THE EMERGENCE OF A NEW FORM OF IS OFFSHORE ENTERPRISE □ THE MODERN HETERARCHY

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Abstract

This paper describes how IS offshoring organisations are changing in response to increased globalisation of the practice of software development. It posits the emergence of a new form of multi-national enterprise (MNE), described in this paper as a 'modern heterarchy', which extends the construct of the heterarchy originally developed by Gunnar Hedlund in 1986. The paper draws on theoretical antecedents in the discipline of international business studies, and is supported by empirical data gathered from two extended case studies of offshore IS projects. The research uses grounded theory techniques for the collection and analysis of data, and has particular value for IS practitioners in offshore IS MNEs.

Key words

Offshoring; globalisation; heterarchy; grounded theory; multi-national enterprise; international business

1 INTRODUCTION

This research is concerned with a particular form of globalisation: the practice of offshoring Information Systems (IS) development. IS offshoring uses low cost labour in distant countries to provide IS products and services for use in developed economies.

IS offshoring has in the past been limited by supply of skilled offshore resources, poor and expensive enabling technology such as telecommunications, and general lack of expertise in the conduct of distributed application development (Ravichandran and Ahmed, 1993). Nowadays it is deployed extensively and is regarded by many as a mature and cost-effective approach to application development and maintenance (Tsotra and Fitzgerald, 2007; Gannon and Wilson, 2007; Murthy, 2004; Lacity and Willcocks, 2001). IDC foresees that IT investments in emerging markets in Asia/Pacific, Eastern Europe and Latin America will continue to expand at a double-digit rate (Lu *et al*, 2006). Gartner anticipates an increase of offshore spending, to top $50 billion in 2007 (Beulen, 2006).

In consequence, suppliers of offshore IS services have graduated from simple sourcing models such as providing individuals to do specific tasks to complex and sophisticated cross-border contractual and resourcing arrangements with their customers (Soota, 2002; Murthy, 2004). New project and organisational structures are required to take account of the dislocation of staff, which in turn demands new styles and ways of managing activities. Cultural traditions are often disrupted, both for offshore practitioners who come to reside in an onshore location and for the onshore individuals who encounter them (Winkler *et al*, 2006).

The rapid development of the IS offshore industry has resulted in the creation of large multinational enterprises (MNEs). Some of these have originated in industrialised economies – recent manifestations of systems integration (SI) firms such as Accenture which typically provide offshore software development as part of a wider portfolio of 'multi-shore' consulting, technology and outsourcing services. Others have originated in developing economies, particularly India, and are new firms dedicated to exporting labour and IT-enabled services to western economies – the so-called 'pure play' offshore IS providers such as Wipro. Research on offshoring is at a relatively early stage (King and Torkzadeh, 2005).

By contrast, globalisation, MNEs and international business have long been the focus of research. This ranges from early studies of the theory of the MNE (Hymer, 1960; Dunning, 1973; Perlmutter, 1969; Buckley and Casson, 1976; Teece, 1977, Bartlett and Ghoshal, 1998) to the more recent work by Peng (2004), Knight and Cavusgil, (2004) and Fan and Phan (2007). To date, few scholars have applied MNE theory to offshore IS MNEs, or to this sector as a particular example of international business. This may be because it does not always conform to the more traditional patterns of multinational evolution – for example, many pure play offshore providers adopt an exclusively export-focused approach to international growth. Since MNE theory has proven valuable in explaining how aspects of traditional MNEs function, it may further the understanding of potential changes in the structure and composition of offshore IS companies, and the forms of distributed multi-national IS organisations that may emerge in the future.

This research is part of a broader study that looks to assess the impact of offshoring on organisations and IS practitioners; in this paper the focus is on offshore IS firms. The conclusions from this paper will therefore have relevance for these organisations, whose structure, work practices and perspectives are affected by this phenomenon.

This paper is structured as follows. In section one, the nature and scope of the research is described; section two presents a brief review of the literature on offshoring and international business, including a description of the main organisational constructs used to describe MNE structures. Section three describes the research method, case studies and analytic framework used. Section four presents observations and conclusions from the research.

2 LITERATURE ON IS OFFSHORING AND MNES

2.1 Literature on IS Offshoring

In less than a decade, the practice of using geographically and temporally dispersed teams to work jointly on software development and maintenance activities has become commonplace. Although offshoring is having a profound impact on many aspects of the IS environment in developed countries, it has not yet been the focus of significant research activity (King and Torkzadeh, 2006). The perspectives that do exist present a wide range of opinion, from Farrell (2005) who asserts that offshoring offers huge benefits to both organisations and the economy, to Levy (2005) who presents a more cautious view of the benefits of offshoring.

