on the other hand places also act as an anchor to capital investment, providing a spatio-temporal fix and the opportunity to learn from a particular business environment. Each of these scalar imperatives has somewhat different implications for the retail TNC compared with its production-based counterpart.

Motion. From a portfolio theoretic perspective, the TNC represents a spatial strategy of risk management: a form of business organization that favours the ongoing spatial distribution of corporate activities as a means of diversifying risk and managing the uncertainty that is created by uneven costs and growth across the global economy (Penfold 2002). Risk diversification unleashes the mobile nature of capital by allowing firms to exploit the local economies of different places, while still retaining the ability to move on at short-term notice. Retail TNCs, however, are less adept at jumping between locations because of their need to be 'close to market', the investment in embeddedness that this implies, the exit sunk costs (Clark and Wrigley 1997) involved in withdrawing from their embedded store and logistics networks, and the time lag between setup/operation and the generation of revenue streams. In contrast, production-based TNCs can often use modular factory designs and imported machinery to minimize their entry and exit costs, and can use knowledge of that flexibility as a credible threat in negotiations with the state and regional institutions over taxation and other charges. This is not to suggest that *all* production-based TNCs behave in this way – indeed, TNCs are never *perfectly* mobile and few would write off capital investments if it could at all be avoided – but rather to draw attention to some of the key structural differences vis-à-vis retail TNCs. Being relatively less mobile, the benefits of 'fixity' in place are more pronounced for retail TNCs: they must seek to use the embeddedness of its stores in local cultures and geographies of consumption explicitly within processes of learning and adaptation.

Fixity. An important aspect of TNCs' use of place is the degree of centralization or decentralization imposed upon innovation within the firm (Yeung 1994: 481). Although the production-based TNC is argued to have entered a 'new paradigm of transnational innovation' over the past decade, characterized by a progressive shift towards a more polycentric architecture of globalized R&D (Gerybadze and Reger 1999; Zanfei 2000), the notion of dispersed learning seems to fit even more closely with the retail TNC, which routinely operates a differentiated network of 'interactive learning centres' (Amin and Cohendet 1999). That is to say, each retail store is potentially an autonomous centre of innovation, embedded in and necessarily shaped by a unique place, with the capacity to learn how to adapt its format in a variety of ways to attain market leadership in its own catchment area.

Key challenges for the retail TNC are how best to capture and protect the innovations arising from these extra-firm/firm-place networks. Also, how best to transfer the resultant knowledge through its intra-firm networks – in the process fostering a form of reflexive or hybridized globalization that actively exploits place-based innovative capabilities to tailor the retail offering to local cultures of consumption and thus to realize competitive advantage. Later, in the section entitled 'Mechanisms of knowledge management in the retail TNCs', we consider this latter point in more detail, assessing the organizational impact of cross-border knowledge transfers and the potential for 'strong convergence' in the retail TNCs' learning and adaptation. That is to say, we will assess the extent to which the retail TNCs' international experiences directly and recursively shape corporate strategy in their domestic markets (Gertler 2001). To prepare for that section, however, we must first explore in more detail the nature of what has been termed 'knowledge management' in TNCs.

Knowledge management in TNCs

Over the past 40 years, the structural framework of the TNC has increasingly been understood as facilitating the 'cross-border transfer of knowledge, business techniques and personnel' between international divisions (Kristensen and Zeitlin 2001: 178). What unites much of this literature is the importance attached to 'knowledge management' in TNCs – that is, the creation, identification, appropriation and transfer of 'intangible' assets (notably tacit knowledge) that are embedded within the firm (Davenport and Grover 2001). In this section, we discuss some of the general challenges facing knowledge management in TNCs, before turning more specifically to consider the strategic importance of knowledge management in the retail TNCs.

Scoping the terrain of knowledge management in TNCs

The challenge facing knowledge management in any TNC is how best 'to select and integrate fragmented core competencies and culture' that are dispersed between 'local islands of knowledge spread all over the world' (Amin and Cohendet 1999: 93)? The task of delimiting the archipelago of organizational knowledge – of 'knowing what the firm knows', to paraphrase Polanyi (1966) – is proving increasingly problematic because many best practices are inherently *tacit* and forged in unique contexts through the embodied performances of individual workers (Beccera-Fernandez and

Sabherwal 2001). Whereas codified knowledge can be recorded and transmitted in a standardized format, tacit knowledge is less amenable to any such textualization, given that it is accumulated through individual cognition as employees observe, perform and learn everyday work practices. Tacit knowledge has long been argued to lie at the very heart of the dynamism of the firm (Nelson and Winter 1982).

