Communication technology in international business-to-business relationships

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Abstract

Purpose – This study aims to examine the antecedents and performance consequences of three types of communication technology (phone, e-mail and internet) in cross-border business-to-business relationships.

Design/methodology/approach – Based on the proposed theoretical framework six hypotheses are advanced and tested. The authors use regression analysis on data from a survey of American exporters combined with secondary data on emerging European markets.

Findings – This research finds that relationship-level variables are better predictors of ICT use than country-level variables, and that ICT use impacts dyadic performance. More specifically, information exchange predicted all three communication modes, while the use of warnings predicted both interpersonal communication methods. From an institutional standpoint, the authors find that bureaucratic barriers predict both phone and e-mail communication. At the firm level, it is found that firm-level technological skills are a significant predictor for the use of internet-based data exchange. The paper also finds that increased frequency of phone and e-mail communication among dyadic partners improves performance.

Research limitations/implications – Although micro-level variables are found to be more important, country variables still bring interesting insights and should not be ignored. Also, newer technologies should be explored in future research.

Originality/value – The authors explore antecedents of information/communication technology (ICT) use at three levels: country or macro level, dyadic (or inter-firm relationship) level, and firm capabilities (intra-firm). At the country level, the authors move beyond infrastructure to examine the impact of institutional factors, such as government red tape. At the relationship level, the authors include trust-type social norms, but extend the analysis to incorporate the use of unilateral influence attempts, such as warnings.

Keywords International, Business-to-business, Europe, Regression, Survey, Communication technology

Paper type Research paper

An executive summary for managers and executive readers can be found at the end of this article.

Doing international business involves ample negotiation, coordination of supply chain operations and resolving conflicts among partners. All of these processes require significant inter-firm communication. Since meeting face-to-face implies significant time and financial costs, the exporting manufacturer and the foreign distributor may resort to technology to bridge geographical distance. Surprisingly, very little research has been done on the topic of inter-firm communication technology in international operations. Most of the extant literature has a macroeconomic perspective and it focuses on the role of communication technology in promoting economic development in developing economies (Overa, 2006; Molony, 2009). A few studies focus on the micro-level, finding that use of information communication technology enables more timely market information, lower coordination costs, and trust-based ties between the partners (Datta, 2001; Overa, 2006).

This research attempts to fill the gap in the existing literature by exploring the antecedents of information communication technology (ICT) use at three levels:

1 country or macro level;
2 dyadic (or inter-firm relationship) level; and
3 firm capabilities (intra-firm).

So the main research question of this study is: "What determines the use of ICT in international exchanges and what is the impact on the performance of these technologies?". At the country level, in addition to infrastructure, we examine the impact of institutional factors, such as government red tape. At the relationship level, we include social norms, but we extend the analysis to incorporate the use of unilateral influence strategies, such as warnings. Finally, we analyze three different technologies:

1 phone;
2 e-mail; and
3 internet-based data technology.

These three communication technologies can be arranged along a communication richness continuum and a

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technological sophistication continuum. Communication richness is directly relevant for the building and maintenance of a business relationship. The phone allows for communication of voice inflexion, conveying a richer emotional content. E-mail allows for personal communication and the use of emoticons, but is not as rich as the phone in conveying nuances of meaning. Finally, internet-based data exchange systems allow just for the communication of data regarding shipments, invoice, payments and other strictly functional information. However, in terms of the technological sophistication required, the phone ranks the lowest, e-mail in the middle, and internet-based data exchange systems rank the highest. This has implications for both the technological sophistication of the partners as well as for the infrastructure development in the target country that is required to support it.

The proposed model (see Figure 1) looks at two sets of antecedents impacting both parties engaging in the act of communication. First, we consider the target country environment by taking into account aspects that create a need for communication (including positive factors such as market potential for the firm's product in the target country and negative factors such as bureaucratic barriers generated by government regulations). The second group of antecedents refers to the nature of the relationship between the two parties, focusing on two variables:

1 information exchange, a social norm indicative of trust-based ties between the parties; and
2 the use of warnings, a type of influence attempt indicative of unilateral ties.

