



# Strategic opportunity and economic performance in multinational enterprises: The role and effects of information and communication technology

Torben Juul Andersen\*, Nicolai Juul Foss

*Department of Management, Politics, and Philosophy, Copenhagen Business School, Blaagaardsgade 23B,  
2200 Copenhagen N, Denmark*

Available online 12 May 2005

---

## Abstract

Recent work on multinational enterprises (MNEs) argues that diversity in terms of the markets they serve and the environments they acquire inputs from provides strategic opportunity unavailable to purely domestic firms. However, MNEs are also exposed to higher levels of complexity and uncertainty due to the presence in different locations and confront associated needs to integrate and coordinate activities. This paper suggests that the attendant cost–benefit tradeoff can be influenced by computer-mediated communication. Based on a sample of 88 organizations in the computer products industries, we find that multinationality *in itself* does not guarantee a higher level of strategic opportunity. Instead, use of information technology to facilitate communication among managers across functional and geographical boundaries enhances coordination of multinational activities in the development of strategic opportunity, which in turn is associated with superior performance. © 2005 Elsevier Inc. All rights reserved.

*Keywords:* Computer-mediated communication; Strategic opportunity; Knowledge management

---

## 1. Introduction

The economic performance of multinational enterprises (MNEs) has been subject to intense scrutiny and debate (e.g., [Click and Harrison, 2000](#); [Annavarjula and Beldona,](#)

---

\* Corresponding author. Tel.: +45 38153630.

*E-mail addresses:* [tja.lpf@cbs.dk](mailto:tja.lpf@cbs.dk) (T.J. Andersen), [njf.lpf@cbs.dk](mailto:njf.lpf@cbs.dk) (N.J. Foss).

2000; Contractor et al., 2003). However, the performance effects of multinationality remain in dispute, and, taken together, existing findings are inconclusive. Many theoretical arguments have been forwarded to suggest that multinationality can have positive performance effects. An important idea in recent work on the “differentiated MNE” posits that diversity in terms of the national markets they operate in and acquire inputs from provides MNEs with business opportunities that are not available to purely domestic firms (Hedlund, 1986; Prahalad and Doz, 1987; Kogut and Zander, 1993; Bartlett and Ghoshal, 1998; Foss and Pedersen, 2002; Mudambi, 2002). However, managing a multinational structure increases the level of complexity and uncertainty faced by MNE management due to the presence in different market environments (e.g., Rosenzweig and Singh, 1991; Zaheer, 1995). Moreover, various organizational costs are likely to be higher in the MNE structure than in a purely domestic firm. For example, because cultural and institutional diversities increase the cost of acquiring and processing information (Casson, 2000) and impose agency costs across diverse operating entities (Benito et al., 2005).

While the international business literature recognizes that multinationality imposes distinct benefits and costs on the organization, there is arguably less theoretical and empirical understanding about how MNEs can influence the attendant tradeoff so as to influence performance to their advantage. It is argued here that MNEs can use information and communication technology (ICT) in their knowledge management processes to influence this tradeoff. In particular, we argue that ICT may assist in *generating* benefits in the form of strategic opportunity, that is, “opportunities for positive NPV undertakings” (Denrell et al., 2003) and in *coordinating* the development of these opportunities across the MNE. For a number of reasons, e.g., organizational path-dependencies and differential ICT capabilities, MNEs are not equally good at managing the tradeoff between costs and benefits of multinationality to their advantage. This may help explain the rather inconclusive findings on the performance effects of multinationality.

This paper contributes to the body of work that has dealt with the performance of multinationality building on recent ideas on knowledge management in the “differentiated MNE.” The unifying theme is the possible moderating effects of information technology in the generation of strategic opportunity in the MNE. We analyze the relationships between multinationality, computer-mediated communication, strategic opportunity, and economic performance in a sample of 88 organizations operating in the computer products industries. Our overall finding is that multinationality does not guarantee the ability to generate strategic opportunity nor enhance performance per se. However, multinationality in conjunction with the internal use of ICT among managers in the organization seems to facilitate the development of strategic opportunity, which in turn is associated with higher economic performance.

## 2. The performance of multinational enterprises

The relationship between multinationality and performance has been subjected to theoretical considerations as well as empirical studies in a comprehensive literature. Explanations for positive performance effects of multinationality include exploitation of firm-specific assets (Caves, 1971, 1982; Vernon, 1971), internalization of geographic

advantages (e.g., Rugman, 1981), scale and scope economies (Porter, 1985; Hamel and Prahalad, 1985), diversification and earnings stability (e.g., Madura and Whyte, 1990), operational flexibilities (Kogut and Kulatilaka, 1994), etc. Arguments for performance disadvantages of multinationality include liabilities of foreignness (e.g., Hymer, 1976), information processing and coordination costs (e.g., Jones and Hill, 1989), empire building (Jensen, 1986; Stulz, 1990), business risk (Reeb et al., 1998; Delios and Henisz, 2000), disproportionate asset investment (Click and Harrison, 2000), etc. Other recent contributions have tried to reconcile the mixed findings by proposing curvilinear performance relationships (Hitt et al., 1997; Lu and Beamish, 2001). However, the performance effects of multinationality remain unclear and offer an interesting area for further exploration.

### 2.1. Benefits and costs of multinationality

Performance effects of multinationality may rest on resource factors, such as, expanded market reach (Kogut, 1985; Kobrin, 1991), arbitrage from cross-border transactions (Teece, 1981), and wider access to financial markets (e.g., Yip, 1995; Govingarajan and Gupta, 2001). In addition, MNEs can use their multinational reach to tap into local knowledge reservoirs, absorb it and transfer it among MNE units. The MNE may be able to generate more and superior “new combinations” (Schumpeter, 1949) of knowledge elements (Grant, 1996) and otherwise build organizational learning from their access to diverse local knowledge (Kogut and Zander, 1993; Argote, 1999). If the organization controls and thereby has direct access to knowledge-based intangible assets in different national environments, the absorption and exchange of potentially useful insights should be easier (Cohen and Levinthal, 1990; Kogut and Zander, 1992). Furthermore, organizational learning and the building of new knowledge assets can be facilitated by the presence of MNE specific communication channels (Kogut and Zander, 1993).