The situation facing TNCs is further complicated by the volatile nature of organizational knowledge. As Nonaka and Takeuchi (1995: 6) explain, codified and tacit knowledge regularly 'interact with and interchange with each other in the creative activities of human beings'. Tacit and codified knowledge are mutually constituted in a perpetual spiral of transformation: the former is systematized into an explicit form as employees learn and share their experiences, while the latter assumes implicit and embodied dimensions through ongoing work practices or 'learning by doing' (French 2000).

The 'heterarchical' structure of the globalized firm (Hedlund 1993) also contributes to this *fusion* of knowledge categories. In principle, the TNC fosters a process of decentralized specialization by promoting innovation across a network of learning centres while also acting as a conduit for the transfer of tacit *and* codified expertise between those centres (Amin and Cohendet 1999). Indeed, the capacity for tacit knowledge to be transferred across national borders through intra-firm corporate networks, either through embodied or distanciated interactions, highlights the myopia of 'the recent fashion in economic geography to theorize localized transactions as the source of bounded tacit knowledge, and global networks as the space of codified knowledge' (Amin 2002: 395). Nonetheless, the nature of the exchange of tacit knowledge across organizational and geographical boundaries remains a problematic issue (Gertler 2003) because 'the more easily codifiable (tradable) knowledge can be accessed, the more crucial does tacit knowledge become for sustaining or enhancing the competitive position of the firm' in the global economy (Maskell and Malmberg 1999: 172).

Tacit knowledge, then, has become central to knowledge management in TNCs. The key task for knowledge management is first to generate and/or discover best practices that are rooted in particular places, and second to prepare this tacit knowledge for circulation throughout organizational space. Due to this cross-scalar imperative, knowledge management in the TNC is essentially determined by a 'balancing act' between *bottom-up learning* and *top-down coordination* (Brown and Duguid 2000). In the next section we examine in more detail each of these mechanisms of knowledge management in the context of the retail TNC. Before that, however, we must first consider the extent to which these more general perspectives on knowledge management can be used to advance our theoretical understanding of organizational learning and adaptation in the retail TNCs.

Conceptualizing knowledge management in the retail TNCs

In our view, any conceptualization of knowledge management in the retail TNCs must make a distinction between *product-based* and *process-based* knowledge assets (Teece 1998). In the retail industry, the store is essentially a tangible product created from an industrialized production process, extending from store construction to staff recruitment and supply chain management, in which intangible knowledge assets play a critical role. Due to the inherently open nature of the store and the lack of legal mechanisms to protect the retail format, the arsenal of product-based knowledge deployed in the store environment is constantly at risk of imitation by competitors (Dawson 1994). Consequently, and to draw upon Goffman's (1956) insights, the process-based knowledge assets accumulated in 'back region' spaces (for example IT systems and know-how regarding logistics, supplier negotiations, private label development, financial management, real estate strategy, and so on – all those activities that are concealed from the consumer's view) are of considerable strategic importance in the retail sector. As Goldman (2001: 223) explains, a distinction should be drawn between:

> the *offering* and the *know-how* parts of the [retail] format. The first includes the *external* elements (*e.g.* assortment, shopping-environment, service, location and price) delivering the functional, social, psychological, aesthetic and entertainment benefits attracting customers to stores. The second, the *internal* part, determines a retailer's operational strength and strategic direction. It consists of the *retail technology* dimension containing the systems, methods, procedures and techniques the retail company uses and of the *retail culture,* that includes the repertoire of concepts, norms, rules, practices and experiences (emphasis in original).