We also include two control variables that refer to resources enabling the exporter to engage in communication:

1 the level of technological sophistication of the product; and
2 the presence of employees speaking the language of the importer, to account for language skills.

Most of the existing ICT literature is centered on emerging markets such as India or some of the African countries. In this study we chose to focus on European emerging economies, which represent a very different ICT setting. First, the infrastructure gap was addressed relatively quickly in the early 1990s. Moreover, the presence of an educated population and the availability of trained specialists in these countries makes them more similar to developed countries. On the other hand, bureaucratic barriers might still be substantial in Russia, Ukraine, or other Eastern European countries.

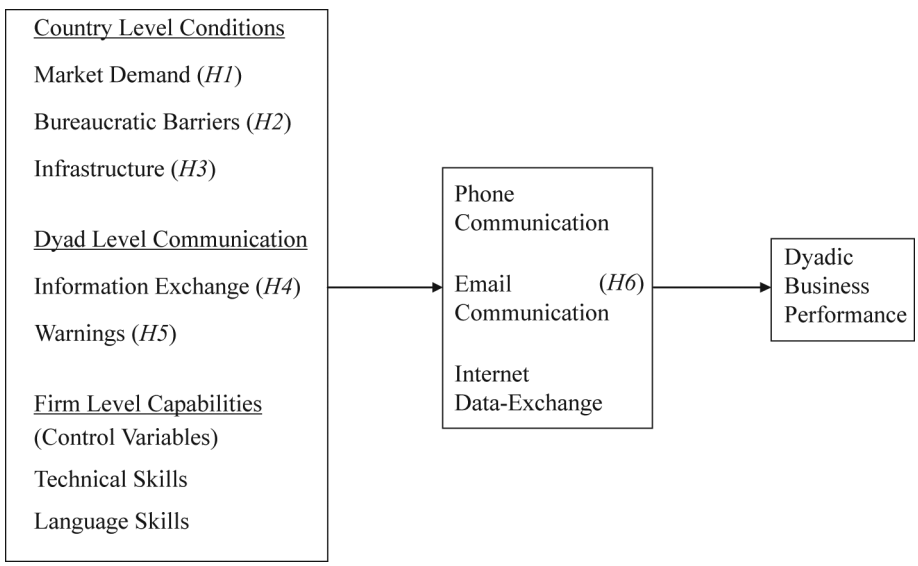
The paper is organized as follows: after this introduction, we develop the research hypotheses and support them with previous findings from the existing research. The Methodology section detailing the data collection and the data analysis is followed by a section outlining the results, and one discussing the findings. The paper concludes with a section on managerial implications and one discussing the limitations and the directions for future research.

Literature review and hypotheses

The literature exploring the link between information/communication technology (ICT) and international business is relatively recent and continually growing. Some of the research, originating mostly in economics and IT, explores, at the macro-level, the impact that investment in information technology and more specifically in communication technology has on economic activity. For example, Datta (2001) uses Granger causality tests to show that the level of telecommunication infrastructure predicts economic activity in both developed and developing countries. In the same vein, Clarke and Wallsten (2006) explore the relationship between the internet and increased trade, while Goyal (2008) argues that communication technology makes global markets more inclusive by enabling outsourcing, off-shoring, and leveling wage differences. Finally, Vemuri and Siddiqi (2009) report a positive and significant effect of ICT infrastructure on the volume of international trade, across 64 countries with a variety of economic development levels.

The micro-level perspective is predicated on the positive impact that communication technology has on the firm, by enabling more timely market information, lower coordination costs (Datta, 2001) and allowing for the development and

Figure 1 A model of inter-firm communication across a technological interface in export operations



maintenance of trust-based ties between the partners (Overa, 2006). Some of the literature falls under the scope of qualitative inquiry, based primarily on case studies and interviews. Prominent in this respect is Molony's (2008, 2009) extensive work studying the impact of mobile telephony on business practices in Tanzania. A similar focus on mobile phones was undertaken by Jagun *et al.* (2008) in Nigeria, Donner (2006) in Rwanda, and Goodman (2005) in South Africa.