All of this amounts to saying that MNEs may be able to *create* strategic opportunity that is not available to domestic firms. In fact, the set of business opportunities that MNEs confront will be larger than that available to domestic firms, since MNE subsidiaries can replicate the business opportunities created by domestic firms. This may be taken to imply that MNEs (on average) can demonstrate superior economic performance relative to domestic firms. However, to conclude so would be a *non sequitur*. First, generating strategic opportunity is not the same as *exploiting* it, which in turn is not the same as realizing *superior* performance (Teece, 1986). Second, there are distinct costs of multinationality that may offset (or more than offset) the benefits. Thus, the unfamiliarity with foreign ways of thinking and doing things (Hymer, 1976), the cost of acquiring knowledge in unfamiliar market environments (Johanson and Vahlne, 1990), and higher coordination costs in diverse international settings (Jones and Hill, 1989) argue for adverse economic effects of the multinational structure. In other words, MNEs face important tradeoffs caused by the distinct costs and benefits of multinationality.

Because firms differ in their knowledge management capabilities, the impact of these multinational costs and benefits may also vary. The ability to create new knowledge, innovate, and generate business opportunities as well as effectively coordinate the related organizational activities may be facilitated by means of specific communication enhancing

use of information technology (Zuboff, 1988; Galbraith, 1994). In principle, both the cost and the benefit side of the tradeoff may be influenced but there are a number of reasons why MNEs may not be equally effective in managing the tradeoff to their advantage, notably, organizational path-dependencies and differential ICT capabilities. This may help explain inconclusive findings with respect to the performance of multinationality, because it implies that some firms are better than others at mobilizing the distinct benefits and curbing the costs implied by the multinational structure. The next section will discuss these issues further.

### 3. MNE knowledge management and strategic opportunity

#### 3.1. *The knowledge-based view of the MNE*

Recent work on the MNE argues that a main advantage of the MNE, and perhaps the rationale for its existence, is that the diverse knowledge sources of the MNE can be managed so as to generate innovations and thereby create strategic opportunity for the organization (e.g., Inkpen and Dinur, 1998; Foss and Pedersen, 2002; Desouza and Evaristo, 2003). This knowledge-based perspective builds on a tradition of analyzing multinational activities in the context of organizational learning (Johanson and Vahlne, 1990; Andersen, 1993; Barkema et al., 1996; Grant, 1996). However, it extends the learning perspective by linking it to the MNE's ability to make alternative strategic actions available to the organization in a changing global environment. The knowledge-based perspective can explain how an MNE can access diverse insights controlled within a global organizational structure and recombine these into new product and process innovations. Huber (1991) defined such learning as information processing that enables the organization to act in new ways and Nonaka (1994) described it as a dynamic process of knowledge creation. In effect, this constitutes an ability to create new business opportunities that allow the organization to do things differently and accomplish things it was unable to do previously. Hence, multinationality may provide an organization with a richer endowment of diverse competencies that enhance the organization's ability to innovate (Allee, 1997) and thereby create strategic opportunity. In this context, the important dimension of the multinationality construct is the physical presence in overseas markets outside the home country. Other operational multinationality constructs typically reflect the organization's cross-border involvement, e.g., in terms of international sales and investment. However, this does not necessarily correspond to an overseas presence and, therefore, may have different performance implications.

#### 3.2. *Determinants of strategic opportunity*

Denrell et al. (2003) relate the concept of "strategic opportunity" to "opportunities for positive NPV undertakings." Evidently, this covers a broad spectrum ranging from entirely new process technologies and radical product innovations to modest organizational adjustments and incremental process adaptations. Hence, we focus on a subset of positive NPV undertakings comprising product and process innovations that constitute concrete

business opportunities with an economic value potential for the organization. However, it is not evident that strategic opportunity automatically leads to higher economic performance, that is, the positive relationship between innovation and performance is often an underlying assumption that needs verification (Damanpour, 1991). One can ponder over the serendipitous process associated with the development of strategic opportunity, which is likely to be influenced by elements of creative effort, as well as pure luck and various organizational characteristics, such as the presence of complementary resources needed to commercialize innovations (Denrell et al., 2003). Per definition, luck cannot be directly influenced, and many organizational characteristics are fixed, at least in the short run. It is therefore pertinent to look at how creative effort may influence strategic opportunity.

It is argued that a key to multinational performance lies in an ability to exploit local opportunities through effective integration of multinational activities (Prahalad and Doz, 1987; Bartlett and Ghoshal, 1998). The ability to identify and respond to local market opportunities is linked to autonomous organizational entities acting within a decentralized decision structure, while effective execution of multinational activities relies on operational integration and coordination of strategic decisions in a central planning process (Prahalad and Doz, 1987). Information technology may be used as a tool to facilitate the dual objectives of developing responsive opportunities across different national markets and integrating them effectively across multinational entities. Hence, Galbraith (1994) suggests that local opportunities may be turned into global ones through the use of ICT to facilitate geographic and functional coordination of organizational activities. Through these processes, explicit as well as tacit knowledge, e.g., about diverse market insights, functional expertise, best unit practices, etc., can be exchanged and thereby assist in mobilizing new business opportunities that require the concerted efforts of several MNE units, e.g., “systemic innovation” (Teece, 1986). Other scholars tend to agree suggesting that decision processes in firms organized around autonomous entities can be induced by communication enhancing information technology and lead to innovative behavior and superior performance outcomes (Andersen and Segars, 2001; Andersen, 2001). Hence, the use of ICT to facilitate internal communication can support learning processes and innovation and thereby increase the organization’s ability to respond to changing conditions (Zuboff, 1988; Huber, 1990).

