

Digital marketing capabilities in international firms: a relational perspective

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Abstract

Purpose – Differences in digital adoption between firms call for a clearer conceptualization of digital marketing capabilities (DMCs). The purpose of this paper is twofold: (1) to offer a conceptualization of DMCs from a relational dynamic capabilities perspective and (2) to explore performance outcomes of DMCs for international firms, taking into account firm size and entrepreneurial orientation.

Design/methodology/approach – A survey on a sample of 167 international firms is used and analyzed using hierarchical regression.

Findings – DMCs contribute positively to performance. Firms with greater entrepreneurial orientation leverage DMCs more effectively and have better performance. Small firms with strong digital capabilities perform as well as medium-sized firms. Large firms perform marginally better than small and medium-sized firms.

Research limitations/implications – This paper complements previous IB studies that only study customer-related or supplier- and channel-related IT adoption. It is based on a more holistic conceptualization of DMCs, and draws on market sensing, customer-linking, customer retention, supplier relationship and channel bonding capabilities. It offers new empirical evidence for the positive impact of DMCs on firm performance. It also contributes to small and medium-sized enterprise and digital entrepreneurship literature by comparing the performance outcomes of DMCs for different size firms with varying degrees of entrepreneurial orientation.

Practical implications – This study provides implementable measures of DMCs. The findings encourage firms to develop entrepreneurial orientation alongside DMCs.

Originality/value – This paper presents DMCs as relational dynamic capabilities and shows the moderating effect of entrepreneurial orientation and firm size on the DMCs–performance relationship.

Keywords Digital marketing, Dynamic capabilities, SMEs, Entrepreneurial orientation, International business

Paper type Research paper

1. Introduction

Digitalization, or the integration of digital media into a firm's practices, involves digitizing work processes and integrating phone, Internet, mobile technologies to transform the communication interface with customers, suppliers and channel partners (Coreynen *et al.*, 2017; Yoo *et al.*, 2012). According to the World Development Report on Digital Dividends (World Bank, 2016) organizations are lagging behind consumers in digital adoption, despite recognizing digitalization as a major trend. Deterrents to digitalization include the lack of digital maturity and capabilities (Day, 2011; Kane *et al.*, 2015), unclear performance benefits to digitalization (Leeflang *et al.*, 2014), and the need for transformations in organizational functioning and international business (IB) processes to support digitalization (Overby and Min, 2001; Sinkovics *et al.*, 2013; Yoo *et al.*, 2012). These challenges call for further research on digital marketing capabilities (DMCs) and performance.

In this paper, DMCs refer to relational competencies that are required to leverage the benefits of digitalization. As business opportunities in a digitally enabled world rely on real-time and seamless communication between actors (Kane *et al.*, 2015), a key focus for DMCs is to enhance linkages with customers, suppliers and channel partners. Previous IB studies have explored the Internet, information systems (ISs) and digital technology in a piecemeal



fashion. They focus either on customers (e.g. Alarcón-del-Amo *et al.*, 2018; Mathews *et al.*, 2016) or suppliers and channel partners (e.g. Gregory *et al.*, 2019; Rai *et al.*, 2006). This may be reflective of firms' tendency to adopt a conservative stance or a piecemeal approach toward digitalization (Davila *et al.*, 2003). Investing in a piecemeal fashion may be the reason why companies face lower-than-expected returns on digitalization efforts (Leeflang *et al.*, 2014). This paper takes the opportunity to gather further empirical evidence to address the question of whether a more holistic approach to DMCs – one that brings together different actors – improves international business performance.

Moreover, there is increasing interest by academics to explore the innovativeness in both entrepreneurship and digitalization. For example, Jelonek (2015) and Nambisan (2017) propose “digital entrepreneurship” and “e-entrepreneurship” concepts to highlight the role that entrepreneurship plays in the digital age. Reuber *et al.* (2018) identify potential resources for international entrepreneurship in Internet-enabled markets. Niemand *et al.* (2020) show that digitalization on its own does not improve profitability; entrepreneurial orientation acts as a moderator. These studies attempt to re-evaluate entrepreneurship in the digital age. In light of these studies, entrepreneurial orientation is an important factor to consider within the context of DMCs and international business performance.

Finally, the IB literature suggests that the Internet helps smaller firms to overcome the liabilities of size, newness and foreignness during internationalization (Gabrielsson and Gabrielsson, 2011). In particular, born-global small and medium enterprises (SMEs) use the Internet to reduce export barriers (Sinkovics *et al.*, 2013). However, scholars have yet to make a comparison between small, medium and large firms. Would small firms benefit more from possessing DMCs than large firms? This paper explores the moderating influences of firm size and entrepreneurial orientation on DMCs and firm performance.