More recently, quantitative studies started to emerge focusing on exporting SMEs or larger multinationals. For example, Moen *et al.* (2008) found that Danish and Norwegian SMEs involved in international business use information communication technology (ICT) to learn about markets and to build long-term customer relationships. Interestingly, the study did not find a significant relationship between ICT and firm performance. Winklhofer *et al.* (2007) focused on the SME exporters and developed a measure of website sophistication. They found that external factors such as export diversity and environmental pressure, and internal factors such as ICT knowledge and entrepreneurial orientation, are significant predictors of website sophistication. A study of Ghanaian exporters shows that competition level has a positive impact on their decision to adopt e-business, regardless of the direction of exports (Hinson and Sorensen, 2007). Among larger multinational enterprises, Andersen and Foss (2005) found that information technology helps managers to coordinate across geographies and functional boundaries, allowing them to take advantage of international market or sourcing opportunities, and achieve superior performance.

Country-level antecedents

Market potential

Higher demand potential for the exporter's product in the target country implies the need to develop the market. In turn, the strategic decision to develop the market entails greater needs for market research, changes to the product mix to meet the market demands, identifying potential accounts, more promotional activities, more training of the distributor salesforce (Kaleka, 2011). This increased level of activity requires more communication with the local partner (Mohr and Nevin, 1990), including by phone or e-mail. A greater market size also implies future transactions of greater value and increased frequency, thus justifying the deployment of internet-based data exchange solutions that routinize transactions (Williamson, 1985). Thus, we hypothesize that:

H1. The greater the market demand potential in the target country: (a) the greater will be the use of phone communication; (b) the greater will be the use of e-mail communication; and (c) the greater will be the use of internet-based data exchange systems.

Bureaucratic barriers

Bureaucratic barriers imposed by the target country government create burdens for the dyadic partners, especially for the local importer who often has to deal with the local bureaucrats. Often the exporter might have little understanding about these matters and will need to be informed, and solutions will need to be planned conjointly (Fey and Beamish, 1999). All of these processes require a significant level of interpersonal communication (Peters and Fletcher, 2004; Mohr *et al.*, 1996). Consequently, we hypothesize that:

H2. The greater the bureaucratic barriers in the target country: (a) the greater will be the use of phone communication; and (b) the greater will be the use of email communication.

Typically, internet-based data-communication technology is the automation of business tasks to make them more efficient and programmed according to the rules of the exchange (Bello *et al.*, 2002). As such, internet-based data-communication technology is ill suited for dealing with the bureaucratic barriers in the target country that may arise unexpectedly. Therefore, we do not hypothesize a relationship between bureaucratic barriers in the target country and internet-based data communication.

Infrastructure development

Infrastructure development is a very important country-level variable that is included in many international studies as it may influence many outcome variables of interest (Vemuri and Siddiqi, 2009). Deducing from the previous ICT research in both developing countries (Jagun *et al.*, 2008; Donner, 2006; Goodman, 2005) and developed countries (Moen *et al.*, 2008), we posit that infrastructure development may have a significant impact on use of the different communication technologies. We included this country-level variable in our model because lack of infrastructure development can hinder the deployment of various communication technologies, while the existence of sophisticated infrastructure will make this development easier.

H3. The lower the infrastructure development in the target country: (a) the lower will be the use of phone communication; (b) the lower will be the use of e-mail communication; and (c) the lower will be the use of internet-based data exchange systems.

Relationship-level antecedents

The channel management literature has distinguished two fundamental types of relationships:

1 bilateral; and
2 unilateral (Heide, 1994).

Bilateral relationships are based on trust, commitment, balanced dependence, and long-term orientation. In the process of working together, business partners develop relationships based on social norms such as flexibility, solidarity, and information exchange (Kaufmann and Stern, 1988; Heide and John, 1992, p. 35). Directly relevant to ICT use is the social norm of information exchange defined as the expectation that the each party will provide information useful to the partner.

On the other hand, unilateral relationships are power-based, with one party highly dependent on another. The more dominant party attempts to control the relationship using various influence attempts, ranging from provision of information to recommendations, to requests, to warnings, culminating in threats and legalistic pleas (Frazier *et al.*, 1989; Boyle *et al.*, 1992). While information exchange characterizes healthy, mature, good working relationships, warnings are often deployed in a situation of conflict between the two partners, and are often symptomatic of a dysfunctional relationship.