### *3.3. ICT as instruments of knowledge creation and coordination*

The exchange of tacit knowledge is not necessarily confined to face-to-face social interaction as may be the case in the discourse underlying a strategic planning process (Lord and Ranft, 2000) but can be facilitated electronically as well (Damsgaard and Scheepers, 2001). From an information processing perspective, the higher uncertainty and complexity associated with multinationality increase the amount of information decision makers must process to monitor environmental changes and coordinate tasks between subunits (Galbraith, 1974; Tushman and Nadler, 1978). However, the use of computerized information systems can accommodate these communication needs and support the exchange of unstructured and non-quantifiable soft information (Galbraith, 1977, 1994; Tushman and Nadler, 1978). In the dynamic environments surrounding multinational

organizations, non-routine responses imposed by uncertain task environments call for more autonomous actions coordinated through mutual adjustment processes (e.g., Perrow, 1966; Thompson, 1966; Mintzberg, 1983). Hence, the central planning as well as autonomous actions are found to be instrumental for achieving superior corporate performance (Andersen, 2000). Computer-based information systems can accommodate the associated exchange of soft and unstructured information and facilitate the required informal communication among managers in multinational subunits and thereby reduce coordination cost (Fulk and DeSanctis, 1995; Joyce et al., 1997).

More generally, ICT can support knowledge creation and innovative behavior by assisting the integration of diverse insights in the MNE across time and space (e.g., Malone and Rockart, 1993). Moreover, ICT can reduce information processing and coordination cost and thereby facilitate the efficient development of new business opportunities (Zuboff, 1988; Fulk and DeSanctis, 1995; Kettinger and Grover, 1997). Hence, use of ICT as enabler of computer-mediated communication among managers in multinational organizations has the capacity to facilitate coordination of activities across functional specializations and international market insights in a cost effective manner and thereby increase the economic value associated with the development of strategic opportunity. Based on these theoretical considerations, we proceed to formulate associated hypotheses.

#### **4. Hypotheses**

Multinationality can represent more diverse knowledge, insights, skills, and capabilities among managers located in different national environments (Kogut and Zander, 1993; Grant, 1996). A more diverse and rich knowledge base within the MNE increases the likelihood that the organization can recombine it to create new knowledge, innovate, and develop strategic opportunity. Hence,

**Hypothesis 1.** Multinationality is positively associated with strategic opportunity.

Use of ICT can enable computer-mediated communication among managers located across the multinational organization and enhance the internal exchange of rich and tacit information. Such ICT enhanced communication can facilitate the knowledge creation and innovation processes of the multinational enterprise (Huber, 1990; Galbraith, 1994; Damsgaard and Scheepers, 2001). This is essential to the creation of new business opportunities and argues for the following hypothesis.

**Hypothesis 2.** A higher level of computer-mediated communication has a positive moderating effect on the association between multinationality and strategic opportunity.

The presence of strategic opportunity extends the number of alternative actions available to the multinational enterprise and thereby improves its responsiveness under changing environmental conditions. An improved ability to pursue alternative strategic actions in a complex and dynamic global environment increases the likelihood that outcomes will be favorable and hence can lead to higher economic performance. Therefore,

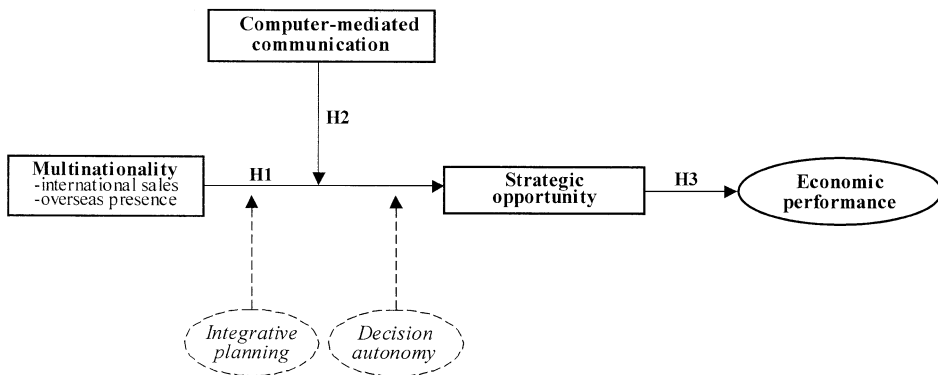


Fig. 1. A model of strategic opportunity and economic performance in the MNE.

**Hypothesis 3.** A higher level of strategic opportunity is positively associated with economic performance.

The proposed model of strategic opportunity and performance effects in the multinational enterprise is shown in Fig. 1. Multinationality can be defined in terms of international sales and overseas presence and do not necessarily constitute overlapping indicators. The model suggests that these multinationality constructs might have a direct positive effect on the creation of strategic opportunity (Hypothesis 1) although the effect of a diverse overseas presence is more in line with the knowledge management logic. The integration–responsiveness framework developed in international management suggests that emphasis on integrative planning and decision autonomy is needed to support effective creation of strategic opportunity in the multinational enterprise (Prahalad and Doz, 1987; Bartlett and Ghoshal, 1998). However, integrative planning in a complex global setting may be associated with incremental information processing cost and decision autonomy across multinational entities may lead to agency conflicts. These potentially adverse effects somehow need to be countervailed. The model suggests that computer-mediated communication constitutes such a countervailing factor that can positively moderate the ability to create strategic opportunity in the MNE (Hypothesis 2). In turn, the ability to create strategic opportunity may lead to higher economic performance (Hypothesis 3). In the following, we present an empirical study devised to test the hypothesized relationships.

## 5. Methodology

### 5.1. Data

A sample of business entities from the computer products industries, comprising electronic computers, storage devices, terminals, calculators, measuring, and analytical instruments, was used to test the hypotheses. These organizations operate in highly complex and dynamic global markets with a pronounced need for innovative behavior

(Morrison and Roth, 1992) and are therefore particularly relevant for this study. A search in the Compustat database identified 178 independent US-based business entities comprising single business firms and corporate business units in the identified industries. The model constructs and related control variables were measured on the basis of responses to a questionnaire mailed to the executives with responsibility for the market-related functions in the identified organizations.

