

**Internationalization in the digital age:
The role of cultural distance and environmental uncertainty**

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ABSTRACT

This study examines the impact of information and communication technologies (ICT) on the degree of internationalization by focusing on multinational enterprises (MNEs). We argue that ICT helps MNEs to reduce internally as well as externally transaction costs in an international context, resulting in high degree of internationalization. We further argue that the positive impact becomes more pronounced under the the condition of high cultural distance and a high level of environmental uncertainty. Our empirical results are strongly congruent with our hypotheses. We used a panel dataset from four major European countries, consisting of 567 firm year observations from 2011-2017. Our findings contribute to the emerging research stream about internationalization in the digital age. Thus, we contribute to the international business and strategy literatures by showing that ICT can be used as a filter for uncertainty ex-post and ex-ante in the internationalization process.

Keywords: Degree of internationalization, ICT, Transaction Costs Theory

EXTENDED ABSTRACT

Over the last three decades digital innovations and notably the development of information and communication technologies (ICT) have reshaped the global landscape in which operate (Brouthers et al., 2016; Chen and Kamal, 2016; Hazlehurst and Brouthers, 2018). MNEs, in particular, can benefit from digital innovations that reduce the transaction costs, including communication, coordination, market research, transportation, and monitoring in the internationalization process (Ray et al., 2013). Ultimately, this impacts firms' ability to reconfigure international resources and subsequently influences their international business strategy (Coviello et al., 2017).

The transaction cost theory has been the leading perspective in international business research to answer the question, whether to undertake business abroad (Buckley and Casson, 1976; Buckley, 1988; Rugman and Verbeke, 2005; Chen and Kamal, 2016). The general rationale in internalization theory is, that firms exploit their firm specific advantages (FSA) across borders in order to capture or generate value from imperfect markets until the associated costs outperform the benefits (Buckley, 1988; Kirca et al., 2011; Buckley, 2016). Recent literature suggest that innovations in ICT will not only help firms to reduce transaction cost, it also suggests that ICT modifies the internationalization process in terms of timing, location, rhythm, and entry mode choices (Coviello et al., 2017). Rangan and Sengul (2009) studied the impact of ICT deployment on transnational integration and provided empirical evidence that internationalization and internalization are less coupled than they were before the ICT-era. In contrast, Banalieva and Dhanaraj (2019) studied the effect of digitalization on international theory's assumptions about the nature of FSAs and concluded that the concept of places shifts from physical assets to digital information exchange. According to Banalieva and Dhanaraj (2019) new digital technologies enable MNEs to enter foreign markets through digital networks at significantly lower transaction costs and with less or no physical assets. Our study complements such studies in the field of international business strategy by examining the role of ICT on the degree on internationalization on firm level measured as the proportion of foreign sales to total sales.

While research about the impact of ICT has become increasingly important in marketing and information system research, international business scholars have only begun to explore the impact of ICT (Drnevich and Croson, 2013; Alcácer et al., 2016; Coviello et al., 2017; Hazlehurst and Brouthers, 2018). Despite existing research in information technology, digital business strategy (Bharadwaj, 2000; Bharadwaj et al., 2013; Drnevich and Croson, 2013), IT implementation and usage (Devaraj and Kohli, 2003), production process (Laplume, 2018), Global Value Chain (GVC) (Gooris and Peeters, 2015), communication and firm organization (Bloom et al., 2014), or firm profitability (Mithas et al., 2012) there is a gap regarding the question: "Whether and how does ICT influence the degree of internationalization? And under which conditions can MNEs benefit from ICT usage?" Despite the public awareness, commercial interest, and over 30 years of academic research in international business, the link between ICT and scope of internationalization is still missing (with exception to Mithas et al. (2017)). The research gap results partly from the disconnect between the IT business value literature and the strategic management literature - for a detail discussion see Drnevich and Croson (2013).

Correspondingly, the main propose of this study is to extend our understanding of internationalization in the digital age and follow earlier scholars' attempts to link these two disconnected research streams. More specifically, testing the magnitude of ICT on firms' degree of internationalization and thus following the calls for further research on the digital-international interface (Chen and Kamal, 2016; Vahlne and Johanson, 2017; Coviello et al., 2017; Hazlehurst and Brouthers, 2018).

The central argument in this study is that ICT acts as a filter for uncertainty that creates more transparency ex-post and ex-ante in the internationalization process. Such advantages will help the firm to overcome transaction-cost challenges in the process of international expansion - thereby increasing the firm's scope of internationalization. We also suggest that this relationship will become more pronounced under conditions of cultural distance and environmental uncertainty. In such conditions, the advantage is deriving from ICT that will help the firm not only to overcome international expansion challenges but also to enhance its standing in a dynamic market environment. To this end our work highlights the key role of ICT in determining a firm's international strategic posture -

by stressing that external environmental conditions play a key role in determining the influence of ICT on international enterprises.

Our study contributes to the international business literature in three ways. The key finding revolves around the effect of ICT on the degree of internationalization. We thus contribute to emerging literature about internationalization in the digital age by demonstrating that ICT foster international business and impacts firms' international business posture. Second, by drawing on transaction cost theory, we set new light in role of ICT in the internationalization process of MNEs by considering cultural and environmental conditions as moderating forces, that have been central in prior international business research. Third, this paper helps to theoretically integrate ICT into international business theories and research.

The full paper will be available upon request. Please contact Camillo Werdich for more details.

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Notes

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