There is necessarily a close, recursive relationship between the offering (front region) and know-how (back region) parts of the retail format. First, the behavioural response of consumers to the offering generates a constant stream of information (such as electronic point-of-sale data), which is analysed in the back region to identify those parts of the offering that are working, that are failing, and what processes need to be adjusted as a result. This facilitates ongoing improvements to the arsenal of product-based knowledge – for example, store layout, shelf management, merchandising, own label branding, pricing schemes, promotional initiatives and so on. Second, the image projected by a store and, by extension, its ability to attain the confidence of consumers in its catchment area, ultimately relies on the deployment of innovative practices devised in the back region. Moreover, this image has a 'grounded' history and is interpreted by consumers in particular ways in different business environments (Dupuis and Prime 1996).

Given the close interdependencies between front and back regions in any one context, the competitive advantage and 'experiential value' attached to a retail format are unlikely to be easily reproduced in another country, or even in a different region in the same country (Burt and Carralero-Encinas 2000). As a result, both the front and back region of the retail format must constantly be adapted in different ways to different places. Indeed, the globalization of retailing is essentially a reflexive learning experience, in which the 'retail firm explores, invests, and then reflects on individual decisions made' as both the offering and know-how are attuned to the fluctuating rhythms of foreign markets (Clarke and Rimmer 1997: 364).

As the embryonic retail TNCs penetrated new markets during the late 1990s, adapting their formats to different economic and regulatory landscapes, they sought to do so largely by 'internalizing' the intangible assets embedded in their back region spaces via the high-cost/high-control mode of market entry offered by merger/acquisition (Doherty 1999). In the next section, we address the management of process-based knowledge in these back regions – in particular, the 'top-down' mechanisms that are used to transfer best practices, in multiple directions, across the transnational space of the firm – and assess whether these mechanisms are in fact conducive to what we referred to earlier as a process of reflexive or hybridized retail globalization.

In tackling this question, we examine the soft architecture required for processes of strong convergence (Gertler 2001), or what Ivarsson (2002: 240) has termed 'asset-seeking FDI', where organizational competencies 'developed by foreign located affiliates are being transferred back to parent and sister firms outside the host country'. We also address a wider area of neglect in economic geography and the social sciences concerning the exchange of knowledge through corporate networks – namely, how different 'kinds of information are being mobilized (in certain places) and how they feed into innovative activity (in other places)' (Bunnell and Coe 2001: 580).

Mechanisms of knowledge management in the retail TNCs

Although our focus in this section is primarily on the 'top-down' strategies used by the retail TNCs to extract and transfer tacit, process-based knowledge across the firm, it must be recognized that organizational learning in the retail TNCs is ultimately driven from the 'bottom-up', within what might be termed the 'situated knowledge web' of the store environment, through the 'ongoing interactions and improvisations that … employees undertake in order to perform their jobs' (Nidumolu et al. 2001: 119). We begin, therefore, by sketching out some of the key characteristics of this store-based learning process in the retail TNCs, and consider how it might affect wider processes of knowledge transfer and organizational adaptation.

Bottom-up learning

The importance of bottom-up learning in knowledge management is reflected by the embeddedness of tacit knowledge in 'the connection between individuals, in rules, division of labour and roles' (Nidumolu et al. 2001: 119). This is particularly evident in what have been termed '*communities of practice*' (Brown and Duguid 2000; Wenger 1998). In these communities, employees are typically informally bound together by a shared area of expertise, or maybe an operational problem related to that area, which they then seek to resolve by exchanging practical knowledge during relatively unstructured interactions, often at serendipitous meeting places such as the cafeteria or the photocopier (Leonard and Sensiper 1998). For the retail TNCs, communities of practice within the store environment are a principal mechanism through which improved strategies of display and merchandising are initially discovered. These product-based discoveries are then filtered into the back region so that the appropriate process-based skills can be refined. The extra-firm/firm-place networks through which this store-based learning occurs are many and diverse. In effect, every encounter with a customer, in every store, is an opportunity for learning. This philosophy pervades Wal-Mart, where 'associates' are actively encouraged to approach customers, answer queries and, in turn, devise their own practical solutions to everyday workplace problems.