It is possible to look at the existing body of research on IS offshoring as broadly falling into four categories, determined by the main perspective of the researcher. First, there is the economic perspective, which highlights such factors as the commercial drivers for offshoring, labour arbitrage opportunities, contractual implications and so on. Examples of this viewpoint include Ang and Straub (1998), Lacity and Willcocks (1995), Farrell (2005), and Venkatesh and Krishna (2004) amongst others.

A second point of view is cultural, addressing risks and tensions inherent in distributed software development across political and geographic boundaries. Examples of research that takes this as its primary viewpoint include Carmel and Agarwal (2002), Edwards and Sridhar (2003), David *et al* (2007) and D'Mello (2005).

The organisational perspective focuses on aspects relating to the skills, expertise and organisational structures required when application development is distributed. Research by Doh (2005), Tolentino (2002), Evaristo *et al* (2005) and Oshri *et al* (2007) offer examples of this orientation.

Finally, the operational viewpoint is dominated by consideration of such elements as the processes, methodologies, tools and infrastructure involved in IS offshoring. Harmsen *et al* (2007), Gopal *et al* (2002) and Nørbjerg *et al* (1997) all provide examples of research from this point of view.

Murthy (2004) is one of the few studies that looks at IS offshoring from the perspective of the IS offshore provider. There is relatively little research on IS offshoring as a form of international trade, and on the strategic management, organisation and operation of IS offshore MNEs.

Recent research is providing new insights into offshoring as a phenomenon. The related papers by Farrell (2005), Levy (2005) and Doh (2005) highlight some of the emerging social issues associated with offshoring.

2.2 Literature on organisation of MNEs

Early research on MNEs tended to view international organisations simply. Buckley and Casson (1976), for example, define the MNE as "an enterprise which owns and controls activities in different countries." Behrman (1974) identified three types of international organisation - the 'classic investor", the "international holding company" and the "multinational enterprise'. Porter (1986) examined firms in the context of their industries, which he categorised as 'multi-domestic' and 'global'. Perlmutter's (1969) ethnocentric and polycentric description of the MNE, essentially corresponding to centralised and decentralised operating models, offered a radically different perspective. Bartlett & Ghoshal (1998) define 'multinational', 'global', 'international' and 'transnational' businesses, characterised by the relative emphasis placed by the organisation on how it configures its assets and capabilities; by the role it assigns to its overseas operations; and by the way in which it exploits its knowledge and intellectual property.

Research from the 1990s onwards, such as Bartlett and Ghoshal's, has tended to place less emphasis on a hierarchical view of the MNE (headquarters controlling subsidiaries directly) and more frequently takes

the view of the MNE as a network of differentiated intra- and inter-firm relationships (Tolentino, 2002). This acknowledges that foreign subsidiaries have resources and expertise that gives them greater independence, and enables them to play a greater and more active role in the success of MNEs, for example by creating firm-specific advantages (FSAs). Further, more effective organisation of knowledge and innovation and more widespread sharing of technology across the network helps diffuse new learning quickly across boundaries. This perspective assumes a distributed labour division among subunits of the MNE arranged in an integrated network configuration (*ibid.*).

2.3 The construct of the heterarchy

Hedlund's construct of the 'heterarchical' organisation describes this networked model (Hedlund, 1986). A key strategic difference with traditional organizational paradigms is that the heterarchical company seeks to exploit competitive advantage from any part of the global organisation, and not just from the 'home' market. The structural differences are more complex, and posit that the heterarchical company has many centres; that subsidiaries and their management are equally capable of contributing strategic thinking and value; that organisation is normative (that is, collaborative in nature) rather than coercive, and generally that each part of the organisation is a reflection of the whole. This latter point implies that every member of a heterarchical organisation is aware of all aspects of the firm's operation (*ibid*).

Hedlund presented his model as 'radical' and saw it more as a 'loosely-defined' or theoretical construct than an actual manifestation of reality. He predicted that such organisations might emerge in the future, possibly in newly developing countries (*ibid*). Writing in 1986, Hedlund used words like 'novelty' and 'radical', and his goal was to generate debate. He coined the term 'hypermodern MNC' to suggest that existing 'modern' theories and notions used in international business thinking were inadequate, and used 'heterarchy' as an antithesis to hierarchy. (He has some fun with the etymology of the word, but notes that it is the concept of reality being organised differently – non-hierarchically - that he wishes to convey).