Importantly, the extant literature cautions against the idea that deploying communication technology in itself could promote the creation of social capital and inter-firm ties in emerging and developing countries (Pigg and Crank, 2004). Rather, several multi-country studies show that communication technology is used to maintain social networks (Molony, 2008) Research in large emerging markets such as South Africa shows that phones are used primarily in strong links (family and friends) but also in some weaker links outside the community, including potential business contacts (Goodman, 2005, pp. 59, 63). This pattern of results suggests that relationships are more appropriately seen as antecedents of communication technology use, rather than as a consequence.

Information exchange

Creating and maintaining a relationship has necessarily an emotional component, as it requires building interpersonal ties – in this respect phone and e-mail would be relevant because they can communicate emotions, while the internet is not. On the other hand, as a social norm, information exchange is characteristic of established relationships and solid, ongoing partnerships, based on sizable volume of business (Heide and John, 1992). This volume of business, in turn, makes it more likely that internet-based solutions would be deployed to facilitate data exchange transactions (Williamson, 1985). Thus, we hypothesize that:

H4. The higher the level of information exchange in the export dyad: (a) the greater will be the use of phone communication; (b) the greater will be the use of e-mail communication; and (c) the greater will be the use of internet-based data exchange systems.

Warnings

As indicated earlier, in unilateral relationships, various influence attempts are used sequentially, beginning with provision of information and recommendations and escalating to warnings, threats or legalistic pleas if the partner does not acquiesce. Thus, warnings are more likely to be used in a deteriorating situation. Dealing with a crisis makes it more likely that the phone would be used, because it enables one party to reach the other party directly, to use tone of voice to communicate a strong message, and to immediately learn the response of the trading partner, so that proper actions would be taken in response. Also, if the relationship is strained to the point where the parties resort to warnings, they might contemplate the possibility of legal actions. E-mail communication guarantees a paper trail that could be used later as evidence in court. We do not hypothesize an impact of warnings on the use of internet-based data exchange systems, as they do not lend themselves to conveying emotions.

H5. The higher the use of warnings in the export dyad: (a) the greater will be the use of phone communication; and (b) the greater will be the use of e-mail communication.

Performance. Communication technology enables manufacturers and distributors to increase information about the availability and price of goods, thus enhancing market performance (Souter *et al.*, 2005, p. 115). As the relationship progresses, communication technology enables greater coordination and smoother operations, thus increasing efficiency, while faster communication of market signals enables greater adaptation and increased effectiveness. Importantly, increased communication enhances the relationship and reduces transaction costs. Consequently, we hypothesize that:

H6. The use of: (a) phone communication is associated with higher performance; (b) e-mail communication is associated with higher performance; and (c) internet-based data exchange is associated with higher performance.

Control variables. We include in the analysis two firm-level control variables characterizing the exporting manufacturer. First, the degree to which the product is technical in nature could be related to the use of e-mail and the internet since the technical specifications of products are better communicated via those technologies. The second control variable is the ability of the manufacturer's staff to speak in and write the language of the target country, which obviously is a condition for phone and e-mail communication.

Methodology and data analysis

To test the above hypotheses we used a sample of US exporters to emerging European countries. We created a list of 747 companies from three main sources:

1 the PIERS database;
2 the Department of Commerce; and
3 the Federation of Trading Companies (FITA).

Phone qualification of the respondents resulted in a reduced list of 353 firms. After the initial mailing and the reminder, and after removing eight questionnaires that were not completed, we obtained a total of 180 questionnaires. Of these, 69 questionnaires pertained to exporting to Russia, 70 questionnaires pertained to exporting to Central Europe (Poland, Czech Republic, Hungary, Slovakia, Slovenia), and 41 to other European emerging economies.