However, communities of practice need not be geographically proximate (within the confines of the retail store) for bottom-up learning to occur. The organizational proximity afforded by intra-firm relational networks is often far more important in constituting the 'soft architecture of organizational learning' in the globalizing firm than spatial co-location (Amin 2000). Indeed, the transfer of tacit expertise can now be achieved at a distance in the TNC due to the capabilities of telecommunications technologies such as Groupware and web-cameras, though this is no substitute for proximate, tactile, face-to-face interactions (Leamer and Storper 2001). For example, *virtual* communities of practice are emerging from a dense web of 'peer-to-peer' (P2P) computer connections (Lurey and Raisinghani 2001), with Ahold's 'virtual network' being a prime example (see below).

Nonetheless, it is important to note that the emergence of best practices through organizationally and geographically dispersed communities of practice is ultimately constrained by nationally and regionally oriented institutional and regulatory structures (Pauly and Reich 1997), reinforcing the path-dependent nature of organizational learning and geocorporate change in different places (Gertler 2001; Leyshon and Pollard 2000).

Given that the geography of learning in the retail TNC is inherently store-based, and so fractured – or, using Schoenberger's (1999) terminology, 'regionalized' – across a mosaic of heterogeneous places, it is clear that a major constraint on bottom-up knowledge management in this type of firm is the creation (and discovery) of best practices arising out of *hybrid* communities of practice, each of which is situated in contrasting cultures and geographies of consumption. Organizational units within the retail TNC – from the individual store to whole national divisions – develop their own identities, ways of doing things, and ways of thinking because they live in different places and must, by default, constantly 'confront and respond to the particularities of … places across a whole range of practices and issues' (Schoenberger 1999: 211).

As noted previously, one rewarding way of approaching the retail TNC is as a 'transnational community', made up of cross-cultural hybridizations between social actors located in different business environments. Nevertheless, as Morgan (2001b: 11) cautions, '[c]reating order within such a transnational social space … is a precarious practice. It depends upon the "space" (social as well as a geographical) which is being encompassed and how far practices, routines, norms and values from within these spaces are different, transferable, adaptable, or resistant to change.' As a result, it is uncertain whether best practices in the retail TNCs can always successfully be adopted and implemented outside the socio-cultural context – the 'situated knowledge web' – in which they were originally conceived (Gertler 1995). In particular, the cross-border exchange of knowledge in the retail TNC may be constrained by the differential capacity and motivational disposition of corporate units to absorb best practices from other locations. Of course, a strong degree of '*absorptive capacity*' is needed for organizational learning and adaptation to occur in any TNC. That is to say, a firm's social occupants must 'recognize the value of new information, assimilate it and apply it to commercial ends' (Cohen and Levinthal 1990: 128). However, the absorptive capacity of the retail TNCs is limited by the following attributes of their transnational spaces:

- The potential for conflict between corporate cultures 'on the ground' after merger/ acquisition has occurred. In these circumstances, the newly acquired retail division may fiercely resist pressures to adapt its operations to the host firm (Schoenberger 1997; Shackleton 1996, 1998). For example, incompatibilities between Wal-Mart's management philosophy and that of its European acquisitions arguably contributed to the loss of senior management during its post-entry period in both the UK and Germany (Fernie and Arnold 2002).
- The socially and discursively constructed nature of parent-subsidiary and subsidiary-subsidiary relations by elite actors in different parts of the transnational space, who may impose their own vision and personal ambitions upon the dynamics of organizational learning at a local scale. As Yeung (2000: 208) observes, the TNC constitutes a 'mosaic of different geographies of power exercised by different social actors in these embedded transnational business networks'.
- The mediating role of intra-firm bargaining processes upon the transfer of knowledge between those units, especially if subsidiaries seek to exert some level of proprietary control over localized innovations. This is significant because valuable know-how may be used (or in fact hoarded) by subsidiaries as 'currency' to serve their own place-based interests and acquire power vis-à-vis other units, either by winning investment or autonomy from the centre (Gupta and Govindarajan 2000).

Even so, the mutual exchange of best practices, and the development of an absorptive capacity built around a 'shared passion for a joint enterprise' (Wenger and Snyder 2000: 139), is attainable in the retail TNCs. Top-down strategies of knowledge management are being used by these firms not only to translate bottom-up learning experiences into more efficient back region processes and, in turn, more competitive front regions of display, but also to foster a mutual awareness of the company's diasporic contours and of the threat posed by other transnational corporate communities to the integrity of those contours. It is to these strategies that we now direct our attention.

