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INTRODUCTION

Offshoring administrative and technical work: New fields for understanding the global enterprise

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Abstract
In this paper, we introduce the *Journal of International Business Studies* Special Issue on Offshoring Administrative and Technical Services (ATS). In doing so, we have attempted to locate the topic within the international business research tradition, as well as suggest challenges and opportunities that the phenomenon offers to theoretical and empirical research in the field. We examine the interplay of costs, knowledge, and innovation in the evolution of ATS offshoring from modest beginnings to its current stature as an accepted business practice. We suggest that understanding the continuing evolution of ATS offshoring requires researchers to take into account not only the business imperative of cost-saving, but also a more complex set of underlying factors and potential outcomes. We argue that the rapid growth of ATS offshoring has brought about an accumulation of resources, including financial flows, knowledge, infrastructure and human capital to create new platforms for knowledge creation and innovation. Low costs may characterize the initial conditions for offshoring, but they also provide the basis for up-market moves as firms increasingly pursue innovation-based strategies. We introduce the papers in the Special Issue as integral elements in our discussion, contributing new ideas that stimulated our thinking and, hopefully, will do the same for others seeking to understand this emerging area of globalization and international managerial practice.
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INTRODUCTION

Until the mid-1990s, few academic researchers imagined that firms could deliver administrative and technical services (ATS), including information technology (IT) activities, call centers, engineering services, procurement and, most surprisingly, R&D substantially from non-OECD nations. Up to that point, IB scholars had well documented the movement of manufacturing to lower-cost, offshore locations, which had been under way since the 1960s (e.g., Barnett & Müller, 1974; Bergsten, Horst, & Moran, 1978; Stopford & Wells, 1976; Vernon, 1966, 1971). The scale, scope, and sophistication of the services that low-wage developing nations provided globally by the early 21st century would have been unthinkable as recently as 15 years ago. C. K. Prahalad (2005, 2008), whose research reflects deep engagement in international

managerial communities as well as in emerging markets, suggests that we are currently witnessing the leading edge of developments that will culminate in massive downward global price adjustments. He sees the outcome as increased quality of goods and services delivered to a far broader array of consumers than comprised the "middle class" at the turn of the 21st century.

This Special Issue reflects the beginnings of what we hope will be a flood of research by IB scholars into the newest deepening of globalization, ATS offshoring. Many of the issues to be understood are similar to those already examined for the offshoring of manufacturing, but others, in our estimation, are more complicated, and some may challenge us to extend current IB theory. As we apply current IB paradigms to this new wave of globalization, it is useful to consider whether we continue asking the right questions, as much as getting the right answers. With this in mind, the papers in this *JIBS* Special Issue further the process of understanding these new developments in an IB context, while at the same time attempting to maintain a sensibility that subjects that context, itself, to question.

Offshore operations, like other economic activities, are embedded in a co-evolutionary dynamic (e.g., Lewin & Volberda, 1999; Murmann, 2000; Volberda & Lewin, 2003), where phenomena result from the interplay and interaction of multilevel agents and endogenous and exogenous factors. Understanding the emerging offshoring of ATS therefore requires multilevel analysis in internationalization research (Buckley & Lessard, 2005), as well as the integration of international business strategy with managerial intentionality (Hutzschenreuter, Pedersen, & Volberda, 2007). Furthermore, macroeconomic and institutional factors need to be taken into account, as well as structural changes in local and global business systems and environments. In our view, this encompasses industries, firms, managers, their environments and, necessarily, IB research and researchers. Research must move beyond the current dominant, macroeconomic focus on employment in the US and Europe to embrace the study of firm and managerial behavior (examples of the former include Abramovsky, Griffith, & Sako, 2004; Amiti & Wei, 2005; Baily & Lawrence, 2005; Bardhan & Kroll, 2003; Blinder, 2007; Groshen, Hobijn, & McConnell, 2005; Jensen & Kletzer, 2006; McKinsey Global Institute, 2005; van Welsum & Reif, 2006). Expanding on Manning, Massini, and Lewin (2008), we suggest that understanding offshoring will require research at the facility, national affiliate, firm, industry, subnational, regional, national, and global levels as the phenomenon evolves, taking into account the multiple forces interacting to shape and continuously change the global business environment.

In the remainder of this article we examine the interplay of costs, knowledge, and innovation in the evolution of ATS offshoring from modest beginnings to its current stature as an accepted business practice. The next section defines ATS offshoring and describes the phenomenon. After this we examine ATS offshoring in light of FDI/internalization theory, and we then go on to discuss costs vs creativity as drivers of ATS offshoring. The subsequent section touches on the interplay of technological change and country specificity as sources of ATS offshoring advantage, and this is followed by a discussion of R&D and product development offshoring. The final section concludes this article.

Before we move on, however, let us briefly discuss the Special Issue development process. The papers that appear here survived a careful selection process under the guidance of a team composed of one coordinating co-editor selected from among the *JIBS* area editors at the time, who is currently a consulting editor (Tom Murtha); two guest co-editors (Martin Kenney and Silvia Massini); and the immediate past *JIBS* editor-in-chief (Arie Lewin). Forty-eight papers arrived in response to an open call (see *JIBS* 37(1)). These included twenty-seven from US institutions, ten from the United Kingdom, six from Asia, including Singapore (two), Hong Kong, India, Malaysia and Taiwan; five from continental Europe, including Denmark (two), Belgium, Germany, the Netherlands and Spain; five from Australia; and one each from Brazil and Canada. Eight papers brought co-authors together from two or three institutions in different countries, which accounts for arithmetic inconsistencies among the totals. Twenty-two of the 109 total submitting authors and co-authors are women. Interestingly, among the dozen co-authors represented in the special issue, half are women. Three of the accepted papers originated with US institutions, while one in addition to the introductory paper represented European/US collaborations. We refer the reader to the authors' biographical notes, included with the papers,

for further details regarding national origins, residencies, and citizenship.

We selected 28 papers for double-blind review according to the standard *JIBS* editorial process. Teams of co-authors that received invitations to revise and resubmit their papers were invited to discuss the revised versions with each other, as well as with the editors, at a paper development workshop held at the 2007 AIB Annual Meeting in Indianapolis, Indiana, USA. Editorial decisions of conditional acceptance were given for a subset of the papers, based on a second round of revisions in response to the comments given at the workshop. Papers for which co-authors met the conditions given were selected to appear in the issue. Papers on the topic of offshoring submitted and accepted to the journal independently of the Special Issue process were also considered for inclusion using the standard *JIBS* process. In any instance where co-editors shared collaborative or institutional affiliations with authors who submitted papers, the relevant co-editors recused themselves from the decision process.

DEFINING OFFSHORING: WHAT'S NEW AND INTERESTING?

In the course of preparing this *JIBS* Special Issue, the editors and authors accepted a set of definitions that we believe reflect general usage as well as practice. We define "offshoring" to encompass activities both internal and external to the firm for the purposes of serving home country or global markets. Offshoring an activity to a firm's own affiliates located outside its home country constitutes internal or captive offshoring. Offshoring to unaffiliated parties constitutes offshore outsourcing. This definition encompasses the concept of internalization, so central to IB frameworks (Buckley & Casson, 1976; Dunning, 1980; Hennart, 1982; Rugman, 1981). It also encompasses previous IB treatments of offshore outsourcing as international subcontracting (Murtha, 1991, 1993; Williamson, 2008), which rely mainly on transaction costs approaches, as well as more recent work on business process unbundling and the creation and relocation of global shared services (Sako, 2006), de-internalization and global networks (e.g., Rugman & D'Cruz, 2001), modularity and global subcontracting that builds on these theories (e.g., Gereffi, Humphrey, & Sturgeon, 2005; Jacobides & Winter, 2005).

One final feature of this wave of ATS offshoring, as was the case with manufacturing earlier, is that the recipient nations all have dramatically lower wage rates than the donor nations. But focusing on a simple two-by-two matrix with four alternative combinations of organizational and geographical boundaries (internal or external to the firm; onshore or offshore), although visually useful to demonstrate that offshoring comprises both captive and outsourced operations (Dossani & Kenney, 2003; Eden, 2005), does not capture more specific features of the recent offshoring of ATS.

These features begin with the observation that this work is almost entirely non-physical. Second, most nations that receive the offshored work export the transformed outputs substantially through telecommunications. Third, the scale of offshoring, for certain firms, has grown, as a percentage of global white-collar workforce. Consider, as an illustration, that IBM, HP, Accenture, Oracle, and others, now locate approximately 20% of their global headcount in India. Today, only their US operations employ more people. Fourth, substantially all offshored work employs college-educated personnel; much of it would be considered desirable work in developed nations. These features, combined with the purpose of serving or accessing the firm's home country or global operations, suggest the emergence of a new phenomenon. The field may debate whether these empirical realities challenge IB theory, but there can be no doubt that it challenges MNE firms and executives, as well as challenging their strategies and organizational structures.

The authors in this Special Issue generally examined transactions that involved lower-wage nations' exports of non-physical goods and services, such as software, as well as an array of other activities that we have grouped, somewhat imprecisely, into the catch-all category of ATS. These exports (and the imports of related "virtual" work objects) consist almost entirely of data streams – whether these be telephone operators' voices answering customers' queries, data entry and analysis, product design, or software programming. Much of this is highly routinized work. But as Lewin, Massini, and Peeters (in this issue) and others show, a portion of this work fits Robert Reich's (1991) description of tasks undertaken by "symbolic analysts," whom he predicted would emerge as the key future employees in the developed nations. This redistribution threatens to deepen the 1980s accounts of the "hollow corporation" and "new forms of international investment" (*BusinessWeek*, 1986; Oman, 1984), of which the former raised alarms about offshoring

manufacturing activities from developed to developing countries, while ATS remained at home as the domestic residual of the global, "vertically disaggregated" firm.[1]

These observations point to two important distinctions between past popular and academic conceptions of offshoring and present events. Both distinctions reflect the impact of a profound, phenomenologically driven reorientation in popular, professional, and academic usage. First, the historic usage of the term "offshoring" has almost always carried with it an implicit assumption that the activities "offshored" pertained to manufacturing production, for either efficiency- or resource-seeking motivations. Offshoring, in the new usage, pertains to administrative and technical services, and often carries with it a presumption of cost motivation, targeting low-cost countries as host or subcontracting locations. In other words, the emergence of MNE service provision from and in OECD nations is an established and known phenomenon. Second, the term "services", in the most widely used traditional definitions, suggested simultaneous production and consumption of intangible goods. Consequently, for the most part, firms offshored services delivery to supply the host nation or, as in the case of Ireland, the region. The notion of ATS offshoring for home or global markets received little attention.

Digitization has allowed asynchronous service production and consumption by enabling storage and/or remote transmission of many service products. This digitization integrated into the global workforce capable persons located anywhere, provided they had adequate local telecommunications infrastructure. Given the massive global expansion of telecommunications network infrastructure that occurred in the closing decades of the 20th century, along with capitalist economic reforms in countries such as the former Soviet Union, China, and India, low-wage countries with educated workforces emerged as highly competitive locations. As Richard Freeman (2005) observed, the labor pool employable in the global market economy nearly doubled in size between the mid-1980s and 2000. This addition of new workers – almost all from capital-poor economies – decreased the global capital/labor ratio, a critical wage determinant, by 55–60%. At current savings/investment rates, more than 30 years will pass before this ratio regains its previous level. We can summarize the differences, then, as:

(1) a change in orientation from manufacturing to services;
(2) a change in the nature of services from presumptively non-tradable to tradable; and
(3) the consequent merger of low-wage, developing economies from tributary providers into the mainstream of value creation and capture in the global economy.

FDI THEORY AND SERVICES OFFSHORING

Services have long played a key role in MNE activities, at least since the rapid expansion of international business that followed World War II. The costs of intrafirm trade and technology transfer, whether internal or external, encompass services as well as hard goods, even in heavy manufacturing industries (Murtha, 2004). While recent studies have suggested that the service component of manufactured goods production and exchange has increased in recent years (Ansberry, 2003), empirical research long ago established that the tacit and specialized components of technological knowledge required costly person-to-person contact to transfer (Teece, 1976, 1977).

These ATS flows differed from the types of flows that dominate our attention here in two ways. First, MNEs tended to produce these services internally or source them externally in their home countries, which required personnel to travel to or from these operations to provide or receive them. Consequently, the assumption of simultaneous production and consumption was not violated – at least not very much.

Second, many of these services were difficult to price owing to a lack of external markets for comparison, and involved the transfer of critical firm-specific knowledge, with an attendant risk of leakage to competitors. Consequently, in the case of knowledge- and technology-based services, international transactions carried a bias toward internalization. The importance to MNE activity of international services provision, nonetheless, varied by industry sector and business model. Particularly in extractive industries after the early 1970s, after nationalization emerged as a threat, MNEs implemented strategies to "unbundle" engineering, marketing, management, and other service contracts from ownership of natural resources, leaving the latter in the hands of local private or state proprietors, while acting as offshore consulting services providers (Bergsten et al., 1978: 159–164; Moran, 1973). This could be explained by transaction costs and internalization theories of

FDI as a rational managerial response to real or threatened opportunism (for representative applications of transaction costs economics to MNEs and politics see Henisz, 2000; Murtha, 1991, 1993; Teece, 1986).

It remains an open question, however, whether this does justice to all aspects of the phenomenon. Dunning and Lundan (2008) proposed that the OLI paradigm (Dunning, 1980) is sufficiently broad and flexible to encompass a wide range of IB theories and extensions, including, for example, institutional considerations (North, 1990). Verbeke (2008: 1237), on the other hand, suggested that the OLI framework provides "relatively little *ex ante* guidance to scholars attempting to fine-tune their hypotheses for empirical analysis, or to policy makers trying to predict firm-level governance choices, location decisions, etc." Other IB scholars (Murtha, 2004; Rugman & Verbeke, 2003) have observed a tension between the OLI/FDI/internalization paradigm and efforts to create a more particularistic, process paradigm (Doz & Prahalad, 1991) within which to theorize about international strategic management. All firms seek the same objective of competitive advantage, which implies greater returns, relative to other firms. But in order to achieve this objective, firms' strategies must differ. FDI theory might suggest that the outsourcing approach to ATS offshoring has emerged as a general phenomenon, made possible because the sum of transaction and production costs for sourcing ATS activities in the world market has fallen below the costs of global coordination within firms. The easy particularization of this explanation would speculate that production costs have fallen thanks to low-cost labor, that coordination costs have declined because of the availability of commodity bandwidth, and that transaction costs do not matter because firms offshore only routine tasks that hold peripheral relevance to competitive advantage.

This explanation, by restricting our focus to costs, and abstracting from firm differences, misses an essential condition for offshoring to occur in anything other than commodity services. Firms must develop distinctive managerial processes that enable them to overcome the hazards that might be associated with such decisions. The pure cost drivers of offshoring should hold little long-term strategic interest for firms, as they will not provide sustainable advantages, but rather be continuously imitated and/or superseded in the dynamics of competitive interaction within industries. In the longer term, the most successful firms will be those that can develop:

(1) the differentiators, beyond costs, among firms' offshore providers and their onshore counterparts, both internal and external;
(2) the creativity behind the managerial processes that firms' managers devise to leverage global networks comprising these affiliated and unaffiliated parties; and
(3) the dynamics that unfold within these networks to create new knowledge in the form of distinctive products, processes, and capabilities, as well as to serve markets that would not otherwise be served.

These factors point to a resource- and knowledge-based perspective on corporate offshoring, wherein firms continually balance the value creation and capture opportunities associated with internal operations against the value capture dilemmas implied by working with other firms in new, often unfamiliar political, legal, social, and economic environments.

COSTS VS CREATIVITY: A DYNAMIC, EVOLUTIONARY PERSPECTIVE

The evolution of ATS offshoring appears to reverse the logic of Raymond Vernon's admired "behavioral model" of US firms' international investments, the product cycle (Vernon, 1971: 65–106). Few would quarrel with the premise that the lure of cost savings sparked the initial "gold rush" to ATS offshoring sites. Many offshore MNE affiliates and subcontracting firms, however, evolved rapidly toward business process re-engineering and innovation in order to sustain their advantages, for at least four reasons.

First, their own labor costs were escalating in the presence of local labor market pressures. Even in the absence of labor cost escalation, providers engaged in cost-reducing process innovation to increase margins and/or enable price cutting to deal with internal and/or external competitors for their clients' trade. Second, the idea at first held sway that offshore employees would be given only routine tasks (possibly derived from the manufacturing offshoring paradigm). In most cases, however, it soon became apparent to managers that gifted employees could not be retained if they were given only the most routinized tasks. Retention required them to offer challenges to their offshore employees. Third, clients increasingly appreciated and demanded these cutting-edge services as

benefits of offshore providers' growing experience and specialization. Fourth, the offshoring process itself fostered critical reviews of everyday practices to identify innovation and re-engineering opportunities that would otherwise have escaped notice. Some degree of organizational re-engineering and restructuring normally accompanies service relocation (Dossani & Kenney, 2007). A number of authors, including Lewin et al. (this issue), have argued, based on statistical analysis of corporate survey responses, that a global search for talent drives ATS offshoring, particularly in R&D and product development.[2]

Learning and efficiencies that emerge from interactions between offshore service providers and their clients can spread to other clients served by the same provider, as well as to competitors in the local environment. Shopping among potential offshore providers and clients creates both mutual processual and substantive learning opportunities for all participants, including those who do not enter contractual relationships with one another. Customer needs discovered in the normal course of contract execution can open the door to offer new, higher-profit value-added services to particular clients or entire industries.

While routinized work accounts for a large proportion of ATS offshoring, indisputable evidence shows that not all offshored work qualifies as routinized. Furthermore, routine work can serve as a learning and knowledge creation platform. Even the most routinized activities offer these opportunities, when workers must improvise and codify around exceptions (Brown & Duguid, 2000). Managers involved in offshoring can learn how to interact with counterparts abroad (Ethiraj, Kale, Krishnan, & Singh, 2005), an implication of the findings of Di Gregorio, Musteen and Thomas (this issue). The Duke University-led Offshoring Research Network (ORN) survey showed that as companies gain experience, measured by the number of projects offshored and the time since inception, they develop organizational structures, processes, and capabilities to address managerial challenges such as service quality, loss of managerial control, and operational efficiency (Lewin & Couto, 2007). This suggests that companies initiate offshoring with indirect, partial awareness of associated risks, in a bottom-up, opportunistic way, and learn about them over time. Domestic outsourcing may help to pave the way for small, offshore outsourcing experiments, but specific organizational and managerial capabilities for global sourcing, coordinating, and managing skilled talent can develop "along the way" (Manning et al., 2008).

TECHNOLOGY, ENVIRONMENT, AND COUNTRY SPECIFICITY

Researchers have long recognized that technological change, particularly transportation and communications innovations, plays an important role in shifting industrial location, as well as in creating new challenges and opportunities for firm growth (Chandler, 1977; Fields, 2004; Howells, 1995). The cumulative impact of information and communication technology developments has continually increased and simplified ATS offshoring. Decreasing telecommunication costs have reduced the barrier of distance to the physical separation of ATS production and consumption. In the insurance industry, for example, OECD nation consumers find it routine to interact with call center representatives in developing nations such as India, Morocco, or Argentina to process claims. The application of IT to service activities requires standardized, routinized process designs, so that significant aspects of these activities increasingly resemble manufacturing processes.[3] The infrastructure and assets (e.g., software platforms) that enable such service delivery also benefit from economies of scale and scope (Karmarkar, 2004). Despite these changes, many service transactions continue to require human interaction, because of their tacit elements.

It is worth noting that IT and information and communication technologies (ICTs) play multiple roles in the evolution of offshoring, not only to enable more reliable, efficient, cheaper communication, but also, in themselves, as offshored functions and activities. Furthermore, information systems and other web-based collaborative technologies, developed (in part) offshore, help managers cope with the challenges of coordinating globally dispersed ATS activities (Massini & Miozzo, forthcoming). If we view today's MNEs as quintessential Weberian bureaucracies, their defining rules, procedures, reporting, and oversight mechanisms have been translated into software and databases or, to paraphrase Lessig (1999), into code. Many ATS activities are based on protocols for entering, producing, modifying, and extending these software and databases. This extends to the design of nearly anything, including automobiles, airplanes, or toys. Design processes that once unfolded in a

highly physical context now take place almost entirely virtually.

While the general availability of software and increasingly ubiquitous telecommunication connectivity would suggest that work could be relocated to any location, Zaheer, Lamin, and Subramani (this issue) found that resources derived from ethnic networks exerted greater influence on offshore service providers' location decisions within India than did conventional cluster capabilities. Indian-owned entrants exhibited this effect more strongly than did affiliates of foreign-owned MNCs. At the same time, the latter organizations, when engaged in businesses based on people-embedded or creative capabilities, showed a pronounced aversion to locating in clusters where similar capabilities prevailed among incumbents. They found that "ethnic networks at a local level can provide firms with the resources they need to compete in a global marketplace." Regardless of whether the world is flat, for smaller Indian-owned firms human connections had a significant impact on location.

Services offshoring encompasses a wide variety of activities. Doh, Bunyaratevej, and Hahn (this issue) provide insight into MNE decision making regarding the interrelationship between types of activity and locational choice. They suggest that recent trends (2002–2006) offer the counter-intuitive implication that the relative development of ICT infrastructure and GDP in host countries appears unrelated to inward flows of services FDI. Doh et al. further distinguish among the types of projects. Their analysis indicates that different types of services are drawn to locations with different mixes of qualities and resources, and they are not all driven by cost-saving. Shared services centers, because of their routine, repetitive nature, tend to be located in countries with lower wages and political risk. IT service centers tend to be located in countries with more abundant, educated workforces, and call and contact centers in countries with more highly developed infrastructure, reflecting perhaps the significant infrastructure demands of call center operations.

OFFSHORING INNOVATION

In a knowledge economy, where routine production and service work is being commodified, we expect product development, R&D, and their workers, to earn higher wages and returns on investment. For this reason, conventional wisdom has long held that such functions would remain in the developed nations for the foreseeable future. Because of the importance of R&D for firms, R&D offshoring has drawn the interest of IB scholars for many years, giving rise to a steady stream of contributions (e.g., Cantwell, 1995; Gammeltoft, 2006; Kuemmerle, 1997, 1999a, 1999b; Serapio, Takabumi, & Dalton, 2004; von Zedtwitz & Gassmann, 2002). Firms have historically concentrated R&D in the Triad nations, including MNEs' offshoring (Archibugi & Iammarino, 2002). Some evidence suggests that firms continue to conduct most R&D at home (Edler, Meyer-Krahmer, & Reger, 2002; Macher, Mowery, & Di Minin, 2008; Meyer-Krahmer & Reger, 1999). But recent work on offshoring finds that, with the emergence of new locations and a variety of governance models, this may be changing in significant ways (UNCTAD, 2005). Still further research is necessary to understand the extent of offshoring innovation by small- and medium-sized enterprises (SMEs), and the amount of research, relative to development, that these firms offshore.

The movement among firms to develop global R&D capability has prompted IB researchers to develop typologies for understanding the roles of offshore facilities. For example, Kuemmerle's widely accepted taxonomy (Kuemmerle, 1997, 1999a) suggested a bifurcation of offshore R&D facilities into home-base-augmenting (HBA) and home-base-exploiting (HBE) roles (see Criscuolo, Narula, & Verspagen, 2005; Le Bas & Sierra, 2002; Narula & Zanfei, 2005; Niosi, 1999; Patel & Vega, 1999; Zander, 1999). Murtha, Lenway, and Hart (2001: 148–151) suggested a three-cell typology of product development and R&D internationalization strategies, comprising:

(1) efficiency-seeking, which envisioned home-base centralization and control for standardized products;
(2) market-seeking, which envisioned local adaptation and intelligence; and
(3) knowledge-seeking, in which any affiliate can originate and lead new R&D processes.

The last category envisioned metanational organizational arrangements (e.g., Doz, Santos, & Williamson, 2001; Verbeke & Kenworthy, 2008), which expand upon multifocal, heterarchic, and transnational conceptions of managerial responsibility, thinking, and discretion (see, respectively, Bartlett & Ghoshal, 1989; Hedlund, 1986; Prahalad & Doz, 1987) to implement strategies in which firms transcend not only national and inter-affiliate

boundaries but also company boundaries to create knowledge and innovation (Murtha, 2004).

Consequently, the phenomenon of offshore services innovation may represent the leading exemplar, perhaps even the catalyst, of an evolution from Kuemmerle's HBA innovation capabilities to what Lewin et al. (this issue) call *home-base replacing* (HBR). In fact, it is possible to speculate that this might go even further and give rise to born-global innovations that could never have taken place at home. The ATS offshore innovation ecology in developing countries might function at industry levels as well as firm levels of analysis to become, in our terminology, *home-base-transcending* (HBT).

Prahalad (2005: 47–62) has argued that, while the potential for such global innovations exists in developing counties, few MNEs have recognized it. Lewin et al. (this issue) draw upon ORN data to argue that this seems especially to afflict larger MNEs, whose strategies have been the focus of mainstream IB scholars, and consequently have formed the bases for most of our theories. Di Gregorio et al. (in this issue) examine ATS and other offshoring among (SMEs): a topic of growing importance in IB, as well as one that might lead the field in other theoretical directions. Given their smaller scale and scope, many SMEs have relatively limited, if any, home-base innovation capabilities to augment in HBA strategies. Compared with large MNEs, SMEs may experience greater pressure to increase efficiency – but also have more flexible and less bureaucratic structures to do so – and leverage offshore resources for innovation strategies to build HBR or, as we would suggest, HBT capabilities. These findings accord with Di Gregorio et al. (this issue), who detected learning effects for SMEs from leveraging capabilities of offshore outsourcing partners. The SMEs in their sample appeared to benefit from IT-enabled offshoring for both services and manufacturing by reducing costs, expanding relational ties, and improving customer services. These factors contributed to increased scale and scope of sales internationalization, and allowed the firms to compete with larger rivals in ways the SME managers would not have otherwise considered.

New information and computing technologies are also expanding the modes of participation in the global economy. SMEs or even individuals can globally provide software products or services. The online game *Scrabulous*, for example, was created in India by two brothers, Rajat and Jayant Agarwalla, and was so successful that Milton Bradley, the owner of *Scrabble*, sued them. Similarly, small consulting firms can service global customers from wherever they might be located. Finally, online markets for technical expertise now allow buyers to post their engineering or scientific problems and seek individuals capable of solving them. Innocentive.com, for example, a global web community for open innovation, has catalyzed a network of 400,000 "problem solving" scientists, located mostly in developing nations (from Brazil to Russia), all willing and able to provide fast solutions for major clients such as P&G.

The sheer proliferation of venues and markets challenges the limited categorizations of our R&D internationalization typologies. The complexities suggest that, at this time, we are not fully capturing the imperatives of managing global R&D, as R&D organizations themselves evolve along with technologies, strategy processes, and innovation practice, according to multiple logics. Staudenmayer, Tripsas, and Tucci (2005), for example, have documented an increasing spread of modular product development.[4] The design and organization of the production network for the Apple iPod represents an archetypal case (Linden, Kraemer, & Dedrick, 2007). Modularization of product development processes may increase the feasibility of effective collaboration among geographically separate units and team members (Sturgeon, 2002). Product modularity can increase vertical and horizontal disaggregation of the activities that make up innovation processes (Brusoni & Prencipe, 2001); however, companies will face increasing challenges as they modularize and offshore the associated engineering and R&D service to develop organization and knowledge coordination capabilities (Manning et al., 2008).

Brusoni, Prencipe, and Pavitt (2001) have argued that the system integration firms that lead coordination in these loosely coupled, usually global, innovation networks "know more than they do." This seeming paradox follows logically, because system integration firms internalize concept creation competencies, along with R&D, design, and supply chain coordination capabilities – altogether a sufficient knowledge base to enable them to subcontract detailed design execution and manufacturing effectively to outsiders. These system integration firms span from the aircraft engine industry, chemical engineering (Brusoni & Prencipe, 2001), and other engineering and networks infrastructure companies such as Schneider Electric and Nokia Siemens Networks to IT

and software providers such as Cognizant, IBM, and Tata Consulting Services.

How does this accord with the internalization theory of FDI? Buckley and Casson (1976: 56) argued that, for MNEs, "the internalisation of knowledge and the consequent integration of marketing with R and D generates a characteristic pattern of growth and profitability over the life of the firm," in the post-World War II era, leading to R&D-oriented MNEs "of typically large size" (p 61). System integration MNEs have broken from this "characteristic pattern of growth", but not necessarily from the bounds of the theory, striking a balance among production and transaction costs that resolves to a relatively lower degree of activities integration than the classical theory predicted. As the basis for this, we suggest that in these knowledge-intensive networks each subcontractor shares a small slice of the knowledge that enables a project's viability, in addition to the specialized knowledge that pertains to its own contribution. But the system integrator, alone, holds knowledge of the entire system.

The role of global interfirm collaboration in product development has grown steadily since the closing decades of the 20th century. Observers have suggested a number of motivations for the increasing role of collaborative strategies, including lack of internal resources, increasing complexity of new products and technologies, speed of technological evolution, risk sharing in the face of greater technological as well as market uncertainty, the need to supplement the specialized scope of in-house capabilities, leveraging specialized knowledge in partners or geographic locations, technology scanning, and integration of in-house staff with the wider research community (Howells, 1990, 1999; Kotabe & Murray, 1990; Murtha et al., 2001; Subramaniam & Venkatraman, 2001). Strategy implementation has required continuing managerial experimentation on how to organize, coordinate and benefit from global development teams and knowledge networks. Managers face a challenge in judgment to weigh the costs and benefits of internal control against the potentially greater but less immediately controllable benefits of synergy with partners. Increasingly, firms have made the call in favor of collaboration.

Knowledge-intensive tasks may require more frequent face-to-face interactions to facilitate trust,[5] tacit knowledge flows, and new knowledge creation through the combination and recombination of existing knowledge held by people residing in dispersed locations. These requirements may place limits on the extent to which innovation processes can be effectively modularized into non-interactive, independent sub-problems, and tasks. Companies may find it easier to offshore or offshore–outsource entire development operations, rather than develop them in house and/or at home. Future researchers might investigate the hypothesis that the division of labor in innovation processes corresponds to a division of knowledge, and consider how strategies and organizational structures and models reflect this correspondence.

Standard and transaction cost economics would suggest that the decision on whether to offshore to an affiliate or a subcontractor in a low-cost nation nearly always presents a complicated calculation to optimize capabilities, procedures, and financial constraints under conditions of uncertainty. Such a complicated calculation may not be feasible in practice, given the bounded rationality constraints facing senior managers in large MNEs' head offices, and may thus lead these individuals to forgo otherwise attractive business opportunities. As a result, offshoring initiatives often start more as bottom-up processes, driven by economic actors with appropriate and sufficient knowledge of the business opportunities at hand. Continuing experimentation under heterogeneous circumstances diminishes the likelihood that any dominant organizational model will emerge. Often companies initiate offshoring activities as captive operations to overcome internal resistance and safeguard internal proprietary knowledge, or experiment with outsourcing offshore before deciding to invest in liquidity-demanding owned structures, depending on favorable outcomes of early operations and the extent of possible future ones.

It is difficult to disentangle the effects of offshoring, the new opportunities that have emerged due to information and communication technologies, the blurring of corporate boundaries, and the rise of interfirm cooperation in R&D and broader innovation processes. But we cannot escape observing that, in traditional and novel ways, capable persons in non-OECD nations are becoming nodes in global R&D networks or, more expansively, global knowledge networks.

CONCLUSION

The rapid growth rates of the ATS offshoring industries, as well as the shift of new categories of economic activities from developed countries to developing economies would, perhaps, not surprise

us if these dynamics characterized (1) mature industries or (2) mature product segments and value sectors of advanced industries. In these circumstances, by definition, price competition requires firms to seek least-cost production solutions, while the age of underlying innovations attenuates concerns about technology diffusion through offshoring or outsourcing. But understanding the continuing evolution of ATS offshoring requires researchers to take into account a more complex set of underlying factors and potential outcomes, as the authors of the papers in this Special Issue of *JIBS* have done. Success has brought about an accumulation of resources, including financial flows, knowledge, infrastructure and human capital to create new platforms for knowledge creation and innovation. Low costs may characterize the initial conditions for offshoring, but may also provide the basis for up-market moves as firms increasingly pursue innovation-based strategies. Porter (1990) called the aggregate phenomenon "upgrading." But Porter based his observations on retrospective empirical observation, long after Asian economic vitality had provoked fundamental economic restructuring elsewhere, particularly in the United States.

As a relatively new corporate strategy, business managers and executives across the world have the lead over academics and government policymakers in understanding this new chessboard of opportunity and risk. Most US government data on trade in services meet a low standard, and consequently precipitate a "garbage in, garbage out" problem for researchers (Sturgeon, 2006; USGAO, 2005). Unless government data improve, they cannot form the basis for results that scholars, policymakers, or managers can trust.

The papers in this Special Issue draw upon data gathered from diverse sources. The ongoing ORN project has created a fine-grained database of offshore implementations starting as early as 1990 (Lewin & Peeters, 2006a, 2006b). The proprietary LOCO monitor/OCO Consulting data also offer an interesting resource, which Bunyaratavej, Hahn, and Doh (2007) used, as did Doh et al. in this issue. The OCO Consulting firm database, drawn from Internet trawling, probably represents the most complete database of foreign direct investment in the world, and offers a promising database for IB scholars. Zaheer et al. (this issue) used data collected by the Indian IT-BPO industry association NASSCOM to test hypotheses regarding the geography of BPO firms.

Researchers can do more along these lines. International patent databases are being used to provide an indication of the level of innovative activity under way in offshore operations (Cantwell & Piscitello, 2005; Patel & Pavitt, 1991). Like the ORN, the Global Call Center Research Network, which mobilized scholars in 17 countries to use consistent interview protocols, offers another model for collecting large-scale, internally consistent data (Holman, Batt, & Holtgrewe, 2007). These initiatives suggest that new sources of information continue to become available.

Complementing quantitative research with qualitative case study research offers a particularly fertile ground for generating insights and theory. Ethnographic case studies could aid understanding of how firms make decisions to select and implement particular offshoring projects. Of particular interest would be studies of the managerial processes that guide innovation, coordinate complex transactions of non-physical goods across international as well as organizational boundaries, and deal with uncertainty, among just a few of the salient issues intensified by the distinctive elements of ATS offshoring. Good templates for this kind of research can be drawn from IB as well as other related fields, such as international management and strategy.

Given these observations, can we conclude anything about how the emergence of the ATS offshoring industries might affect IB research? We may also ask whether anything can be generalized, from the experiences of particular countries, particularly India, as Zaheer et al. have suggested (this issue), which alone accounts for nearly as many ATS offshoring employees as all other developing countries combined. Dossani and Kenney (2007b) have argued that, in terms of scale, scope, and quality, India holds iconic status for services offshoring. Possibly this was due to India being an early entrant (Arora & Athreye, 2002; D'Costa, 2003; Heeks, 1996).

What distinctive empirical dynamics and opportunities for new theoretical understanding does ATS offshoring present? The scale, scope, and quality of ATS offshoring activities in the developing world – including the activities of MNE affiliates, new and rapidly growing home-based MNEs, pure domestically based global competitors, and the global rosters of MNE and SME clients – suggest that something unique has emerged, and will continue to evolve. Yet the phenomenon surely remains in its early phases. The combination of low cost with a

college-educated workforce, including individuals of high educational achievement, the prevalence of the English language, and an Anglo-Saxon institutional culture created the preconditions for India to rise as the first developing nation to predicate an export industry on the global provision of intellectual labor. This paved the way to offshoring of routinized and more advanced ATS to other developing countries, from East and Middle Asia, to South America and Eastern Europe.

We might argue that a new model for national competitive advantage has arisen, based on an economic engine other than agriculture, mining, or manufacturing, built on investments in people more than in physical assets. Managers and officials in developed and developing nations alike are already altering their thinking to take account of the new, but still not fully understood, competitive realities that will govern the location, organization, and management of work in the 21st century. The challenge that the offshoring of services poses to the academic disciplines is illustrated by the uncharacteristic numbers of economists questioning their field's dogmatic predisposition to attribute gains to all countries that participate in free trade. This questioning was provoked by the offshoring of higher value-added services (see, for example, Blinder, 2007; Gomory & Baumol, 2000; Samuelson, 2004).

Even while ATS offshoring challenges IB scholars, it provides opportunities to cement IB as one of the core research fields in business administration. Consider how offshoring provides us a lens into some of the central debates in business, economics, geography, and economic sociology. Today, the "make vs buy" decision, knowledge management, supply chain modularity, managing virtual projects and organizations, and many others are occurring on a global playing field. The papers in this Special Issue point us in fresh research directions, as a consequence of the authors' endeavors to navigate this new reality. We believe that this further deepening of globalization offers many more new research opportunities, in addition to those reflected here.

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NOTES

[1]Interestingly, the debate in the 1980s assumed that manufacturing relocation would pull services such as R&D offshore following manufacturing (Cohen & Zysman, 1987). Although this appears to have happened to some extent in the case of electronics, with Taiwan and Korea doing manufacturing and, increasingly, R&D, for the most part this does not appear to have been the case. The services offshoring has gone to nations – India in particular, but also the Philippines – that are not important exporters of manufactured goods. The most salient exception to this is China, which is receiving some ATS offshoring.

[2]These scholars measured "talent" as educational achievement: thus presumably not as an endowment, but rather as an outcome of human capital investment in training and education.

[3]John Zysman (2006) has termed this the "fourth transformation," referring to three previous transformations to agriculture, industry, services, and now to the automation of services.

[4]For the classic statement on modularity, see Baldwin and Clark (2000).

[5]For a discussion of the importance of trust, and how the types and criteria for developing trust change over the course of an offshore outsourcing engagement, see Oza, Hall, Rainer, and Grey (2006).

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