The respondent firms vary widely in size, with 20 percent of the firms having less than fewer employees and 30 percent having more than 200. The firms are also quite diverse with respect to their export experience. More specifically, 27 percent have ten years of experience or less, 30 percent have between 11 and 20 years, 20 percent have between 20 and 30 years, and 23 percent have more than 30 years of experience. In terms of number of countries, 30 percent of the sample export to fewer than ten countries while 20 percent export to more than 50 countries. Respondents consider themselves primarily as manufacturers (78.4 percent) or distributors (13.2 percent), the remainder being agents or other categories. Most of the emerging economy partners are distributors (43.7 percent), end users (36 percent) or agents (13.2 percent).

Measures

We conceptualized demand munificence as the exporter's perception that the market potential for the exported product will remain high or will grow significantly in the near future. This scale is an adaptation of various items from the existing literature, while the scale for bureaucratic barriers was designed specifically for this study. The level of infrastructure was measured with country scores from Cavusgil *et al.* (2004). Information exchange was measured

with four items adapted from Heide and John (1992), while warnings were measured with four items adapted from Boyle *et al.* (1992). The wording of the items captures the different nature of the two relationship variables – "both parties" statements for bilateral information exchange, and "we" statements meaning the exporter's business for unilateral warnings. Firm-level controls were measured with one item each. We used a seven-point semantic differential scale anchored by "low engineering content" versus "high engineering content", referring to the firm products as a proxy for the technological skills for the firm. For language skills we used the item "One or more people form our firm who are involved in dealing with our Eastern European partner speak the language of our partner", measured with a seven-point scale anchored by "strongly disagree" versus "strongly agree". We measured the frequency of communication technology use with one item for each communication technology. Finally, business performance was measured by the degree to which the dyad has accomplished sales, profit, growth goals (Bello and Gilliland, 1997). Reliability for all scales used in the study is higher than the recommended value of 0.7 (Nunnally, 1978). Please refer to Table I for all scales and their respective reliabilities.

Data analysis and results

We analyzed the data using the step-wise linear regression procedure in SPSS. For each of the three communication technologies, we first introduce the control variables (technical level of the product and language skills), followed by country variables block and the dyadic variables block.

For *H1*, addressing the impact of market demand on the use of communication technology, we predicted a positive relationship with all three modes of communication. The results in Tables II-IV show that *H1* is largely unsupported. We suspect that increased frequency of communication might be necessary both when the market is already developed because of the amount of sales activity that takes place, as well as in the process of coordinating the various activities needed when developing the market. It might be interesting to examine this relationship in the future using a more diverse sample and various country-level secondary data as proxies for the level of market demand.

Table I Measurement scales and reliabilities

Demand **(Cronbach's $\alpha = 0.92$)**	In that country . . . There is a high potential for our products There is a lot of demand for our product category in that market The future for our industry looks bright in that market The customer need for our product category is increasing The demand in our industry is growing
Bureaucratic complexity **(Cronbach's $\alpha = 0.92$)**	There is too much bureaucratic red-tape in that country Government officials in that country often come up with unnecessary burdens for the foreign firms Businesspeople must overcome a lot of bureaucracy to do business in this country Government officials create a variety of problems for businesspeople
Information exchange **(Cronbach's $\alpha = 0.90$)**	For both parties in this relationship . . . Exchange of information takes place frequently and informally It is expected that any information that might help the other party will be provided to them It is expected that the parties will provide proprietary information if it can help the other party It is expected that we keep each other informed about events or changes that may affect the other party
Warnings **(Cronbach's $\alpha = 0.93$)**	When interacting with our partner . . . (1 = very seldom, 7 = very often) We clearly communicate that they should expect inferior performance outcomes if our recommendations aren't heeded We inform them that failure to implement our "way of doing business" will lead to poorer performance We let them know that failing to follow our suggestions will result in negative business outcomes for them We make sure they know that failing to follow our advice could result in problems for them
Performance **(Cronbach's $\alpha = 0.96$)**	Please indicate how effectively you and your partner accomplish your firm's economic goals (1 = poorly, 7 = very well) Sales goals Profit goals Growth goals Overall economic goals

Note: All items are on a scale of 1 to 7 anchored by "strongly agree" and "strongly disagree", unless otherwise noted