Top-down coordination

As Gold et al. (2001) emphasize, bottom-up learning will remain isolated and of limited commercial significance to large-scale organizations if it is not complemented by adequate top-down investment in 'infrastructural capabilities', which coordinate, formalize and sustain the cross-border transfer of best practices. These capabilities generally consist of two components: a technological architecture for capturing, storing, protecting and communicating knowledge throughout the firm; and a corporate culture that promotes participation and knowledge sharing. We now explore each of these capabilities in turn to shed some light on the role that is played by top-down coordination in shifting process-based knowledge across the retail TNC. What follows is meant to be an *illustrative* not an exhaustive or systematic portrayal of knowledge management in the retail TNCs. As we have learnt in the course of our research, the task of gaining access to these major firms is rarely as ordered as one would hope, not least because of the strategic importance of process-based knowledge and executives' desire to keep back-region processes under wraps.

Technological architectures. For Cohendet et al. (1999: 234) 'computerized telecommunications networks' (CTNs), 'based on digital processing of information and multimedia networking of workstations', are critical to the integration of fragmented and locally distributed organizational competencies. Despite the recent accountancy irregularities that have blighted Ahold, its 'virtual network' has been viewed as an important example of a CTN and one that also provides a useful example of a large-scale 'virtual community of practice'. This corporate Intranet codifies each component of Ahold's retail operation using a standard vocabulary of intra-firm processes, generating target benchmarks and performance ratings for each of those components on a daily basis. The virtual network also delineates the firm's global operations into 14 'knowledge areas', each of which is further subdivided into specialized 'networking groups' – a framework that classifies and locates the expertise of each person, thus fusing tacit and codified expertise into one category and enabling employees to visualize the 'geography of knowledge' within the organization (Stenmark 2001).

In this way, any member of the Ahold 'family' who has an operational problem can log on to the Intranet, locate the related benchmark of other stores, retrieve information about the strategies in place to deal with that issue and, if necessary, contact a relevant employee for further advice. The system improves access to tacit knowledge, forming new networks of inter-personal knowledge exchange and incentivizing employees to accumulate 'social capital' among their peers. Ahold's acquisition, via a joint-venture partnership, of the Argentine retailer Disco, and its subsequent development of Disco's existing e-tailing business, was greatly enhanced by the virtual network that allowed management in Buenos Aires to glean experience and knowledge of online food retailing from personnel in Ahold's other e-commerce operations, namely Peapod in the USA and Albert Heijn in the Netherlands.

The 'relentless innovation' (Kickul and Gundry 2001) inherent to e-commerce technology is heightening the strategic importance of knowledge management to the retail TNCs (Holsapple and Singh 2000). In particular, business-to-consumer (B2C) e-commerce presents the retail TNCs with a profound organizational dilemma – that is, how can they deliver *single* orders to separate households in a cost-efficient manner given that they are otherwise equipped to distribute *multiple* commodities (as stock replenishment) across their store networks (Currah 2002; Wrigley et al. 2002)? In tackling this challenge, the retail TNCs have had to stimulate and harvest best practice knowledge from the bottom-up, in the back region spaces of e-commerce fulfilment.

For Tesco, the locus of learning in B2C e-commerce has been in the traditional store, where the firm has developed a store-based picking system that requires low levels of capital investment, exploits multi-channel marketing opportunities and offers the full product range of a typical retail outlet. The Tesco.com service is the most profitable online grocery operation in the world, with annual revenues of £356 million in 2001/2. In the longer-term, however, it seems plausible to suggest that at higher volumes online orders may be best served from dedicated distribution centres, where the efficiency of the picking process can be optimized – a strategy that is already being tested by Carrefour and by Wal-Mart in its UK operations (Tanskanen et al. 2002).

Whatever the form of fulfilment, B2C e-commerce has important implications for processes of intra-firm learning in the retail TNCs. More research is needed to clarify several issues. How are the retail TNCs conceptualizing e-commerce within existing corporate philosophies? In what ways are these firms managing process-based knowledge related to e-commerce? Overall, the retail TNCs' ability to remodel themselves into a multi-channel form depends as much on the restructuring of intra-firm logistical networks as on inter-firm relational networks (Wrigley and Currah 2003d) – for example, with firms specializing in home delivery services, Internet technologists, or Web-site design consultancies (Oinas 2002).