Useable questionnaires were returned from 88 of the 178 solicited organizations, which represents a response rate of 49.4%. The sample was tested for non-response biases and no significant differences were found in total assets, net sales, sales growth, return on assets, return on equity, or profit margin between responding entities and non-respondents. Similar bias tests were performed between single business firms and corporate business units in the sample. The self-reported measures on profitability and sales growth were validated by comparison to corporate data for return on assets and annual growth in turnover from Compustat. The analysis revealed correlation coefficients between the subjective and archival data ranging from 0.44 to 0.57 across organizations within the sampled four-digit SIC industries, which was considered satisfactory (Dess and Robinson, 1984). The reliability of the primary respondents was tested randomly among the first two-thirds of the responding executives. Hence, secondary responses were obtained from several managers reporting to the executive in 9 of the organizations, corresponding to approximately 10% of the sample. The comparison between primary and secondary respondents in this sub-sample indicated an average inter-rater reliability of 0.70, which was deemed satisfactory (Rosenthal and Rosnow, 1991). The internal consistency of the variables was validated in factor analysis performed on all item responses, which supported the existence of distinct constructs. Chronbach's alphas on model constructs and control variables were calculated as 0.79 (computer-mediated communication), 0.69 (strategic opportunity), 0.85 (economic performance), 0.83 (integrative planning), and 0.72 (decision autonomy), which was considered satisfactory (Nunnally and Bernstein, 1994).

## 5.2. Measures

Different aspects of international business expansion may have different effects on performance outcomes (Annavaarjula and Beldona, 2000) and, therefore, *Multinationality* was measured in two ways to reflect international engagement and overseas establishment, respectively. Hence, *Multinationality* (A) was reflected in the organization's international sales in relation to its total sales. This is comparable to other operational measures like overseas subsidiaries as a percentage of all subsidiaries, foreign assets as a percentage of total assets, percentage of international shareholders, etc. (Sullivan, 1994; Annavaarjula and Beldona, 2000). Alternatively, *Multinationality* (B) was reflected in the organization's physical presence in overseas markets captured by a dichotomous variable indicating whether or not the organization has operating entities located outside the home country. This measure implies that the organization has made some foreign direct investment to establish an overseas presence and thereby controls economic assets, human resources, and business processes in foreign market environments (e.g., Teece, 1981). The latter multinationality construct is likely to capture potential diversities in tangible and

intangible assets that are accessible within the MNE. Both measures of multinationality were determined on the basis of information from Compustat.

*Computer-mediated communication* indicates the extent to which managers in different organizational entities use information technology to communicate through electronic networks (Andersen, 2001). Integration through central planning as well as responsiveness through autonomous decision making supposedly affect multinational performance (Pralhad and Doz, 1987; Bartlett and Ghoshal, 1998) and, therefore, should be included as control variables. *Integrative planning* indicates the organization's emphasis on comprehensive rational strategy analysis (Schendel and Hofer, 1979) measured on the basis of previous items (Boyd and Reuning-Elliott, 1998). *Decision autonomy* indicates the extent to which lower level managers in corporate entities can take actions of potential strategic importance without central management approval (Miller, 1987; Roth and Morrison, 1992). *Strategic opportunity* indicates the organization's ability to innovate and generate new business opportunities. It was measured here as the organization's propensity to generate ideas, do things differently, change, and turn ideas into actual business opportunities (Price, 1972; Damanpour, 1991). *Economic performance* was measured by self-assessed indicators of the organization's profitability and sales growth compared to close competitors (Dess and Robinson, 1984). Use of self-assessed performance indicators compared to the firm's close competitors circumvents potential problems with systematic differences in performance across the four-digit SIC industry segments (Rumelt, 1991). All items on the questionnaire were indicated on five-point Likert scales and aggregated into measures of model constructs and control variables (see Appendix A).

*Organizational size* and the associated "slack resources" may influence the ability to make commitments in the development of strategic opportunity (Aldrich, 1999). Hence, the natural logarithm of total assets was included as control variable. Similarly, an organization's commitments to *fixed asset investment* could restrain engagements in innovative activities. Hence, the ratio of fixed assets to total equity was also included as control variable. These control variables were determined on the basis of information provided from Compustat. Table 1 provides descriptive statistics of all the variables included in the subsequent analysis.

### 5.3. Analysis

The hypotheses were tested through hierarchical multiple regression analyses and two-stage least square regressions. Hypotheses 1 and 2 were tested by the statistical significance of regression coefficients with strategic opportunity as the dependent variable and multinationality and its interaction term with computer-mediated communication as independent variable (Aiken and West, 1991). It is argued that the strategic planning process can support communication of rich information and tacit knowledge in multinational organizations (Lord and Ranft, 2000), which then constitutes an alternative communication platform. Hence, the interaction term between integrative planning and multinationality was included to control for this potential effect. We also included the interaction term between decision autonomy and multinationality in the regression. The inclusion of both interaction terms controls for the potential adverse effects caused by incremental information processing costs in the multinational planning process and agency

Table 1  
Descriptive statistics and correlation coefficients ( $n=88$ )

	Mean	S.D.	1	2	3	4	5	6	7	8
1 Ln (assets)	4.13	1.990	–	–	–	–	–	–	–	–
2 Fixed-asset investment	0.15	0.537	0.098	–	–	–	–	–	–	–
3 Integrative planning	17.23	4.385	–0.031	–0.112	–	–	–	–	–	–
4 Decisions autonomy	13.92	4.046	0.341***	0.011	0.155	–	–	–	–	–
5 Computer-mediated communication	12.80	2.290	0.208	–0.066	0.154	0.342***	–	–	–	–
6 Multinationality (international sales)	9.89	15.605	0.263**	–0.020	–0.023	0.049	0.090	–	–	–
7 Multinationality (overseas presence)	0.18	0.388	0.084	0.024	–0.012	0.229**	0.016	0.191*	–	–
8 Strategic opportunity	10.88	1.794	0.204*	–0.116	0.355***	0.362***	0.193*	–0.017	0.114	–
9 Economic performance	7.26	2.484	0.192*	0.025	0.405***	0.386***	0.250**	–0.075	0.093	0.480***

\*  $p < 0.10$ .