Table II Dependent variable: phone communication

	Step 1	Step 2	Step 3
Control variables			
Technical product	−0.0003	−0.013	−0.036
Language skills	0.108	0.067	0.056
Country variables			
Market demand		0.121	0.084
Bureaucratic barriers		0.405[a]	0.358[a]
Infrastructure dyadic variables		0.191[c]	0.157
Information exchange			0.172[b]
Warnings			0.252[a]
R^2	0.012	0.124	0.203
Adjusted R^2	0.000	0.095	0.166
F-value	0.993	4.35	5.40
Significance	0.372	0.001	0.000

Notes: [a]significant at 0.01; [b]significant at 0.05; [c]significant at 0.1

Table III Dependent variable: e-mail communication

	Step 1	Step 2	Step 3
Control variables			
Technical product	0.115	0.142[c]	0.103
Language skills	0.053	0.033	0.017
Country variables			
Market demand		0.155[c]	0.141[c]
Bureaucratic barriers		0.356[a]	0.313[b]
Infrastructure dyadic variables		0.235[b]	0.206[c]
Information exchange			0.145[c]
Warnings			0.204[c]
R^2	0.016	0.111	0.162
Adjusted R^2	0.004	0.081	0.120
F-value	1.30	03.61	3.82
Significance	0.275	0.004	0.001

Notes: [a]significant at 0.01; [b]significant at 0.05; [c]significant at 0.1

Table IV Dependent variable: internet exchange

	Step 1	Step 2	Step 3
Control variables			
Technical product	0.272[a]	0.281[a]	0.278[a]
Language skills	0.015	−0.025	0.013
Country variables			
Market demand		0.091	0.066
Bureaucratic barriers		–	–
Infrastructure		−0.003	0.000
Dyadic variables			
Information exchange			0.192[b]
Warnings			–
R^2	0.074	0.084	0.124
Adjusted R^2	0.064	0.060	0.096
F-value	6.98	3.61	4.37
Significance	0.001	0.008	0.001

Notes: [a]Significant at 0.01; [b]significant at 0.05; [c]significant at 0.1

H2 stipulated the impact of bureaucratic barriers on the frequency of phone and e-mail communication. We found that *H2* was supported for both means of communication (see Tables II and III), which means that overcoming bureaucratic barriers necessitates greater use of communication technology in the export dyad.

H3 links the level of country-level infrastructure development with deployment of communication technology. This hypothesis was largely unsupported (except for weak support for e-mail communication). This result is not that surprising, when considering that emerging European markets have already achieved a good level of technological development. It is possible that extending the sample to include some Latin American, Asian, and African countries with various levels of infrastructure development would shed more light on this relationship.

For relationship-level antecedents, *H4* proposed a positive relationship between the information exchange in the export dyad and the use of communications. We found strong support for phone communication and internet technology, and weak support for e-mail communication. We conclude that in general, stronger ties between the partners, as indicated by the emergence of social norms such as the information exchange, are correlated with more frequent use of communication technology.

If information exchange refers to a bilateral relationship, the use of influence strategies such as warnings is associated with a more unilateral type of relationship that shows signs of deterioration. Both *H5(a)* and *H5(b)* are supported, implying that the parties will rely on phone and e-mail communication to find a resolution for their conflict.

Finally, *H6* suggested the use of all three modes of communication will increase dyadic performance. We found significant support for the impact of phone and e-mail communications on performance, but no significant link between internet and performance (see Table V).

Discussion of results

The purpose of this paper is to ascertain the primary drivers of the use of ICT in the international operations and the impact of these technologies on the performance. The model tested in this paper allows for an examination of both dyadic and country level antecedents of communication technology use in export dyads. Overall, the dyadic-level variables provide a more compelling pattern of results than country level-variables. For example, information exchange predicted all three communication modes, while the use of warnings predicted both inter-personal communication methods. These findings are broadly consistent with previous research on inter-organizational strategies in the context of Russia (Mikhailitchenko and Lundstrom, 2006) and underline the pervasive role of cultural factors in business relationships.

While country-level predictors are significant antecedents for e-mail communication, only bureaucratic barriers is a significant antecedent for phone communication, and no relationships proved significant for internet-based data exchange. Finally, we found that firm-level technological skills are a significant predictor for the use of internet-based data exchange.