CTNs such as the Ahold network have enabled the retail TNCs to monitor the performance of their B2C e-commerce operations in different locations and, in turn, to extract best practices from those operations for dissemination to other locations. This was instrumental in the development of Tesco's online service during the late 1990s (Jones 2001). However, as the Ahold network suggests, it is critical that any CTNs employed in knowledge management, related to e-commerce or not, are sensitized to the dynamic inter-personal processes through which tacit knowledge is generated. The very logic of knowledge management rests upon the management of *social processes* within the workplace, *in situ*, to facilitate innovative thinking, collaboration, a culture of sharing, and the incremental development of best practices.

Inter-personal mechanisms of knowledge transfer. Despite the rich potential for non-local organizational ties and the transmission of tacit (and codified) knowledge through space-effacing technologies such as CTNs, there is still a crucial role for physically proximate interactions between employees in top-down strategies of knowledge management. Face-to-face socialization between employees acts as the principal mechanism through which tacit knowledge can be transferred between people and disseminated throughout the firm (Nonaka et al. 2000). Corporate actors must generally be localized for tacit knowledge to be effectively shared and understood, mainly because 'the transmission of tacit knowledge combines language and observation, imitation and practice' (Cohendet et al. 1999: 232). In particular, *storytelling* and *mentoring* are remarkably effective 'corporate socialization mechanisms' (Gupta and Govindarajan 2000) for transferring rich amounts of tacit knowledge throughout the company.

Storytelling is fundamental to the sociology of all large-scale business organizations. It entails creating 'detailed narratives of past management actions, employee interactions, or other organizational events', which serve to disseminate corporate values, norms, morals and managerial techniques in a memorable format (Swap et al. 2001: 103). Storytelling plays an especially important role in Wal-Mart. The organizational culture bequeathed by the company's founder, Sam Walton, is preserved and circulated through an assortment of stories, which are played out in different ways, from the Wal-Mart cheer at the start of each working day to the annual general meeting in Fayetteville, Arkansas, where a few exemplary associates from the USA and the international divisions are ostentatiously rewarded for their obedient adherence to the 'Wal-Mart way' (Schneider 1998), and where other stakeholders such as suppliers and distributors are exposed to the company's best practices (Aggarwal 2001). All of this facilitates, in effect, the ongoing recitation of a Wal-Martized metanarrative (Arnold and Fernie 2000).[2] Advertising flyers are also instrumental in sustaining this organizational story, with its patriarchal character obviously at the fore:

> The flyer is supposed to be the unified, chant-singing voice of the associates, the homogenized retail face of courteous counter help and smiling shelf stockers. Yet behind the chorus façade is a single voice leading, that of 'Mr Sam'. Wal-Mart's deceased leader is featured as a spectral presence throughout the flyer, the wise old man's guiding 'philosophy' in the sidebars features quotations from and stories about him: his ghostly and fatherly voice permeates the flyer.
>
> (Arnold et al. 2001: 250)

Mentoring, in contrast, involves a close didactic relationship between a corps of tutors and a group of employees requiring guidance in a particular area of expertise. Ahold has operated a transnational mentoring system, which paired up management in newly acquired businesses with an appropriate representative from an existing subsidiary (for example the management of Bompreço from Brazil met their counterparts from Stop & Shop in the USA). In turn, that system was supplemented prior to Ahold's financial crisis by international support centres, located in Atlanta, Buenos Aires and The Netherlands (Wrigley 2000). Similarly, ASDA store managers in the UK have been mentored by a counterpart from Wal-Mart in the USA, as part of the broader integration of the ASDA chain into the organizational culture of Wal-Mart (Burt and Sparks 2001), whilst Tesco actively supports its international operations in East Asia and Central Europe with mentors from its International Support Office.