\*\*  $p < 0.05$ .

\*\*\*  $p < 0.01$ .

costs associated with an autonomous decision structure. All independent variables and interaction terms were tested for multicollinearity and variance inflation factors were found to be well below the 9.5 threshold level (Kleinbaum et al., 1998). Hypothesis 3 was tested by the statistical significance of regression coefficients in two-stage least square regressions with economic performance as the dependent variable and strategic opportunity independent variable since strategic opportunity as an endogenous variable might be interdependent with economic performance. Hence, the values of strategic opportunity were first computed on the basis of the hierarchical regression models (stage 1) and then the computed values on strategic opportunity from these models were used in the regressions on economic performance (stage 2). The error terms in all regressions were checked for outliers, heteroscedasticity, and normality.

## 6. Results

The first hierarchical regression analysis does not indicate that multinationality has a direct relationship to strategic opportunity (Table 2), whether measured in terms of international sales (Model IIA) or overseas presence (Model IIB). Hence, the study provides no support for Hypothesis 1. This may indicate that potential benefits from the multinational structure are outweighed by associated information processing, coordination, and agency related costs. The interaction terms between integrative planning, decision autonomy, computer-mediated communication, and multinationality measured as international sales do not show any significant relationships, and adjusted  $R^2$  is reduced when the interaction terms are added (Model IIIA). However, the interaction terms between integrative planning, decision autonomy, and multinationality measured as overseas presence, indicate significant negative relationships. The interaction between computer-

Table 2  
Hierarchical regression on strategic opportunity (standardized regression coefficients,  $n=88$ )

Model	I	IIA	IIIA	IIB	IIIB
Ln (assets)	0.128	0.146	0.130	0.127	0.197
Fixed-asset investment	-0.096	-0.099	-0.098	-0.097	-0.118
Integrative planning	0.304***	0.303***	0.316***	0.306***	0.345***
Decision autonomy	0.285**	0.261**	0.248**	0.252**	0.312**
Computer-mediated communication (CMC)	0.023	0.026	0.012	0.026	-0.092
Multinationality (international sales)	-	-0.065	-0.061	-	-
Multinationality (overseas presence)	-	-	-	0.051	0.141
Planning by multinationality	-	-	-0.055	-	-0.253**
Autonomy by multinationality	-	-	0.101	-	-0.219*
CMC by multinationality (international sales)	-	-	-0.063	-	-
CMC by multinationality (overseas presence)	-	-	-	-	0.363***
Multiple $R^2$	0.245	0.249	0.268	0.248	0.340
Adjusted $R^2$	0.199	0.194	0.165	0.192	0.254
F-significance	0.000	0.001	0.004	0.001	0.000

\*  $p < 0.10$ .

\*\*  $p < 0.05$ .

\*\*\*  $p < 0.01$ .

Table 3

Two-stage least square regression on economic performance (standardized regression coefficients,  $n=88$ )

Model	I	IIA	IIIA	IIB	IIIB
Strategic opportunity	0.312***	0.311***	0.309***	0.310***	0.251***
Multiple $R^2$	0.196	0.200	0.209	0.197	0.230
Adjusted $R^2$	0.186	0.191	0.201	0.187	0.221
$F$ -significance	0.000	0.000	0.009	0.000	0.000

\*\*\*  $p < 0.01$ .

mediated communication and multinationality has a significant positive relationship to strategic opportunity. The adjusted  $R^2$  increases when the interaction terms are added (Model IIIB). A partial  $F$ -test, as suggested by Kleinbaum et al. (1998), shows that inclusion of the interaction terms improves the model prediction at the 1% confidence limit. This provides support for Hypothesis 2. Hence, the regressions do not show any direct relationship between multinational structure and the ability to create strategic opportunity. Something else is needed to counterweigh the adverse costs associated with the development of strategic opportunity in a dispersed multinational organization and this “something else” seems to comprise the ability to enhance communication through the use of internal computer networks.

The two-stage least square regressions indicate a significant positive association between strategic opportunity and economic performance (Table 3). Each of the regressions uses the predicted values for strategic opportunity determined in the hierarchical regression models. When strategic opportunity is predicted by including interaction terms with multinationality measured in terms of international sales (Model IIIA), the statistical significance of the regression does not improve. When strategic opportunity is predicted by including the interaction term with multinationality measured as overseas presence (Model IIIB), the adjusted  $R^2$  of the model increases and a partial  $F$ -test procedure indicates that model prediction has improved at a 12.5% level of significance. Altogether, this provides support for Hypothesis 3, and gives general comfort to the overall model structure.

## 7. Concluding discussion

### 7.1. Main findings

The main purpose of this study was to analyze possible effects of information technology on the creation of strategic opportunity and associated economic performance outcomes within the context of the MNE. The study suggests that multinationality *in itself* provides no guarantee for the ability to develop a satisfactory level of strategic opportunity. Rather, the internal use of ICT to enhance computer-mediated communication among managers in different organizational entities is needed to facilitate the development of new business opportunities across the MNE and reverse the adverse cost effects associated with the complexities of the multinational structure. The use of internal

computer networks as communication media seems effective when multinational organizations use the diverse knowledge reservoirs embedded in their international establishments to develop new business opportunities. Hence, the internal computer networks appear to constitute an effective way to coordinate the development of responsive actions for organizations operating in a dynamic and complex global environment, which in turn is associated with superior economic performance.