This paper aims to make a number of contributions. First, it answers the call for research to close the marketing capabilities gap between available and required resources to tackle digital market complexity and velocity (Day, 2011). The objective here is to offer a clearer conceptualization of DMCs. Second, this paper provides empirical evidence on DMCs' performance outcomes. Third, it complements SME research on internationalization by comparing the impact of DMCs on small, medium and large firms. Finally, it contributes to the burgeoning literature on entrepreneurship and digitalization by studying the role that entrepreneurial orientation plays in the DMCs—performance relationship.

The next section consists of a discussion on the conceptualization of DMCs. This is followed by an exploratory study and hypothesis development. Methodology and results sections are then presented. The final section discusses the implications and limitations of the research and proposes avenues for future research.

2. DMCs as relational dynamic capabilities

Prior IB research has offered preliminary insights into how firms work with the Internet, e-commerce, ISs or digital technologies. Yet most studies offer a narrow focus on supply-chain or market issues and fail to embrace the concept of digitalization in terms of speed and seamlessness of activities among different actors (Kane *et al.*, 2015). A more integrated approach is therefore desirable.

Research focusing on procurement and channel activities in international business has looked, for example, at electronic integration capabilities and governance (Jean *et al.*, 2010), e-commerce marketing capabilities for exporting (Gregory *et al.*, 2019) and operational capability for managing distance in business-to-business (B2B) commerce (Lorentz *et al.*, 2018). With regard to the supply chain, studies have looked at supply chain IT integration capabilities (Rai *et al.*, 2006) and supply chain coordination capabilities as a mediator between IT adoption and firm performance (Kim and Cavusgil, 2005). Examples of research that

focuses on customer/market activities include Mathews *et al.* (2016) on the impact of Internet-enabled marketing capabilities such as online advertising and market research on other internal capabilities that lead to international market growth; Alarcón-del-Amo *et al.* (2018) on the relationship between social media expertise and higher levels of performance in exporting firms; Erdener *et al.* (2005) on market development, efficiency in sales and promotion, ease of access to new customers and international markets, and cost reduction as key motivators for e-commerce adoption in Turkish SMEs; and Prasad *et al.* (2001) on how the integration between the Internet and marketing activities moderates the relationship between market orientation and marketing competencies, which in turn improves export performance.

The tendency in IB literature, as described above, to view digital capabilities as pertaining to market development and customer management, or as supporting supply chain and partner management, is in stark contrast with recent developments in other research domains – including ISs, marketing, and industrial management – where a more integrated and holistic approach to digital marketing is preferred. In the IS domain, Bharadwaj *et al.* (2013) argue that digitalization is blurring the lines between traditional functions because products and services are themselves embedded in digital technology. “Digital” is not synonymous with “IT” and “[d]igital business strategy should not be positioned below business strategy but treated as business strategy itself for the digital era” (Bharadwaj *et al.*, 2013; p. 473). The authors contend that as digital dependency grows, firms will no longer be able to disentangle themselves from partners or competitors and make decisions within the boundary of the firm and its supply chain.

The industrial management literature also adopts a holistic view as it emphasizes that digital technologies lead to a more fluid collaboration with suppliers, partners and customers: in the B2B context, digital applications “provid[e] information to coordinate the supply chain, and leverag[e] capabilities across organizations” (Pierre and Timothy, 2005; p. 86). Lancioni *et al.* (2000) find that firms need to react quickly and accurately in the fulfillment of customer requests as online business transactions and messaging occur 24/7. By relying on the Internet to handle communications with actors in the supply chain and with customers, firms improve *both* vendor relationship and customer relationship. Christopher (2000) draws on the example of the fashion industry and argues that suppliers, channels and customers should be integrated in an agile supply chain to compete effectively.