Closely related to mentors are 'best practice teams', which visit corporate sites to identify and transfer best practices to other parts of the organizational structure (O'Dell and Grayson 1998). Such micro-communities of practice are made up of a corps of highly mobile 'knowledge activists who aim to span boundaries within the … organization, acting as agents for the diffusion of tacit knowledge, normally with at least partial codification in the process of transmission' (Gertler 2003: 88). Both Ahold and Tesco utilize such teams and we discuss the operation of Tesco's international support, sourcing and capability team in detail elsewhere (Wrigley and Currah 2003c). Transnational corporate elites of this kind have the potential to forge intra-firm networks of embodied knowledge, 'cross-cutting as well as connecting innovative locales', resulting in the 'unbounding or extra-localization of cultural 'closeness' for the effective transfer of knowledge that had previously been understood in terms of (national or regional) territorial containers' (Bunnell and Coe 2001: 582–3).

Acting as 'organizational translators' between hybrid communities (Brown and Duguid 1998), best practice teams are one of the principal mechanisms through which strong convergence between different business environments is likely to occur. It is clear, for example, that the knowledge gained by Tesco from the development of the hypermarket format in Central Europe (in the Czech Republic, Hungary, Poland and Slovakia) has been carefully transferred within the firm, both back to the UK via the activities of best practice teams (where the format, called 'Tesco Extra', has now been rolled out to over 40 stores), and to power its market entry in East Asia. Specifically, on the basis of its experience in Central Europe, Tesco has learnt (via a process of trial-and-error) how to develop and execute the hypermarket concept: how best to configure the internal layout of stores, how to manage the mix of food to non-food, how to orchestrate the 'festival' atmosphere in those large stores, how to tailor the offering to local consumer preferences, and how to squeeze the development costs of the format. The Central European management team – several of whom, as younger managers, were closely associated with Tesco's growth in the UK in the mid-1980s – meet regularly to exchange ideas and experience in a relatively informal manner and, in turn, seek best practice solutions for operational problems across the company.

Similarly, the recently revamped 'international leadership development program' operated by Wal-Mart during the 1990s – and the subsequent movement of executive personnel between its foreign divisions for training in cross-continental back region processes – appears to have been of considerable importance in allowing the company to exchange best practices between countries and to develop a range of innovative formats. The programme contributed to a number of important cross-border knowledge transfers in 2001/2. For example, the Mexican 'Todo Dia' store concept (a low-income warehouse format designed for metro-markets and dense urban populations) is currently being transferred and adapted to the Brazilian market, while in the opposite direction Wal-Mart is rolling out best practices linked to its experience operating the hypermarket format in Brazil in other parts of its international portfolio. In addition, Wal-Mart is in the process of transferring the successful George clothing range from its ASDA operations in the UK to the USA and Germany and parts of its East Asian operations.

Towards a reflexive style of retail globalization

The cases of Tesco and Wal-Mart signal the potential for strong convergence in geographies of organizational learning and adaptation. Clearly, even best practices from relatively unstable markets – plagued by hyperinflation, devaluation and other economic crises – are influencing the domestic strategies of the retail TNCs. Indeed, we would argue that all the retail TNCs are now converging, at varying speeds and from multiple directions, towards an adaptive or reflexive style of globalized operation that extracts and blends innovative capabilities in the back region of stores to tailor the front region of the format to different consumer cultures. The retail TNCs are currently employing a variety of mechanisms of knowledge management (from the mapping of expertise in virtual databases to highly mobile mentoring teams) to effectively manage and share innovative capabilities arising out of particular localities.

The importance of cross-border knowledge transfers and the development of distinctive retail formats is likely to become even more acute as the retail TNCs continue to penetrate and embed themselves in both ‘particularistic’ and ‘collaborative’ economies. In particular, the increasing focus of these firms on the world’s ‘mega-city regions’ is prompting even the dominantly hypermarket-oriented operators to experiment with smaller scale retail formats suited to dense urban environments. Thus, Tesco is actively experimenting with small format (Express) stores in Bangkok, while Carrefour has announced plans to supplement its Chinese hypermarket with its smaller format Dia discount stores.

Interestingly, all of this raises a much wider question: what is the impact of the retail TNCs’ learning processes on the organizational and logistical structure of the distribution sector, and the competitive landscape more broadly, within emerging markets (compare Da Rocha and Dib 2002; Tokatli and Eldener 2002)? Further, what evidence is there to suggest that the transfer of knowledge into the stores of the retail TNCs is ‘kick starting’ the food retail modernization process in emerging economies via a process of emulation of best practices (albeit relating to product-based knowledge) to indigenous competitors (Goldman 2000, 2001; Lo et al. 2001)?