At the time Hedlund was writing, the term heterarchy was not used much in studies of the MNE. In fact, it appears that hierarchy was viewed as the only – or at the very least, the most stable – form of organisation for a system. Hedlund cites Koestler:

> "All complex structures and processes of a relatively stable character display hierarchic organisation, and this applies regardless whether we are considering inanimate systems, living organisms, social organisations, or patterns of behaviour." (Koestler, 1978)

Predicting where such companies emerge, he identifies industries characterised by:

> "…the use of many different technologies, high but not maximum global homogeneity of demand, fast rate of technical and market change, non-trivial scale economies (but not necessarily in manufacturing), and absence of strong local barriers to entry". (Hedlund, 1986)

and notes that IT and biotechnology are obvious (if boring!) candidates. More importantly, he suggests that:

> "In terms of geographical and corporate origins, heterarchical MNCs are more likely to evolve from less than gigantic firms, and from contexts with a history of rather autonomous and entrepreneurial subsidiaries. This may give European firms an advantage over US ones. In a larger picture, MNCs from newly modernising nations may stand an even better chance." (*ibid*)

3 RESEARCH METHOD, ANALYTICAL FRAMEWORK AND EMPIRICAL DATA

3.1 Epistemology

The purpose of this research is to apply an international business perspective to the field of IS offshoring. It seeks to assess the impact of IS offshoring on those firms operating in it, and thereby to develop a suitable theory about their organisational and operational strategy that will add to the body of knowledge in this area. The epistemological approach is firmly interpretive. The researcher shares the view taken by Galliers (1992) that IS comprises computer systems embedded in a social context, and not just hardware and software. Moreover, it is often the social context that gives rise to the most interesting and problematic aspects of IS (Hirschheim and Newman, 1991; Newman and Robey, 1992). This applies particularly to phenomena like IS offshoring, which are mainly concerned with commercial, social and organisational arrangements of IS.

3.2 Research method and design

This research comprises a multiple case study approach (Yin, 2002) using grounded theory techniques to analyse respondent interviews (Glaser and Strauss, 1967). It is inductive rather than hypothetic-deductive, an approach that is suited to grounded theory analysis. Because this approach facilitates a process-based description of change in its organisational context (Orlikowski, 1993), it seems appropriate to the study of the offshore phenomenon, which is heavily process-based and organisationally dependent.

Regarding theory, the approach in this research combines the use of theory as an initial guide to design and data collection and theory as part of an iterative process of data collection. The limited number of cases means that the output is a conceptual framework and related propositions (Eisenhardt, 1989), and does not comprise a nomothetic theory.

In this research, a set of guidelines has been formalised into what is called an analytic framework. This term is perhaps too narrow, since as well as providing guidelines for analysis, the framework also provides a structure for data collection, description and presentation of results, and for allowing the prioritisation and assessment of the relative importance and impact of the results. In this respect, the metaphor of research framework as scaffolding seems particularly appropriate (Walsham, 1991).

The macro-level ‘actor’, or unit of analysis, is the organisation or firm – that is, the organisations that provide IS services, both onshore and offshore. Three primary dimensions of impact of offshoring are identified. The cultural dimension of the analysis covers those impacts of offshoring that have primarily a cultural interpretation or significance. The economic dimension address impacts of offshoring that affect the actors commercially and politically. The operational dimension is concerned with factors that pertain to how offshoring impacts the processes, tools and organisational structures of the actors considered.

3.3 Case studies and empirical material

Two recent offshore IS projects are used to provide a body of data for analysis. These were conducted in separate organisations in the financial services industry: one a UK retail bank, a subsidiary of an international institution, and the other a global insurance broker headquartered in the USA with its European headquarters in the UK. The two companies differ in size, structure and culture. The bank is headquartered in the south-east of the England and has a growing, motivated and stable IT workforce. The insurance broker is located in the City of London, and exhibits some of the organisational volatility and pace of change typical in this environment.