Within marketing, Day (2011; p. 192) highlights the need for seamless partnerships: “[t]he prototypical outside-in organization with the requisite adaptability will operate as a porous entity [. . .], able to forge seamless partnerships with customers, suppliers and information resources—all in the service of a compelling customer value proposition.” It is through cocreation and continuous reconfiguration of the roles of the different actors in the value chain that firms deliver value to customers (Normann and Ramirez, 1993). Moreover, digitalization is an “open and dynamic concept” insofar as digital technologies are still evolving (Hagberg *et al.*, 2016; p. 696). DMCs relate to those capabilities that enable firms to adjust their resource configurations and develop new skills to deal with real-time connectivity among stakeholders (Day, 2011; Kane *et al.*, 2015; Teece, 2014). DMCs need to be inherently dynamic to enable responsive and flexible decisions (Teece, 2014). Teece (2012) distinguishes ordinary capabilities that are rooted in routines from dynamic capabilities that enable firms to evolve in fast-changing environments. Ordinary capabilities ensure the smooth operation of existing business processes. For example, IS capabilities are ordinary capabilities that support supply chain routines. They enable cross-border systems integration and strengthen the international supply chain network (Jean *et al.*, 2010; Overby and Min, 2001). DMCs, on the other hand, are dynamic capabilities that can create change during processes of resource combination (Eisenhardt and Martin, 2000; p. 1107).

On the basis of the above arguments, this paper puts forward the notion that DMCs in IB should include capabilities that address linkages with demand-side and supply-side

partnerships. Digitalization creates new sources of value creation through the mechanism of relational capabilities and resource complementarities that organizations gain through reconfiguring resources for suppliers, partners and customers (Amit and Zott, 2001). Weill and Woerner (2015) argue that organizations should develop digitalization as an ecosystem rather than a linear value-chain. For example, Amazon is an ecosystem where customers, vendors and distributors are interconnected and mutually dependent on each other. Customers can compare products, compare vendors and use Amazon delivery or direct vendor delivery. Vendors on Amazon benefit from product feedback, customer insights and information on their competitors.

The explosion of data caused by increased usage of the Internet and mobile devices worldwide is forcing firms to learn new ways to analyze a vast amount of data, gain customer insights and target customers online. Firms often fail to manage and use the data they have accumulated through their customer relationship management systems (Stein *et al.*, 2013), which suggests that digitalization often requires an upturn of current business models (Leeftang *et al.*, 2014). Prasad *et al.* (2001) argue that the integration of the Internet with marketing activities transforms marketing functions in exporting. For example, rather than relying on intermediaries, the Internet allows the firm to deal directly with customers, suppliers or alliance partners. According to Deighton (1996) and Day (2011), firms wishing to remain competitive should enhance the direct with digital users, as well as improve the integration of customers, suppliers and partners within a seamless network.

3. Exploratory study

The exploratory study consists of interviewing the CEO of a company specializing in customized large precision machinery for business customers (e.g. turning centers and plastic molding). The company is located in France and imports machinery from its sister company in Taiwan, where the machinery is built. The French company is responsible for sales and after-sales services in France and other European countries. It has eight counterparts around the world. The CEO shared his thoughts on digital technology in business processes.

Our machines are digitally controlled. Our R&D in Taiwan works on bringing digital technology into our products. [...] Companies come to us because they know that if something breaks down, then they will not need to wait long for someone to go and help fix the problem. We have established training for sales reps and after-sales service reps around the country to ensure a quick response. The repairs are fed into an IT system that is shared with headquarters [in France]. Ultimately, reliability and quick response are what we build our reputation on. [...] The response in Taiwan also needs to be quick and in line with our customers needs.

The CEO talked about the usefulness of digitalization in understanding the market and finding new customers for the company.

We track changes in market demands by requests from existing and new customers in the database. This information is worldwide. ...the plants [in Taiwan] customize when required, so the level of customization requested in each location gives clues what the market is looking like. For example, there is a trend towards more automation and turnkey solutions. Customers stay with us because part of our service is we help them continually upgrade their systems. Taiwan is constantly upgrading the technology.

The exploratory case study reflects aspects of marketing-linking capabilities described by Song *et al.* (2007) although applied in this case to digitalization.

3.1 Supplier relationship capabilities

Digitalization can reduce the number of suppliers a firm works with because of the disintermediation of traditional middlemen and pressures on suppliers to invest in

responsiveness and innovation (Bakos and Brynjolfsson, 1993). Consequently, it is more important than ever to maintain a durable relationship with key suppliers. In the exploratory study, the Taiwan arm works directly with its suppliers in Taiwan to update the machinery in a timely manner. The French company imports the machinery directly from the sister company in Taiwan and provides feedback to Taiwan based on after-sales incidents. The ability to exploit supplier relationships can be a source of competitive advantage, because it can lead to interorganizational technological collaborations and innovation success (Ritter and Gemünden, 2003). For example, building relationships with suppliers to integrate offerings for customers in a single space is an important way to attract customers (Weill and Woerner, 2015). Firms can also create partnerships for content and application development (Chircu and Kauffman, 1999).