The empirical analysis is based on organizations operating in specific global industries and as a consequence the results may not necessarily be transposed directly to all other industrial environments. Furthermore, it could be argued that high performance and related economic slack might drive innovative behavior and investment in communication technology. Since the available data constitute simultaneous measures that capture organizational conditions over a longer time period, there is no simple ‘technical’ solution to this causality issue. However, the computer-mediated communication measure reflects a specific use of ICT embedded in organizational processes and we argue that they most likely are imposed by managerial foresight rather than prevailing investment capacity. Nonetheless, further studies are needed to test the generalizability of the results.

### *7.2. Implications for understanding variation in MNE performance*

The measure of multinationality that indicates international sales as a percentage of total sales, is typically related to organizational size (Table 1) and seems to confirm that international trade is a common path for organizational expansion. In contrast, the measure of multinationality that indicates overseas presence is not correlated to firm size and, therefore, may reflect a consciously chosen multinational structure aimed to access relevant international resources. Multinationality as overseas presence reflects the potential diversity and richness in international market insights the MNE might achieve through the direct control of overseas business entities. Hence, overseas establishment may be a strategic path aimed at exploiting the diversity of market insights and knowledge embedded in a multinational structure. Accordingly, multinationality may provide a platform for global learning that can be honed by adopting computerized communication systems to exchange rich knowledge-based insights and coordinate the development of strategic opportunity. Hence, the distinction between different conceptualizations of multinationality may provide a partial explanation for the diverse performance relationships registered in empirical research results.

Recent empirical work provides alternative explanations. For example, Contractor et al. (2003) introduced a three-stage model to explain the multinational performance relationship. They suggested that firms pursuing international expansion in the initial phase confront huge costs of foreignness that makes the firm unprofitable. Once the initial learning has been accomplished, it becomes possible to exploit potential scale and scope economies and consequently performance improves. However, some firms over-expand beyond an efficient organizational size and thereby experience negative incremental returns from international expansion. The negative effects of over-expansion should be particularly prevalent for organizations operating in service industries and knowledge intensive businesses, since potential scale and scope economies to a large

extent are associated with exploitation of fixed asset investment that characterize manufacturing industries (Pedersen et al., 2002). Hence, the three stage model provides an interesting framework to explain the diverse empirical results on the performance effects of multinationality with a link to the knowledge management aspects of service-based firms.

In this paper, we suggest another explanation. The findings in the empirical study seem to imply that multinational performance can be partially explained by the differential effectiveness across MNEs with respect to the use of information technology as the means to integrate diverse knowledge and coordinate organizational activities in the creation of strategic opportunity. An interesting corollary in the context of the three stage model (Contractor et al., 2003) is that the computer-mediated communication effect seems to be associated with a multinationality construct that is unrelated to the organization's current size. Instead, the outcome effects from the use of ICT apply to a multinational structure that emphasizes engagement in knowledge diversity across national market environments. Hence, computer-mediated communication seems to have a positive moderating effect on the creation of strategic opportunity, e.g., by providing more effective exchange and coordination of diverse multinational insights and improving economic performance through the advantages derived from the exploitation of strategic opportunity in the MNE. Thus, for reasons of skills and routines (Nelson and Winter 1982), differential luck and managerial foresight (Barney, 1986), different initial starting positions (Porter, 1994), control of complementary assets (Denrell et al., 2003), etc., MNEs end up controlling information technologies with differing efficiencies and adopt them in multiple ways, with differential implications for their utilization and outcome effects. Addressing this issue in a satisfactory way will require access to more detailed data sets that can adequately display differential efficiencies in MNE use of ICT. Delving further into these issues might represent an opportune venue for future research efforts.

## **Acknowledgement**

We are grateful to the session audience at the Academy of Management Conference in New Orleans, August 2004, and, in particular to Keith Brouthers for his succinct observations and constructive suggestions.

## **Appendix A. Items used to measure the model constructs**

### *A.1. Computer-mediated communication*

- (1) To what extent do managers use electronic mail, etc. to communicate with different people across the organization?
- (2) To what extent do managers access information and data from other parts of the firm via the computer network?
- (3) To what extent do managers use electronic means to exchange information with manufacturing, engineering, and other functional areas?

### *A.2. Integrative planning*

- (1) What emphasis does your organization put on the development of a mission statement?
- (2) What emphasis does your organization put on long-term plans?
- (3) What emphasis does your organization put on annual goals?
- (4) What emphasis does your organization put on short-term action plans?
- (5) What emphasis does your organization put on ongoing evaluations of strategic objectives?

### *A.3. Decision autonomy*

- (1) To what extent can managers start important market activities without top management approval?
- (2) To what extent can managers market to new major customer segments without approval from top management?
- (3) To what extent is top management approval needed before new product and service developments can be initiated?
- (4) Managers can introduce new practices without approval from top management.
- (5) To what extent is approval from top management needed before new internal capabilities can be developed?

### *A.4. Strategic opportunity*

- (1) To what extent do suggestions to do things differently arise in your organization?
- (2) To what extent is the way work is done being changed in your organization?
- (3) To what extent are ideas about customer and product development converted to business opportunities in your organization?

### *A.5. Economic performance*

- (1) How has your organization's profitability compared to close competitors over the past three years?
- (2) How has your organization's sales growth compared to close competitors over the past three years?

## **References**

- Aiken, L.A., West, S.G., 1991. *Multiple Regression: Testing and Interpreting Interactions*. Sage, Newbury Park.
- Aldrich, H.E., 1999. *Organizations Evolving*. Sage, London.
- Allee, V., 1997. *The Knowledge Evolution: Expanding Organizational Intelligence*. Butterworth-Heinemann, Boston.
- Andersen, O., 1993. On the internationalization process of firms: a critical analysis. *Journal of International Business Studies* 24, 209–231.
- Andersen, T.J., 2000. Strategic planning, autonomous actions and corporate performance. *Long Range Planning* 33, 184–200.

- Andersen, T.J., 2001. Information technology, strategic decision making approaches and organizational performance in different industrial settings. *Journal of Strategic Information Systems* 10, 101–119.
- Andersen, T.J., Segars, A.H., 2001. The impact of IT on decision structure and firm performance: evidence from the textile and apparel industry. *Information and Management* 39, 85–100.
- Annavarjula, M., Beldona, S., 2000. Multinationality–performance relationship: a review and reconciliation. *International Journal of Organizational Analysis* 8, 48–67.
- Argote, L., 1999. *Organizational Learning: Creating, Retaining, and Transferring Knowledge*. Kluwer, Boston.
- Barkema, H.G., Bell, J.H.J., Pennings, J.M., 1996. Foreign entry, cultural barriers, and learning. *Strategic Management Journal* 17, 151–166.
- Barney, J.B., 1986. Strategic factor markets: expectations, luck, and business strategy. *Management Science* 32, 1231–1241.
- Bartlett, C.A., Ghoshal, S., 1998. *Managing Across Borders: The Transnational Solution*, 2nd edition. Random House, London.
- Benito, G.R.G., Pedersen, T., Petersen, B., 2005. Export channel dynamics: an empirical investigation. *Managerial and Decision Economics* 26, 159–173.
- Boyd, B.K., Reuning-Elliott, E., 1998. A measurement model of strategic planning. *Strategic Management Journal* 19, 181–192.
- Casson, M., 2000. *Economics of International Business: A New Research Agenda*. Edward Elgar, Cheltenham.
- Caves, R.E., 1971. Industrial corporations: the industrial economics of foreign investment. *Economica* 129, 275–299.
- Caves, R.E., 1982. *Multinational Enterprise and Economic Analysis*. Cambridge University Press, Cambridge, UK.
- Click, R.W., Harrison, P., 2000. Does multinationality matter? Evidence of value destruction in U.S. multinational corporations. Working Paper, George Washington University.
- Cohen, W.M., Levinthal, D.A., 1990. Absorptive capacity: a new perspective on learning and innovation. *Administrative Science Quarterly* 35, 128–152.
- Contractor, F.J., Kundu, S.K., Hsu, C., 2003. A three-stage theory of international expansion: the link between multinationality and performance in the service sector. *Journal of International Business Studies* 34, 5–19.
- Damanpour, F., 1991. Organizational innovation: a meta-analysis of effects of determinants and moderators. *Academy of Management Journal* 34, 555–590.
- Damsgaard, J., Scheepers, R., 2001. Harnessing intranet technology for organizational knowledge creation. *Australian Journal of Information Systems*, Special Issue on Knowledge, 4–15.
- Delios, A., Henisz, W.J., 2000. Japanese firms investment strategies in emerging economies. *Academy of Management Journal* 43, 305–323.
- Denrell, J., Fang, C., Winter, S.G., 2003. The economics of strategic opportunity. *Strategic Management Journal*, Special Issue 24, 977–990.
- Desouza, K., Evaristo, R., 2003. Global knowledge management strategies. *European Management Journal* 21, 62–67.
- Dess, G.G., Robinson, R.B., 1984. Measuring organizational performance in the absence of objective measures: the case of the privately-held firm and conglomerate business unit. *Strategic Management Journal* 5, 265–273.
- Foss, N.J., Pedersen, T., 2002. Transferring knowledge in MNCs: the role of subsidiary knowledge and organizational context. *Journal of International Management* 8, 49–67.
- Fulk, J., DeSanctis, G., 1995. Electronic communication and changing organizational forms. *Organization Science* 6, 337–349.
- Galbraith, J.R., 1974. Organization design: an information processing view. *Interfaces* 4, 28–36.
- Galbraith, J.R., 1977. *Organization Design*. Addison-Wesley, Reading, MA.
- Galbraith, J.R., 1994. *Competing with Flexible Lateral Organizations*, 2nd ed. Addison-Wesley, Reading, MA.
- Govingarajan, V., Gupta, A.K., 2001. *The Quest for Global Dominance: Transforming Global Presence into Global Competitive Advantage*. Jossey-Bass, San Francisco.
- Grant, R.M., 1996. Toward a knowledge-based theory of the firm. *Strategic Management Journal* 17, 109–122.

- Hamel, G., Prahalad, C.K., 1985. Do you really have a global strategy? *Harvard Business Review* 63 (4), 139–148.
- Hedlund, Gunnar, 1986. The hypermodern MNC—a heterarchy? *Human Resource Management* 21 (1), 9–35.
- Hitt, M.H., Hoskisson, R.E., Kim, H., 1997. International diversification: effects on innovation and firm performance in product-diversified firms. *Academy of Management Journal* 40, 767–798.
- Huber, G.P., 1990. A theory of the effects of advanced information technologies on organization design, intelligence, and decision making. *Academy of Management Review* 15, 47–71.
- Huber, G.P., 1991. Organizational learning: the contributing processes and the literatures. *Organization Science* 2, 88–115.
- Hymer, S.H., 1976. *A Study of Foreign Direct Investment*. MIT Press, Cambridge, MA.
- Inkpen, A.C., Dinur, A., 1998. Knowledge management processes and international joint ventures. *Organization Science* 9, 454–468.
- Jensen, M.C., 1986. Agency costs of free cash flow, corporate finance, and the market for takeovers. *American Economic Review* 76, 323–329.
- Johanson, J., Vahlne, J.E., 1990. The mechanism of internationalization. *International Marketing Review* 7 (4), 1–24.
- Jones, G.R., Hill, C.W.L., 1989. Transaction cost analysis of strategy-structure choice. *Strategic Management Journal* 9, 159–172.
- Joyce, W.F., McGee, V.E., Slocum, J.W., 1997. Designing lateral organizations: an analysis of the benefits, costs, and enablers of nonhierarchical organizational forms. *Decision Sciences* 28, 1–25.
- Kettinger, W.J., Grover, V., 1997. The use of computer-mediated communication in an interorganizational context. *Decision Sciences* 28, 513–555.
- Kleinbaum, D.G., Kupper, L.K., Muller, K.E., Nizam, A., 1998. *Applied Regression Analysis and Other Multivariate Methods*, 3rd ed. Duxbury Press, Pacific Grove.
- Kobrin, S., 1991. An empirical analysis of the determinants of global integration. *Strategic Management Journal* 12, 17–31.
- Kogut, B., 1985. Designing global strategies: comparative and competitive value-added chains. *Sloan Management Review* 27, 27–38.
- Kogut, B., Kulatilaka, N., 1994. Operating flexibility, global manufacturing and the option value of a multinational network. *Management Science* 40, 123–138.
- Kogut, B., Zander, U., 1992. Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science* 3, 383–397.
- Kogut, B., Zander, U., 1993. Knowledge of the firm and the evolutionary theory of the multinational corporation. *Journal of International Business Studies* 15, 151–168.
- Lord, M.D., Ranft, A.L., 2000. Organizational learning about new international markets: exploring the internal transfer of local market knowledge. *Journal of International Business Studies* 31, 573–589.
- Lu, J.W., Beamish, P.W., 2001. The internationalization and performance of SMEs. *Strategic Management Journal* 22, 565–586.
- Madura, J., Whyte, A.M., 1990. Diversification benefits of direct foreign investment. *Management International Review* 30, 73–85.
- Malone, T.W., Rockart, J.F., 1993. How will information technology reshape organizations? Computers as coordination technology. In: Bradley, S.P., Hausman, J.A., Nolan, R.L. (Eds.), *Globalization, Technology, and Competition: The Fusion of Computers and Telecommunications in the 1990's*. Harvard Business School Press, Boston.
- Miller, D., 1987. The structural and environmental correlates of business strategy. *Strategic Management Journal* 8, 55–76.
- Mintzberg, H., 1983. *Structures in Five: Designing Effective Organizations*. Prentice-Hall, Englewood Cliffs, NJ.
- Morrison, A.J., Roth, K., 1992. A taxonomy of business-level strategies in global industries. *Strategic Management Journal* 13, 399–418.
- Mudambi, R., 2002. Knowledge management in multinational firms. *Journal of International Management* 8, 1–9.
- Nelson, R., Winter, S., 1982. *An Evolutionary Theory of Economic Change*. Harvard University Press, Cambridge, MA.

- Nonaka, I., 1994. A dynamic theory of organizational knowledge creation. *Organization Science* 5, 14–37.
- Nunnally, J.C., Bernstein, I.H., 1994. *Psychometric Theory*, 3rd ed. McGraw-Hill, New York.
- Pedersen, T., Petersen, B., Sharma, D., 2002. The role of knowledge in firms' internationalization process: wherefrom and whereto? In: Blomström, A., Sharma, D. (Eds.), *Learning in the Internationalization Process of Firms*. Elgar Publishing, London.
- Perrow, C.A., 1966. A framework for the comparative analysis of organizations. *American Sociological Review* 32, 194–208.
- Porter, M.E., 1985. *Competitive Advantage: Creating and Sustaining Superior Performance*. Free Press, New York.
- Porter, M.E., 1994. Toward a dynamic theory of strategy. In: Rumelt, R.P., Schendel, D.E., Teece, D.J. (Eds.), *Fundamental Issues in Strategy*. Harvard Business School Press, Boston.
- Prahalad, C.K., Doz, Y.L., 1987. *The Multinational Mission*. Free Press, New York.
- Price, J.L., 1972. *Handbook of Organizational Measurement*. Heath, Lexington, MA.
- Reeb, D.A., Kwok, C.C.Y., Baek, H.Y., 1998. Systematic risk of the multinational corporation. *Journal of International Business Studies* 29, 263–279.
- Rosenthal, R., Rosnow, R.L., 1991. *Essentials of Behavioral Research: Methods and Data Analysis*, 2nd ed. McGraw-Hill, New York.
- Rosenzweig, P.M., Singh, J.V., 1991. Organizational environments and the multinational enterprise. *Academy of Management Review* 16, 340–361.
- Roth, K., Morrison, A.J., 1992. Implementing global strategy: characteristics of global subsidiary mandates. *Journal of International Business Studies* 23, 715–736.
- Rugman, A.M., 1981. *Inside the Multinationals: The Economics of International Markets*. Columbia University Press, New York.
- Rumelt, R., 1991. How much does industry matter? *Strategic Management Journal* 12, 167–185.
- Schendel, D., Hofer, C., 1979. *Strategic Management: A New View of Business Policy and Planning*. Little Brown, Boston, MA.
- Schumpeter, 1949. *The Theory of Economic Development*. Harvard University Press, Cambridge, MA.
- Stulz, R.M., 1990. Managerial discretion and optimal financing policies. *Journal of Financial Economics* 26, 3–28.
- Sullivan, D., 1994. Measuring the degree of internationalization of a firm. *Journal of International Business Studies* 25, 325–342.
- Teece, D.J., 1981. The multinational enterprise: market failure and market power considerations. *Sloan Management Review*, 3–17.
- Teece, D.J., 1986. Profiting from technological innovation: implications for integration, collaboration, licensing and public policy. *Research Policy* 15, 285–305.
- Thompson, J.D., 1966. *Organizations in Action: Social Science Administration Theory*. McGraw-Hill, New York.
- Tushman, M.L., Nadler, D.A., 1978. Information processing as an integrating concept in organizational design. *Academy of Management Review* 3, 613–624.
- Vernon, R., 1971. *Sovereignty at Bay: The Multinational Spread of U.S. Enterprises*. Basic Books, New York.
- Yip, G.S., 1995. *Total Global Strategy*. Prentice-Hall, Upper Saddle River.
- Zaheer, S., 1995. Overcoming the liabilities of foreignness. *Academy of Management Journal* 38, 341–363.
- Zuboff, S., 1988. *In the Age of the Smart Machine*. Basic Books, New York.