In each instance the primary offshore outsourcing provider was Capgemini, a global systems integrator headquartered in Paris – a typical IS offshore MNE – although other IS firms were involved in more

peripheral roles. One project (Project MARS) involved the development of a package-based system to support a new lending product and the other (Project EUROPA) was a custom development of an existing system used to provide retail brokerage for customers across Europe. Both developments were initially of a similar scale – over 10,000 days of development effort – and both used IBM's Rational Unified Process (RUP) development methodology, although in different technology environments (Java for the bank; Assembler and COBOL for the insurance broker). On both projects offshore developers from Capgemini's Indian operation were located on site in the clients' offices in the UK and Belgium for at least part of the time. Thus the projects are philosophically similar (Orlikowski, 1993), drawing on the same basic application development approach of use cases, separation of process and data, and iterative development phases.

The rationale for selecting two case studies is to allow the continuous comparison of evidence, and to control the conceptual level and scope of the emerging theory (Orlikowski, 1993). At a more basic level, observations made in one organisational context can be compared and contrasted with observations in the second site. The most striking difference between the two companies is in their organisational culture: the bank's culture is one that has a balanced approach towards risk, and displays a 'can-do' attitude to business, reflecting its origin as a successful, marketing-driven start-up. The insurance broker, by comparison, operates on a much more traditional, hierarchically-sensitive basis, typified by extended lead times for decision making and a risk-averse approach to business.

4 CONCLUSIONS FROM THE RESEARCH

4.1 The emergence of a new organisational form for IS offshore MNEs – the modern heterarchy

From observing the offshore MNE on the project, it is clear that a new organisational form is emerging – the modern heterarchy. It exhibits the essential qualities described by Hedlund (1986): the aspiration to be perceived and to operate as stateless, with limited or no association with a 'home' market; to appear ubiquitous, and capable of delivering services to any place from any place; to appear neutral - to be seen as commercial entities rather than political entities; to optimise access to resources (labour and capital); and to maximise access to customers who are also heterarchical**.**

The reason the term 'modern' is used as a qualifier is because Hedlund's construct does not describe IS offshoring MNE perfectly. He was writing in 1986 and even in the space of 22 years, much has changed. The pace of globalisation has accelerated, and its nature and profile greatly debated. IS offshoring in 1986 was at an early stage of development, and bears little resemblance to the nature of the phenomenon today. Although instinctively grasping the statelessness of the heterarchical MNE, Hedlund nonetheless defines the strategy of the firm in terms of 'home' markets, an irrelevant concept for the modern heterarchy:

> "The heterarchical MNC differs from the standard geocentric one both in terms of strategy and in terms of structure. Strategically, the main dividing line is between exploiting competitive advantages derived from a home country base on the one hand, and actively seeking advantages originating in the global spread of the firm on the other." (Hedlund, 1986)

Similarly, his notion of heterarchy implies differentiation – somewhat similar to the 'differentiated network' described by Rugman and Verbeke (2003). The modern heterarchical firm is decidedly undifferentiated, deploying its resources in a manner dictated not exclusively by location (for example, from a 'centre of excellence') but by a mix of factors including cost, availability, location, proximity to the client and strategic intent (for example, by the desire to expand a presence in a particular country). A good example of this was provided by the use of Capgemini's Accelerated Development Centres on project EUROPA: resources from France, Holland, India and the UK were deployed to optimise cost and expertise.

4.2 Cultural implications of the modern heterarchy

If one accepts that offshoring has resulted in the formation of modern heterarchies, one is led to an interesting and - in the context of this research – a fundamental and profound conclusion. Since heterarchical firms are not location-specific, the distinction between onshore and offshore becomes irrelevant, and the terms meaningless. The commonly accepted definition of the words, which relate primarily to the physical location of the IS resources, becomes redundant. This applies generally to the traditional taxonomy in the literature: words like 'subsidiary', 'host country', 'home country', 'headquarters', are less relevant in the heterarchical construct, which is peer-to-peer, collaborative and mobile. Hedlund saw this as a radical outcome:

> "A radical view concerning geocentrism and globality is that we are witnessing the disappearance of the international dimension of business. For commercial and practical purposes, the nations do not exist and the relevant arena becomes something like a big unified 'home market'. Business action as well as concepts to describe firms and the situation they face will be similar to the case of a company working in one national market." (Hedlund, 1986)

Doh expresses this viewpoint as follows:

> "Moreover, as Levy (2005) notes, the development of communications technologies and the requisite mobility of labour have allowed for an accelerated internationalization of production that accords neither with the product life-cycle nor the sequential internationalization perspective. Indeed, some have argued that many firms are now 'born global' (Knight and Cavusgil, 2004) and that the notion of sequential internationalization – whether on a country, industry, or firm scale – is outmoded and anachronistic." (Doh, 2005)

Buckley concurs:

> "One issue is whether the firm should be divided into domestic and international divisions (in the era of globalisation now a rather redundant debate…)" (Buckley, 2002)

For both the MARS and EUROPA projects, it was clear that offshoring no longer means pure labour arbitrage, or the continuous drive for greater labour cost-savings. Rather, it is a consequence of an increasingly integrated corporate view of operational efficiency, from the point of view of the supplier (Capgemini) and the customer. This aspect of offshoring was highlighted in the interaction between third party software vendors on project MARS, where there was an inverted relationship between project members in Mumbai and Cheltenham (where one of the project components was developed). Since development was coordinated by Capgemini, the third party in Cheltenham was effectively treated as 'offshore' by the Indian development team, some of whom were located in Reading in the UK, and some in Mumbai. Despite the disparity in cost of labour at each location, this perception seemed entirely justified. For example, from the perspective of scale and sophistication, Mumbai is a world city, and Cheltenham a backwater, so it is legitimate to view Cheltenham as 'offshore' through this philosophical lens. Further, 'offshore' resources in India are just as likely to have a broad world view as their colleagues in Cheltenham.

4.3 Economic implications of the modern heterarchy

Global IS organisations are changing their business models fundamentally: in effect they are adopting a hybrid approach to offshoring that involves the use of joint onshore/offshore teams – an embryonic recognition of the emerging heterarchy. The economic implications of this evolution hinge on the fact that offshoring in the heterarchical model becomes a less definitive term. First, there is a rebalancing of the development contact, with each part of the heterarchical enterprise (onshore, nearshore and offshore) sharing risk and reward. This is different to the current environment, where typically the risk and reward is assumed disproportionately by either the onshore or offshore division.

This rebalancing of the development contract was illustrated in a discussion with the EUROPA delivery director, and concerned the extent of the risk assumed by the offshore division of Capgemini on the project. The traditional model is for Capgemini to use the Indian offshore business as a cost centre with a more sophisticated, risk-bearing onshore front end. The heterarchical model assumes that all development centres are equal, and capable of agreeing their own terms.

The EUROPA project delivery director proposed a different business model that involved sharing the risk – one that was readily accepted by the offshore organisation:

> "Yes, India is still run as a cost centre, so the UK or France or the front office country takes all the risk. ..We were trying to resolve this for smaller projects, to transfer risks, and at the time it seemed to me that this was a new way of working but one that they (*the Indian colleagues*) were absolutely up for. It was an explicit conversation: "Look, guys, we're not going to take the risk on this because this is a fixed price deal - you guys will have to bear it. Are you happy and comfortable with that?" And their view was, well great, finally somebody's taking some notice of us who are actually doing things we want to do."

This reflects a profound change in the way that offshore phenomenon is impacting IS organisations: it represents a significant maturing of the offshore components and a recognition on the part of the onshore part of the organisation that it can no longer dictate the terms of IS engagements with their offshore colleagues. Most of all, it acknowledges that the traditional 'brokerage' business models of the western IS providers are changing to a more equitable global distributed development business model. This is further evidence of the emergence of a heterarchical enterprise.

4.4 Operational implications of the modern heterarchy

The modern offshore heterarchy is adopting new organisational structures, tools and operational processes. The rather informal use of methodology and tools on both the MARS and EUROPA projects hides the fact that all of the organisations involved in the development – users, onshore, nearshore and offshore – were closely networked and operated with a good deal of consistency and efficiency. The use of tools like Instant Messenger emphasises the immediacy of the interaction, and the adaption of existing methodologies to cope with the new (distributed) environment illustrates a resourcefulness and agility within acknowledged formal frameworks.

This flexible approach typifies modern development techniques. It is moreover entirely consistent with the heterarchical construct to the extent that the development infrastructure (telecommunications, tools, methodologies) can be defined as heterarchical. The Internet is stateless, networked and (mostly) immediate, and the collaborative toolsets that comprise Web 2.0 technologies are collaborative, peer-to-peer and instant.

Thus, on the MARS and EUROPA projects, Capgemini had invested in building a distributed toolset and methodology to account for the fact that the operational impact of offshoring affects all aspects of the development life cycle, as described by the MARS project manager:

> "…it (the Capgemini methodology) is called RUP Distributed Delivery Framework. …it's a Capgemini view of how to run distributed delivery projects. It involves a set of templates. It involves templates … starting with the project management and going right through the different areas."

From an organisational perspective, the skills and capabilities that these organisations will retain onshore include account management skill and technical skills. They will develop strong industry skills to allow them to build and maintain deep customer relationships – in effect, that allow them to speak the language of their customers. The MARS project delivery director described these skills as:

> "…the bits which … require customer intimacy and intimacy with the business users. Those are the bits that, you know, people are almost presuming that they cannot be moved offshore."

On EUROPA, the account manager identified the elements of her proposal that were most successful:

> "We provided them with a solution that gave them the ability to talk about those additional bits of functionality to a set of people who understood their business pain."

Her delivery director agreed, and noted that there are some technology skills that will also be needed onshore:

> "I think there'll always be early adopter technologies where people who are familiar with them will be of value locally. I think it's likely that strategic consultancy, IT strategic consultancy skills…project management skills and business analysis type skills..."

This is consistent with the concept of a heterarchical enterprise, which recognises that low-cost offshore development on its own does not necessarily meet client demands; nor does aggressive labour arbitrage on its own represent a wise competitive stance (Hedlund, 1986). This research shows that the hybrid development approach – a characteristic of the heterarchical development model – was preferred. On project MARS, for example, the bank stipulated that offshore resources be brought onshore to the bank's premises for the duration of the project, as described by the MARS programme manager:

> "They felt that it wasn't an option to do any of it offshore. It would have been a preference for Capgemini to do components offshore, but they (the bank) weren't prepared to consider that because they felt that the timescales were too quick… and the risks involved in doing that would be too great. And they felt they didn't have the maturity as an organisation to do that. So they were absolutely clear they didn't want anything built offshore."

4.5 Other implications of the modern heterarchy

The research indicates that IS organisations will not necessarily find the evolution to becoming a modern heterarchy easy, particularly those organisations that are at an early stage of development and only now coming to understand the implications of a truly global market for IS service provision. This is a difficult transition for most onshore organisations, and that there is little information available to guide them.

> "The newly integrating nature of this global labor market has strategic and tactical implications for companies and countries alike. Information and insight about it are sparse, however, and executives and policy makers have little of either for making the decisions they face." (Farrell *et al*, 2005)

Moreover, there is no definitive model: the modern IS heterarchy is not entirely uniform. The world is not flat, as Friedman (2005) has described it: it is bumpy and uneven, containing all sorts of inequalities, inconsistencies and irregularities, and one size does not fit all. For the MARS and EUROPA projects, for example, the recruitment and resourcing process was novel and problematic, as described by the Capgemini UK account manager:

> "…it was difficult because it was a new process. So it was difficult identifying the right skills and getting the handshake between the UK and Mumbai working effectively. … so we had somebody managing this, more or less full time, for about two weeks, two or three weeks, setting up the process, setting up the documentation around it, so there was clarity around who'd been interviewed…"

This led to delays in the project start date for both projects, something that was complicated by the fact that the public processes to facilitate offshoring were not optimised, and required significant client as well as multi-shore organisation involvement. For example, the UK's Home Office was not geared up to accommodate large scale offshoring in the UK, and the Capgemini project manager for MARS had to spend a good deal of time resolving these issues:

> "'Yeah, there were (difficulties bringing developers to the UK from India) and we had to write letters to the Home Office explaining what the contract was. We had to give them

> copies of the contract. … Initially, we got the visas for too short a period, and so we had to have people who went offshore. We sent them back to Mumbai, so that they could get visa extensions. So that was quite complicated and costly and disruptive."

4.6 Future research directions

While this research did not evaluate pure play MNEs to the same level of detail, secondary evidence from respondents suggests that they also are becoming modern heterarchies. This is because the pure play strategy is now focused on building solid customer relationships in local markets, while retaining the efficiencies and disciplines that come from centralised control. The onshore IS firms are also changing strategy: to compete against the structured, centrally-driven offshore organisations, these firms are developing development 'factories' in offshore and onshore locations that are modelled on the offshore organisations' 'global' strategy. In effect, onshore and offshore IS companies are now indistinguishable in strategic intent, and each has co-opted elements of the other's strategy.

Further research in this programme will look to validate this conclusion. It will also extend this reasoning to other dimensions identified in the analytic framework to assess, for example, the impact of global IS offshoring on IS practitioners 'onshore' and 'offshore'.

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