3.2 Customer-linking capabilities

“Customer linkage is mainly sharing product information with customers, accepting customer orders, interacting with customers to manage demand, having an order placing system, sharing order status with customers during order scheduling, and product delivery phase” (Lee *et al.*, 2007; p. 445). Customer-linking capabilities are important in a digital age because customers expect near-instant responses to queries as well as fast deliveries. In the exploratory study, after-sales services play a critical role in customer linkage as they are a conduit for gathering information on problems faced by business customers. A quick response to customers is possible thanks to the seamless and efficient communication between all actors in the value chain: customers, after-sales centers, country sales firms and the supplier firm.

3.3 Market-sensing capabilities

Faced with a deluge of data, firms find that rapidly realigning strategy to fit in with identified changes in the market can be beyond their capacity if they do not develop appropriate dynamic capabilities (Sher and Lee, 2004). In the exploratory study, the firm relies on the customer database to track market trends. Market sensing capability refers to the firm’s ability to identify opportunities and predict changes in the marketplace. Market sensing capability is important because marketing analytics are able to provide extensive data on customers’ current and future needs. In data-rich environments, firms need to know how to prioritize opportunities to provide the right solutions based on the resources at hand (Wedel and Kannan, 2016). Smart products can allow companies to monitor how products are used and make modifications to improve their products. Manufacturers are able to quickly pinpoint design flaws and provide better after-sales support to customers (Coreynen *et al.*, 2017). In the exploratory study, the Taiwanese company gauges market trends from a database that gathers data from different sales locations. The database informs decisions on product upgrades and new business solutions which are then offered to customers to advance their systems.

3.4 Customer-retention capabilities

Customer retention is a challenge in the digital era. Weill and Woerner (2015; p. 32) recommend using “digital capabilities to obtain information about customers’ goals and life events.” Hagberg *et al.* (2016) note that the actors in digitalization are not only humans but also digital technologies that fulfill sales functions. In relation to digital service multinational corporations, Banalieva and Dhanaraj (2019) describe human capital and technology as firm-specific assets. Firms are investing in technology that facilitates personalized interactions with customers. When comparing the impact of adoption rates for standardized and

customized IT systems by self-managed teams, De Jong *et al.* (2003) conclude that high adoption levels of customized IT bring greater customer satisfaction and higher productivity for certain services, while low adoption levels of customized IT will diminish customer satisfaction and productivity. However, there is no difference in either customer satisfaction or productivity between high and low adoption levels of standardized IT. These findings offers support to a dynamic approach to DMCs.

3.5 Channel-bonding capabilities

Technological innovations may not be profitable without access to complementary assets such as distribution (Teece, 1986). In the exploratory study, the company provides training to sales and after-sales reps around the market to provide adequate presence and support to customers. Overall, this exploratory study suggests that digital capabilities enhances the interconnectivity between all stakeholders, product advancement and consultancy on customization and upgrading.

4. Hypothesis

DMCs relate to those capabilities that enable firms to adjust their resource configurations and develop new skills to deal with real-time connectivity among stakeholders (Day, 2011; Kane *et al.*, 2015; Teece, 2014). They are critical to the performance and survival of international firms given the different and highly competitive markets in which firms operate (Teece, 2014). Prior IB research has drawn on the dynamic capabilities perspective to explain international business expansion and performance (Jantunen *et al.*, 2005; Luo, 2000). Dynamic capabilities, with their links to innovation, can explain the accelerated internationalization by born global firms (Weerawardena *et al.*, 2007). Dynamic capabilities such as international ambidexterity enables firms to manage international exploration and exploitation processes which ultimately influence international performance (Prange and Verdier, 2011).

In addition, past research suggests that the integration between the Internet and marketing activities strengthens the impact of market orientation on marketing competencies, which in turn improves export performance (Prasad *et al.*, 2001). Export firms with expertise in social media tools and e-commerce marketing capabilities tend to have higher distribution and communication efficiencies and achieve higher levels of performance (Alarcón-del-Amo *et al.*, 2018; Gregory *et al.*, 2019). DMCs encompass market-related competencies such as market sensing, customer linking and customer retention. Therefore, it is likely that DMCs will improve firm performance.