Conclusions

In recent years, the role of culture, knowledge and learning in the regulation of firm behaviour has become a lively and provocative area of debate in the social sciences (Yeung 2001). And yet the concept of the agile, knowledge-driven firm often remains a rather ill defined, fuzzy metaphor in the academic literature. There is an urgent need for empirically grounded and theoretically contextualized studies that explore the micro-practices of organizational learning and adaptation across a range of sectors – how firms generate new knowledge, how they adapt their competencies across widely contrasting business environments, and how the spatiality of the firm shapes, facilitates or constrains those processes of knowledge management from bottom-up learning to top-down coordination.

Our aim in this article is to contribute to these debates. In it we have used the case of the retail TNCs to think through in substantive terms how a ‘competence-based’ view of the firm might be tackled in the globalizing retail sector. The ability of the retail TNCs to position themselves as corporate parents of the emerging mega-groupings largely depends on how successfully they can ‘mobilize different forms of knowledge, skill and competence’ (Amin and Cohendet 1999: 87) across their increasingly ‘multi-channel corporate networks in different cultures and on different continents’ (Colla and Dupuis 2002: 106). To date, however, the geographies of organizational learning and adaptation within these firms have remained neglected in the mainstream of academic debate. In this article we begin the task of bridging this divide, using the concept of relational networks to conceptualize the ‘soft architecture’ of retail globalization.

Essentially, we have examined the interplay between extra-firm networks and intra-firm networks and between bottom-up (store-based) learning and top-down knowledge exchange and adaptive change. In particular, we have argued that ‘back region’ process-based knowledge is of immense strategic significance to the retail

TNCs, given the ongoing threat of product-based knowledge in the store being imitated by competitors. We have viewed the ability to transfer tacit know-how (that is, best practices rooted in certain places, people and workplace performances) as being instrumental to the realization of competitive advantage. And we have regarded the mobilization of such knowledge across complex and differentiated corporate networks – together with the development of innovative formats attuned to the rhythms of the local context – as largely determining which of the emerging retail TNCs will be most successful in positioning themselves as the future parents of the emerging global mega-groupings.

While in this article we are concerned with the mechanisms deployed by the retail TNCs to transfer knowledge *within the firm* and develop distinctive, place-based organizational competencies, we also recognize that a reflexive or hybridized style of globalized operation 'is not only a matter of adapting … practices and procedures to "fit" the local contexts … it is also a matter of increasing interaction with local counterparts as a means of getting acquainted with values, incentive structures, norms and conventions that ultimately influence economic behaviour in a given country' (Zanfei 2000: 531). Indeed, as we noted above, there is a pressing need for research into how the retail TNCs are embedding themselves into specific places through inter-firm networks of learning – a skill that is clearly critical in the age of 'alliance capitalism' (Dunning 1997). Related to this, how is knowledge being transferred and negotiated via inter-firm relational networks, and what mechanisms are used in this context to conceal process-based knowledge from the gaze of other firms?

Overall, the ability of TNCs (or, more accurately, their social occupants) to learn and adapt to competitive pressures in the globalizing economy increasingly rests on a complex blend of intra-firm, inter-firm *and* extra-firm relational networks (Yeung 2000). Corporate elites must be adept at governing the behaviour of the firm across each of these embedded relational networks if the TNC is to operate competitively across a contrasting array of business environments. More specifically, these elites must be adept at managing 'soft' knowledge assets across each of these relational networks if they are to achieve the 'hard' returns on capital investment and in turn, maintain the confidence of capital markets and investors in an economic climate beset by uncertainty and concerns about the future of corporate governance.

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investment banks (Credit Suisse First Boston, Deutsche Bank, Merrill Lynch) have been triangulated with a range of other sources (like academic publications and the business press) to construct an economic geography of organizational learning and adaptation in the retail TNCs.

Notes

1. Market capitalization as at 5 June 2001, 22 February 2002, and 10 September 2002. Source: Merrill Lynch, New York.
2. It is also a contested meta-narrative. For example, see the comments of disillusioned former Wal-Mart employees at http://www.walmartyrs.com

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