We also found that increased frequency of phone and e-mail communication among partners in a dyad tends to improve the performance of the relationship, while the use of the

Table V Performance consequences of communication by phone, e-mail and internet

Antecedents	Step 1	Step 2	Step 3	Step 4: phone	Step 4: e-mail	Step 4: internet
Control variables						
Exporter technological skills	0.069	0.119	0.090	0.118	0.054	0.093
Exporter language skills	0.183[b]	0.101	0.150[b]	0.119	0.132	0.113
Country variables						
Market demand		0.363[a]	0.308[a]	0.318[a]	0.291[a]	0.325[a]
Bureaucratic barriers		0.115	0.072	0.011	0.068	0.081
Infrastructure		−0.002	−0.016	−0.054	0.055	0.057
Dyadic relationship variables						
Information exchange			0.368[a]	0.337[a]	0.291[a]	0.297[a]
Warnings			0.012	−0.030	−0.062	−0.064
Mediating variable						
Communication technology				0.188[b]	0.269[a]	−0.032
R^2	0.039	0.184	0.323	0.372	0.376	0.313
Adjusted R^2	0.029	0.158	0.291	0.337	0.327	0.281
F-value	3.74	7.01	7.18	10.65	7.76	9.64
Significance level	0.033	0.000	0.000	0.000	0.000	0.000

Notes: [a]Significant at 0.01; [b]significant at 0.05; [c]significant at 0.1

internet does not improve performance. It is possible that the initial investments into the business-to-business internet technology in emerging countries are still substantial and they have not borne the fruit of increased efficiencies that had been already realized in the more mature markets. Thus, our results confirm previous findings in that the information technology aspect of business relationship is not a focus of the firms established in Russia (Wagner, 2005), although the development of relational capabilities is (Smirnova *et al.*, 2010).

Managerial implications, limitations, and directions for future research

The managerial implications of our findings are fairly straightforward. Our findings suggest that US firms exporting to emerging European markets should make more use of communication technologies such as phone and e-mail because they are associated with better economic performance for the dyad. Importantly, internet data communication technology may not be a performance enhancer as it does not provide communication richness.

In terms of academic implications, here we acknowledge several limitations of the current study that we hope will be bridged by future research. The progress of today's technology creates other communication tools that we have not studied in this paper. For example, video communication, and in the future 3D technology, makes it possible to see the facial expression of the other person and allows for richer communication than by phone or e-mail.

While Russia and the Central European countries (Hungary, Czech Republic, Poland) share a common history as members of the Soviet bloc, events after 1989 led these countries to quite divergent paths. Following the great transformations of the late 1980s and early 1990s, Central European countries had a relatively fast transition, largely completing both political and economic reforms, a process that lead to them joining the European Union in 2003. On the other hand, Russia experienced a more tumultuous transition to democracy and a market economy that is arguably still ongoing. However, the impact of Russia's economic transformation on the world economy is hard to underestimate. It is one of the BRIC countries that tend to dominate many natural resource markets, and large Russian consumer and business markets are opening up for foreign firms. Since Russia is one of the four large BRIC emerging markets, it is possible that the relationships between US exporters and Russian distributors have the characteristics of a partnership, with a sizable demand already manifested and the exporter engaging in enhanced communication with a few established close partners. In contrast, in the smaller markets of Central Europe, the relationship might be more arm's-length, and the corresponding need for communication might be more tactical or opportunistic in nature, depending on the level of demand in the marketplace.

Another methodological limitation of the current study is that we use cross-sectional data, and therefore any causal inferences from our findings may be problematic. There is a need for longitudinal studies in this area, although the data collection challenges would be significant.

We also collected data only from the US exporter side describing their relationships with their Central and Eastern European counterparts. It would be interesting and useful for future research also to examine the other party's perspective. We also do not examine culture directly, and cultural dimensions could be possible antecedents of technology use or even moderators in some of our proposed relationships. Since we only examined the self-reported financial side of performance, other aspects of performance and use of secondary data for financial performance could provide

additional insight into the dynamics of business relationships and technology interplay. All these are rich avenues for future business researchers.

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Executive summary and implications for managers and executives

This summary has been provided to allow managers and executives a rapid appreciation of the content of the article. Those with a particular interest in the topic covered may then read the article in toto *to take advantage of the more comprehensive description of the research undertaken and its results to get the full benefit of the material present.*

Twenty years on and one of the UK's most iconic advertising slogans "It's good to talk" is still fondly remembered and quoted. Its purpose was to drum up business for the BT telecommunications company by encouraging us to telephone friends and family more frequently. The world has changed since then, and e-mails, Skype, video conferencing and other internet-based communications technology have all but replaced the simple phone call. What hasn't changed is the need to communicate. Keeping in touch with friends and family is important, but so too are the ways in which international business-to-business relationships might depend to some extent for their success or failure on the communications methods chosen.

Doing international business involves ample negotiation, coordination of supply chain operations and resolving conflicts among partners. All these processes require significant inter-firm communication. Since meeting face-to-face implies significant time and financial costs, the exporting manufacturer and the foreign distributor are likely to resort to technology to bridge geographical distance. A problem that faces people who communicate electronically – by text or e-mail, for example – is that, while getting the basic message across is a task that is carried out efficiently and quickly, what is lacking is any sense of the sender's feelings or mood. Human communication is not just about words, but also about nuances, subtleties and suggestions that require a degree of face-to-face (or, failing that, mouth-to-ear) interaction. So far the communication richness that comes from direct contact has not been able to be replicated in the

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text/e-mail world – despite the proliferation of smiley and sad faces that litter our personal messages.

That communication richness is extremely important for building and maintaining a business relationship. The phone, for example, allows for communication of voice inflexion, conveying a richer emotional content. E-mail allows for personal communication and the use of emoticons (those smiley/sad faces, etc.), but is not as rich as a phone call. Additionally, internet-based data exchange systems allow merely functional information, such as data regarding shipments, invoices, payments, etc. Despite the advantages of a phone call, in terms of technological sophistication it ranks the lowest of the three communication technologies mentioned, after e-mail, then internet communication.

In "Communication technology in international business-to-business relationships" Dr Cristian Chelariu and Dr Talai Osmonbekov find that increased frequency of phone and e-mail communication among dyadic partners improves performance. In their study, they ask: "What determines the use of information communication technology in international exchanges and what is the impact on the performance of these technologies?", and seek to answer by focusing on three different technologies – phone, e-mail and internet-based data technology. They base their study on European emerging economies, where the presence of an educated population and the availability of trained specialists makes them more like developed countries, but where bureaucratic barriers might still be substantial – for example in Russia, Ukraine, or other Eastern European countries.

While Russia and the Central European countries (Hungary, Czech Republic, Poland) share a common history as members of the Soviet bloc, they subsequently followed quite divergent paths. Central European countries had a relatively fast transition, completing both political and economic reforms, a process that lead to them joining the European Union. On the other hand, Russia experienced a more tumultuous transition to democracy and market economy that is arguably still ongoing. However, the impact of Russia's economic transformation on the world economy has to be considered. It is one of the BRIC countries that tend to dominate many natural resource markets and large Russian consumer and business markets are opening up to foreign firms.

Since Russia is one of the four large BRIC emerging markets, it is possible that the relationship between the US exporter and the Russian distributors have the characteristics of a partnership, with a sizable demand already manifested and the exporter engaging in enhanced communication with a few established close partners. In contrast, in the smaller markets of Central Europe, the relationship might be more arms-length, and the corresponding need for communication might be more tactical or opportunistic in nature, depending on the level of demand in the marketplace.

The study's implications for managers are fairly straightforward, in that they suggest that US firms exporting to the emerging European markets should make more use of communication technologies such as phone and e-mail because they are associated with better economic performance for the dyad. Importantly, internet data communication technology may not be a performance enhancer as it doesn't provide communication richness.

In terms of academic implications, it has to be acknowledged that the progress of today's technology creates other communication tools that weren't studied in this paper. For example, video communication and, in the future, 3D technology, make it possible to see the facial expression of the other person and allows for richer communication than by phone or email.

(A précis of the article "Communication technology in international business-to-business relationships". Supplied by Marketing Consultants for Emerald.)