DMCs help firms digitally manage and coordinate relationships with suppliers, customers and channel members. Scholars have further highlighted that cooperative governance mechanisms and electronic integration between original equipment manufacturer (OEM) suppliers and overseas buyers positively contributes to OEM firms' innovativeness and market performance (Jean *et al.*, 2010). Greater IT integration capabilities develop process integration capabilities, which in turn, lead to better firm performance (Rai *et al.*, 2006). Moreover, firms that adopt IT achieve better performance when they also possess coordination capabilities (Kim and Cavusgil, 2005). Overall, the literature suggests that DMCs can have a positive impact on performance. Accordingly, I hypothesize:

H1. Digital marketing capabilities enhance the performance of internationalizing firms.

Digital technology tends to be transformative for international business – for instance, in terms of the development of alternative online channels, disintermediation or elimination of supplier contracts in online transactions (Overby and Min, 2001; Sinkovics *et al.*, 2013). Entrepreneurial orientation is often described as a firm's innovative, risk-taking and

proactive behavior (Covin and Slevin, 1991; Miller, 1983). Innovativeness is a firm's willingness to experiment with new ideas and processes to develop innovative products. Risk-taking is the tendency to invest in business opportunities even when the return is unknown or uncertain. Proactiveness is the firm's disposition to search for future growth opportunities. Entrepreneurial orientation, reflected in a firm's strategic processes, can encourage the firm to invest in new technologies, explore new products or markets and accept risky but high potential ventures (Lumpkin and Dess, 1996).

The disruptive nature of digital technologies on business processes and the dynamic nature of online environments (Leefflang *et al.*, 2014; Prasad *et al.*, 2001) make it likely for the adoption of digital marketing activities to require a strategic orientation that encourages new ways of doing business. In this regard, Gibbs *et al.* (2003) argue that risk aversion tends to impede e-commerce adoption in B2B firms. Willcocks and Sauer (2000) suggest that e-business firms possess more business value than e-commerce firms, as e-business firms create new products and markets. E-commerce relies on digital capabilities without re-organizing processes, and setting up company web pages and transacting online are no longer considered as transformative. Willcocks and Sauer's (2000) arguments imply that entrepreneurial and nonentrepreneurial firms deploy digital capabilities differently, and that transformative practices lead to more business value.

Similarly, Glavas and Mathews (2014) find that firms with international entrepreneurship characteristics (innovativeness and proactiveness) possess Internet capabilities that is more developed and supportive of international business processes. Reuber and Fischer (2011) argue that online technological capabilities help entrepreneurial firms identify and exploit opportunities in different markets more efficiently than competitors. Mostafa *et al.* (2005) compare high and low entrepreneurial orientation firms and find that those possessing high entrepreneurial orientation have greater Internet resources commitment and usage. Similarly, Sinkovics *et al.* (2013) show that the more entrepreneurial exporting firms are, the more the Internet act as a sales channel.

Overall, the literature suggests that entrepreneurial orientation and digital capabilities are related. A more entrepreneurial firm is likely to see more business opportunities in digitalization and develop digital capabilities to support innovative activities. Therefore, I hypothesize that entrepreneurial orientation strengthens the DMCs-performance relationship. I posit that entrepreneurial orientation moderates this relationship. In principle, a firm that is more entrepreneurially oriented should be able to leverage its digital capabilities more effectively than one that is less so. For example, DMCs can enhance the effectiveness of social networking with stakeholders and of market analytics. High entrepreneurial orientation may lead firms to widen a firm's global reach in its search for new customers and suppliers. The interaction between DMCs and entrepreneurial orientation would thus lead to better firm performance. On the contrary, a firm with little entrepreneurial orientation would be less keen to act as a pioneer and drastically change its business model to accommodate the advances of digital technology (Alimadadi *et al.*, 2018). Digital capabilities complement existing business processes rather than support risky international market opportunities. Consequently, the firm becomes less effective at enhancing performance. I therefore hypothesize that:

H2. Entrepreneurial orientation positively moderates the relationship between digital marketing capabilities and the performance of internationalizing firms.

During internationalization, SMEs are disadvantaged by limited resources relative to their larger counterparts. Their foreign expansion is more sporadic and dependent on local ties (Kalinic and Forza, 2012). Scholars believe that the Internet reduces liabilities of size for SMEs, as the ability to reach different customers around the world is the same for big and small firms (Gabrielsson and Gabrielsson, 2011; Lituchy and Rail, 2000). Moreover, Internet

consumers' attitudes and beliefs are not homogeneous across countries and their buying behavior differs (Lynch and Beck, 2001). E-readiness, digital infrastructure and market institutions vary from country to country, making it difficult to devise a standardized e-market strategy (Berthon *et al.*, 2008; Erdener *et al.*, 2005; