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Internet Business Practices Across the Globe: Lessons from Emerging Economies

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ABSTRACT

The Internet has accelerated the capability of firms to coordinate processes and personnel across organizational and geographic boundaries, which has in turn facilitated a dramatic increase in globalization. This globalization includes the development of new multinationals from emerging economies that are challenging developed-economy firms. This paper investigates how firms use the Internet to achieve their strategic objectives, and studies how use, motivation and performance impacts differ between emerging-economy firms and developed-economy firms. We use data from a large survey of firms in 10 countries across North and South America, Europe and Asia, and complement the survey data with recent case examples drawn primarily from Fortune Global 500 firms. Our results indicate that compared with developed-economy firms, emerging-economy firms report a higher rate of Internet use to integrate processes with business partners, and a stronger motivation to use the Internet to achieve revenue growth and operational efficiency.

Keywords

Adoption, electronic commerce, globalization, Internet, performance.

INTRODUCTION

The Internet has accelerated the capability of firms to coordinate processes and personnel across organizational and geographic boundaries, which has in turn facilitated a dramatic increase in economic globalization. Unlike previous instances of internationalization, which primarily included firms from developed economies expanding the reach of sales and manufacturing operations into emerging economies, this more recent round of globalization features the development of “a pack of fast-moving, sharp-toothed new multinationals that is emerging from the poor world” (Economist 2007). These “emerging giants” are not only competing with developed-economy firms for business in emerging economies, but in some cases are also challenging developed-economy firms on their home turf (Aguiar, Bhattacharya, Bradtke, Cotte, Dertnig, Meyer, Michael and Sirkin 2006; Engardio, Arndt and Smith 2006).

For example, Acer (Taiwan) developed a foundation in the personal computer industry using the Internet to create a global production and marketing network, share marketing information with customers and suppliers, synchronize order fulfillment, and increase the efficiency and effectiveness of production and sales operations (Hwang and Lo 2003). Acer built on this foundation to become the fastest growing PC vendor over the past several years, and recently announced the acquisition of rival Gateway (USA), making the combined company the third largest global PC vendor behind only Hewlett-Packard (USA) and Dell (USA).

In response to this challenge, firms in both developed and emerging economies have had to reexamine their corporate strategies. While in the past firms could adopt a single strategy focused on either revenue growth or operational efficiency to win and defend their market (Porter 1980), firms must now simultaneously achieve both revenue growth and operational efficiency to be successful in the global marketplace (Rust, Moorman and Dickson 2002). In this regard, the Internet is proving to be a powerful enabler. This paper examines these issues and illustrates their implications for managers by addressing the following three research questions:

- How do firms use the Internet?
- What motivates firms to adopt Internet business practices?
- What are the organizational performance impacts of Internet business practices?

We base our analysis on a 10-country organizational-level survey spanning North and South America, Europe and Asia. The survey includes firms in the developed economies of Denmark, France, Japan, Germany, Singapore and USA, and in the emerging economies of Brazil, China, Mexico and Taiwan. More details on the survey are provided in the Appendix. The full survey, country case studies and other survey analysis are available in Kraemer, Dedrick, Melville and Zhu (2006).

Previous research suggests that emerging economies offer substantial labor cost advantages, encouraging the shift of manufacturing from developed to emerging economies (Sachs and Shatz 1994). While emerging economies may offer advantages in labor costs, conventional wisdom suggests that developed economies will retain advantages in other areas such as technological and business practices. However, our survey findings show that emerging-economy firms are more advanced than developed-economy firms in some aspects of Internet use, which may help to explain the competitive rise of emerging-economy firms. We illustrate and enrich the survey findings using contemporary examples drawn primarily from Fortune Global 500 firms (Fortune 2007).

HOW FIRMS USE THE INTERNET

Background

Organizational adoption of Internet business practices can be viewed as consisting of two primary applications. The first application involves using the Internet primarily to publish information and process transactions. The second application involves using the Internet to integrate data and business processes.

Results

Aggregate Findings for Internet Business Practices

Table 1 below summarizes Internet business practices by the firms in our global survey. The business practices are listed in descending order of use. The two right hand columns indicate whether the business practice primarily facilitates transactions between firms or integration across firms. Not surprisingly, firms use the Internet most frequently for advertising and marketing to current and potential customers. This use is driving the booming market for Internet-based advertising, and takes advantage of the Internet's potential to simultaneously broadcast to a larger and more-targeted audience than can be reached through alternative media. The two least used Internet business practices by firms in our global survey are online selling and business process integration.

Table 1. Internet Business Practices

Does your establishment use the Internet for...	Rank Order Most Frequently Used	Transactions	Integration
Advertising and marketing purposes	1	X	
Exchanging operational data with business customers	2		X
Exchanging operational data with suppliers	3		X
After sales customer support and service	4	X	
Making purchases online	5	X	
Formally integrating processes with business partners	6		X
Making sales online	7	X	

One reason for the lower rate in online sales is that some firms have struggled to find the right formula for incorporating online sales into their operations. Carrefour (France) provides an example of how online sales are not always successful, even in the retail industry. Carrefour is the world's second largest retailer, with nearly half of its sales coming in the home country of France. Carrefour has made multiple attempts at online sales, and has yet to find a successful formula. In late 2001, Carrefour closed a beauty website after only nine months of operation, and also closed several other non-food websites around the same time (Datamonitor 2005). Carrefour then opened another website to sell groceries and other products in France and Spain, but has accumulated losses of \$13.0 million on modest sales of \$38.5 million (and has considered selling the website). Carrefour's latest online venture is boostore.com launched in June 2006, and this site offers 125,000 non-food products served by two dedicated warehouses. Carrefour's struggles illustrate that retailers face channel conflict challenges when online sales may compete with their existing brick and mortar store operations.

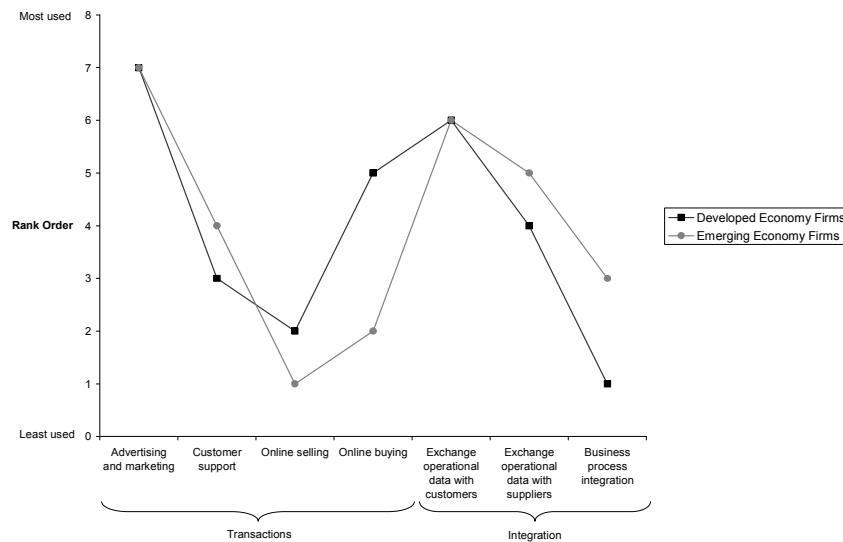
Seven-Eleven Japan (Japan) is one firm effectively using Internet sales to complement its store operations (Gibbs, Kraemer and Dedrick 2003). Seven-Eleven Japan attracts 2.6 billion customers per year, an average of 950 per day per store. To take advantage of this foot traffic, Seven-Eleven Japan created 7dream.com in 2002. The website offers products such as books that are not carried in the relatively small Seven-Eleven Japan stores (which average 1,200 square feet of space). Customers can order products online or through in-store kiosks and pick up and pay for the merchandise at any store two to three days later. Different than Carrefour, Seven-Eleven Japan successfully managed to avoid channel conflict issues when implementing its Internet sales operation. Channel conflict may account for part of the explanation of why online sales were the least frequently used Internet business practice.

Firms such as Seven-Eleven Japan that do pursue online sales recognize that their supply chains must be integrated to make online sales work. The second and third most frequent uses of the Internet for firms in our global survey are to integrate their supply chains by exchanging operational data with business customers and with suppliers. These uses distinguish the Internet from other broadcast and communication mechanisms, and indicate the unique capacity of the Internet to send and receive data beyond the firm.

Internet Business Practices in Emerging versus Developed Economies

Figure 1 below segments the responses on Internet business practices based on developed and emerging economies. Developed-economy firms use some transactional applications more frequently than emerging-economy firms, while emerging-economy firms use some integration applications more frequently than developed-economy firms. The following examples from emerging economies further enrich our understanding of these results.

Figure 1. Internet Business Practices of Firms in Developed and Emerging Economies



Quanta Computer (Taiwan) uses the Internet to exchange operational data with suppliers. In its role as a leading designer and manufacturer of notebook computers for customers such as Hewlett-Packard and Dell, Quanta must coordinate its operations with the production and delivery operations of its many suppliers. Based on forecasts from customers and in-house estimates, Quanta publishes a 13-week schedule for suppliers and updates this schedule daily on its extranet (Einhorn 2001). Suppliers are then able to access the schedule, and make necessary adjustments to their production schedule that will result in timely delivery to Quanta and greater efficiencies throughout the supply chain.

Cemex (Mexico) uses the Internet to exchange operational data with customers. Cemex is the world's third largest cement company, and the pre-mixed cement segment of this industry is characterized by very short time windows during which the product must either be delivered to customers or spoil. To make matters even more complex, Cemex has extensive operations in emerging economies which are frequently characterized by poor roads, high traffic, and irregular construction schedules. To address these challenges, Cemex equips its delivery trucks with Internet-enabled Global Positioning System technology (Raskob 2000). Customers can use the Internet to check the status of their orders and monitor shipments and deliveries, to ensure that their construction projects remain on schedule.

Summary of Internet Business Practices

Our survey data and case examples demonstrate the importance of new technologies to integrate business processes within and across firms. Leadership in the deployment of some integration applications may be coming from emerging economies because these firms see the Internet as a strategic opportunity. They are using the Internet not only to gain access to new customers outside their home countries, but to participate in collaborative business processes on an equal footing with developed-economy firms.

WHY DO FIRMS ADOPT INTERNET BUSINESS PRACTICES?

Background

In this section, we focus on the drivers for Internet adoption. The drivers can be categorized as a firm's proactive pursuit of revenue growth and/or operational efficiency, or a firm's reactive response to external pressures such as regulatory or trading partner demands.

Results

Aggregate Findings for Drivers of Internet Adoption

Table 2 below summarizes the Internet adoption drivers for firms in our global survey. The drivers are listed in descending order of significance. The three right hand columns indicate whether each driver is related to revenue growth, operational efficiency or external pressure. Perhaps similar to the implementation of prior information technologies, the most significant factor leading firms to adopt the Internet is related to operational efficiency. However, the Internet is different from previous technologies (such as ERP systems) in that the operational efficiencies are not derived primarily from internal processes. Instead, they are derived primarily from improved coordination with external business partners.

Table 2. Drivers for Internet Adoption

Please rate how significant the following factors were to your firm's decision to begin using the Internet for business	Rank Order Most Significant	Revenue Growth	Operational Efficiency	External Pressure
Improve coordination with customers and suppliers	1		X	
Expand market for existing products/services	2	X		
Enter new businesses or markets	3	X		
Reduce costs	4 (tie)		X	
Customers demanded it	4 (tie)			X
Major competitors were online	6			X
Suppliers required it	7			X
Required for government procurement	8			X
Government provided incentives	9			X

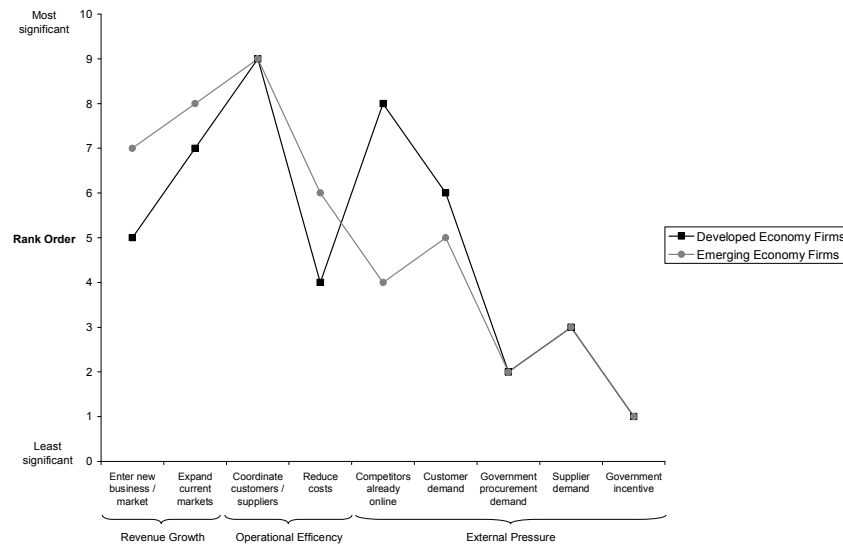
Flextronics (Singapore) adopted electronic commerce to coordinate with external business partners. Flextronics designs, manufactures and assembles electronic equipment for companies such as Cisco (USA), Hewlett-Packard, Microsoft (USA) and Siemens (Germany). As part of a new contract with the telecommunications company Extreme Networks (USA), Flextronics was responsible to manufacture and ship network switches to Extreme Networks' end customers. Extreme Networks wanted to have visibility into Flextronics' manufacturing process, including yield, defects, repairs and components. However, such visibility was not possible with the manual processes that Flextronics used to collect and analyze production data. Therefore, Flextronics moved to an online collaborative manufacturing solution that provided the monitoring, issue tracking and reporting capabilities desired by its customer. This online solution played a role in helping Flextronics to increase throughput yield for new products by 40% and reduce inventory by 30% in the relationship with Extreme Networks, and Flextronics is also using the same solution in its contracts with Cisco and Microsoft (Preysman 2001).

The next two drivers for Internet adoption relate to revenue growth. Banco Bradesco (Brazil) is using the Internet to expand the market for its products and services. Only 30% of Brazilian consumers have bank accounts, which leaves significant room for growth in that banking market. At the same time, Brazilians who use the Internet spent considerable time online – in June 2005 Brazil led all countries in the Ibope/NetRatings rankings of user time spent online with 17 hours per month. To tap into this growth potential, Bradesco now offers over 250 types of transactions for individual and corporate customers online, and has significantly increased the proportion of its customers that use online banking from 0.5% in 1996 to 9.5% in 1999 to 38% in late 2005, with about 10% of customer transactions now conducted over the Internet (DeGouvea and Kassiech 2002). During this growth phase, Bradesco estimated that about half of its new customers chose the bank because of its Internet banking capabilities (Economist Intelligence Unit 2001). The examples of Banco Bradesco and Flextronics illustrate that depending on a firm's competitive environment and objectives, the adoption of Internet business practices can be motivated by revenue growth and operational efficiency objectives.

Internet Adoption Drivers in Emerging versus Developed Economies

Some emerging-economy firms appear to be aggressively implementing integration applications, including the joint management of business processes with partner firms (see the discussions of Quanta Computer and Cemex above). Our survey results suggest that emerging-economy firms are making these investments largely at their own initiative, rather than being driven to invest in these technologies by their partners in developed economies. Figure 2 below indicates that on a rank order basis, emerging-economy firms report revenue growth and operational efficiency as a more significant driver of Internet adoption than do developed-economy firms. The responses "enter new business or markets" and "reduce costs" are the third and fourth (respectively) leading drivers for emerging-economy firms, yet only the fifth and sixth leading drivers for developed-economy firms. This finding is consistent with the discussion of Banco Bradesco above, in which Internet business practices were adopted primarily to expand revenues in the Brazilian banking market.

Samsung (Korea) is another emerging-economy firm that uses the Internet to achieve revenue growth and operational efficiency. Samsung is a major manufacturer of appliances, heavy machinery, electronic components and consumer electronic products. One aspect of Samsung's strategy has been the use of the Internet to serve international markets. For example, Samsung Electronics America's Digital IT Division (DITD) launched a partner portal to provide catalog information and marketing tools to 13,000 resellers. Samsung DITD reported a 30% increase in commercial sales and a 25% reduction in marketing costs related to improved service and better ability to segment resellers (Schneider 2004). Samsung's Internet-enabled customer service has enabled Samsung to build a global brand value of \$16.8 billion (Kiley 2007), placing Samsung ahead of developed-economy firms such as Sony (Japan), Dell, Apple (USA) and Canon (Japan).

Figure 2. Drivers for Internet Adoption in Emerging versus Developed Economies

While emerging-economy firms report that they are more driven by the potential for revenue growth and operational efficiency, developed-economy firms report that they are more driven by external pressures to adopt Internet business practices. The responses “competitors already online” and “customer demand” are the third and fourth leading drivers (respectively) for developed-economy firms, yet only the sixth and fifth leading drivers for emerging-economy firms.

Summary of Internet Adoption Drivers

The rank-order comparisons between firms in developed and emerging economies show a greater mention of revenue growth by emerging-economy firms and a greater mention of external pressures by developed-economy firms. This supports the view that emerging-economy firms may be moving more deliberately to exploit the strategic potential of online applications than are their developed-economy competitors and counterparts.

BUSINESS VALUE IMPLICATIONS

Background

In this section, we study perhaps the most important question from a managerial perspective: what business value benefits have firms realized from their Internet applications? The business value implications can be categorized as revenue growth, operational efficiency or general competitive position.

Results

Aggregate Findings for Business Value

Table 3 below summarizes the business value implications for firms in our global survey. The implications are listed in descending order of significance. The three right hand columns indicate whether each implication is related to revenue growth, operational efficiency or general competitive position. The findings show a weighting toward operational efficiency impacts, as four of the top five responses are related to operational efficiency. We note that the raw scores for two of the revenue growth considerations (sales area widened and sales increased) are just behind the scores for the four operational efficiency considerations, which is consistent with the observation above that firms must pursue both revenue growth and operational efficiency simultaneously to compete effectively in the global marketplace.

Table 3. Business Value Implications for Internet Adoption

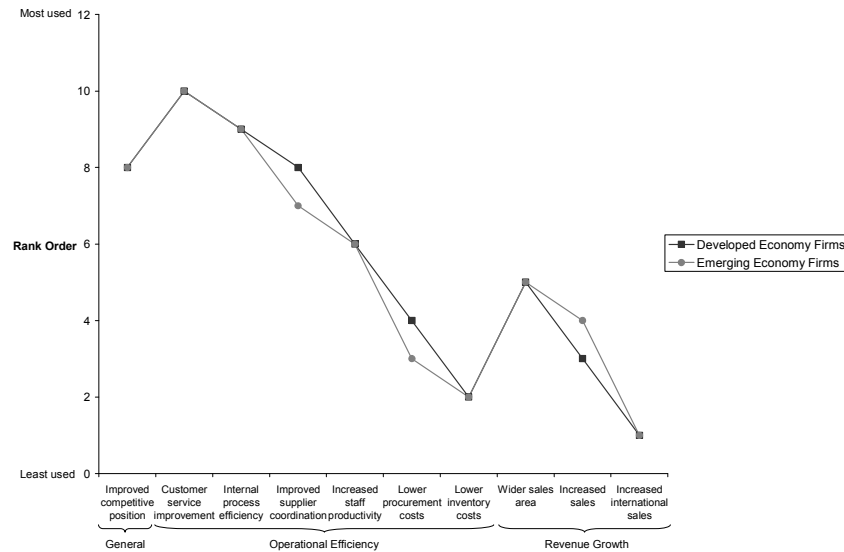
Please rate the degree to which your establishment has experienced the following impacts since it began using the Internet for business	Rank Order Most Significant	Revenue Growth	Operational Efficiency	General
Customer service improved	1		X	
Internal processes more efficient	2		X	
Competitive position improved	3			X
Coordination with suppliers improved	4		X	
Staff productivity increased	5		X	
Sales area widened	6	X		
Sales increased	7	X		
Procurement costs decreased	8		X	
Inventory costs decreased	9		X	
International sales increased	10	X		

The most prominent benefit area is customer service. While the specific reasons for customer service improvement are not captured in this survey, online applications can generate customer service benefits through faster and more accurate transmission of orders, more frequent reporting of order and delivery status, and the ability to customize products and services via the Internet. For example, the Internet enables Quanta Computer to receive orders on a continuous basis and gives customers greater flexibility to customize their order. "We used to have one purchase order for 1,500 computers, now we have one purchase order for each machine," said a Quanta deputy director. While Quanta manufactures computers for original equipment manufacturers (OEMs) such as Hewlett-Packard and Dell, Quanta now has the capability to do a degree of build-to-order and direct ship to end customers who place their orders with the OEMs.

External coordination with suppliers and internal process efficiency are two of the next three reported benefits of Internet business practices. While we discussed above the unique capacity of the Internet to implement data flows beyond the firm, it is also important to understand how this exchange of information can lead to internal efficiencies. Haier (China) is the world's fourth-largest appliance manufacturer, and considered by some observers to be China's first global brand. Partly through the use of its iHaier B2B portal, Haier process efficiencies translate into a much lower cost structure than peer firms. In 2001, Haier cost of finished products was 8% of sales, compared with 30% for all other China domestic firms. The same year, logistics accounted for 7% of commodity costs, compared with the China national average of 15% (Chen, Lin, Lee and Chen 2004).

Emerging- versus Developed-Economy Business Value

Figure 3 below segments the business value responses based on developed and emerging economies. While Figures 1 and 2 above showed significant differences for Internet business practices and adoption drivers, Figure 3 shows that developed- and emerging-economy firms report a similar rank order significance of business value impacts from Internet business practices. Among small differences identified by Figure 3, developed-economy firms report a slightly higher significance for some operational efficiency impacts, and emerging-economy firms report a slightly higher significance for the revenue growth impact of increased sales.

Figure 3. Business Value of Internet Business Practices

The slightly higher significance of increased sales for emerging-economy firms is consistent with the findings and discussion above that emerging-economy firms adopted Internet business practices with a greater focus on revenue growth than did developed-economy firms. This again suggests the possibility that emerging-economy firms are moving faster than developed-country firms to exploit the benefits of online applications to integrate and manage business processes for revenue growth. This may be because emerging-economy firms are unencumbered by legacy systems, because the rapid growth of their home economies affords a greater opportunity for revenue growth, because the competition level in emerging economies is lower, or because of other reasons that further research could help illuminate.

Summary of Business Value Implications in Global Firms

The discussion above leads to the question of whether emerging-economy firms, who appear to be more widely adopting Internet business practices related to business process integration and revenue growth, can leverage these practices to compete more effectively with developed-economy firms. A big issue for emerging-economy supplier firms is whether they can use the Internet to reach end consumers, so that these firms are not dominated by the developed-economy brand name suppliers or large retailers that are currently their customers.

Asustek (Taiwan) is one emerging-economy firm that is successfully making this transition. While Asustek may be better known as the leading mother board producer or a contract manufacturer for Apple iPods, Asustek now sells branded notebooks in several markets. By 2008, Asustek plans to spin off its contract manufacturing businesses and retain its branded product lines. While the question of whether other emerging-economy firms can also make this transition relate to overall management practices including marketing and logistics, the Internet business practices and IT skills that emerging-economy firms develop as a supplier to developed-economy firms can serve as a valuable resource.

SUMMARY AND MANAGERIAL IMPLICATIONS

The case studies and survey results, when considered in the context of global business trends, provide important information for managers who are evaluating the strategic value of investments in online business applications. Managers should consider such investments with a view to both revenue growth and operational efficiency.

Summary

Our survey results suggest that emerging-economy firms are relatively more driven to use the Internet to achieve revenue growth and operational efficiency, to establish themselves in the global marketplace. On the other hand, Internet business practices for developed-economy firms appear to be more driven by external pressures, such as whether competitors are online. Our results also suggest that emerging-economy firms are more likely to use the Internet for process integration with business partners, while developed-economy firms are more likely to use the Internet to automate purchase and sales transactions. Given that many OEMs and end customers are located in developed economies, the impetus may be on

emerging-economy firms to connect and integrate with these customers using the Internet. Nevertheless, emerging-economy firms are responding to this opportunity, and our case study examples provide further insights on how emerging-economy firms are proactively incorporating the Internet into their business strategies, and using the Internet to develop a virtual global presence and partnerships that can compete effectively with established firms.

Managerial Implications

This paper presents at least two important implications for managers of global firms. First, if they have not already done so, managers in developed-economy firms must recognize the growing competitive potential of emerging-economy firms. There is a tendency for managers to consider only traditional competitors and immediate peers when evaluating the competitive landscape, and industry leaders have historically been more likely to come from developed economies. However, the background information in this paper makes clear that a new group of competitors is emerging, and our research shows that these emerging-economy competitors appear to have an aggressive agenda for leveraging the Internet to integrate data and processes with business partners. To the extent that these initiatives are successful, emerging-economy firms may be able to present themselves online as fully capable of competing for business with their more-experienced rivals from developed economies.

Second, as global firms progress in using the Internet to seamlessly integrate data and processes across geographic locations and firm boundaries, they will create virtual organizations that can compete head-to-head in industries that have to date been dominated by multinationals with a more traditional, hierarchical and formal organizational structure. We see a clear example of this phenomenon in the IT service industry. Infosys (India) has grown into a billion dollar firm by providing outsourcing IT solutions to North American and European clients, where solutions were traditionally provided by developed-economy vendors such as IBM (USA) and Electronic Data Systems (USA). Low-cost programming talent in India enables Infosys to compete effectively on price, but Infosys must then coordinate its offshore teams with onsite teams and client staff. Infosys achieves this coordination using IT and Internet applications such as project management and integrated development tools, combined with various process and organizational mechanisms such as the Capability Maturity Model (CMMI). Competition from emerging-economy firms such as Infosys, TCS (India) and Wipro (India) is one factor that has forced developed-economy IT firms to expand their Indian operations and develop their own IT-enabled methods to manage their global operations.

Once successful virtual organizations are formed they may be difficult for others to emulate, because they can lock up the world's best combinations of capabilities into long-term partnerships involving high levels of relationship-specific investment. For this reason, it is possible that investments in Internet applications linking partners to form virtual organizations could become a source of sustainable competitive advantage, unlike investments in upstream and downstream applications that are relatively easy to replicate. Managers must carefully evaluate the Internet initiatives in their own firms, and ensure that these initiatives are progressing beyond advertising and marketing, beyond online transactions, and beyond data integration to include process integration that can infuse the firm with new capabilities. Using Internet business practices effectively as a principle enabler of business strategy will be a prerequisite for success as firms compete in the global marketplace.

APPENDIX

This research is a part of the Globalization and E-Commerce (GEC) project of the Center for Research on Information Technology and Organizations (CRITO) at the University of California, Irvine, and involved collaboration with a team of researchers from around the world. A centerpiece of the GEC project was a survey of 2,139 firms across 10 countries (Brazil, China, Denmark, France, Germany, Japan, Mexico, Singapore, Taiwan, United States) to study their electronic commerce use, drivers, barriers and outcomes. The survey was conducted in early 2002, and involved a relatively equal proportion of firms for each country, large firms (>250 employees) and small firms, and firms in the three industry sectors of manufacturing, retail and financial services. For this paper, we focus our analysis on 752 large firms (>250 employees) who provided complete responses to the questions of interest, as the objectives of this paper are to understand electronic commerce in a large firm setting. This material is based upon work supported by the National Science Foundation under Grant No. 0085852. Any opinions, findings, conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation. For additional analysis based on the GEC survey, including analysis of small and medium enterprises, please see *Global e-commerce: Impacts of National Environment and Policy* (editors K.L. Kraemer, J. Dedrick, N.P. Melville and K. Zhu), Cambridge University Press, 2006.

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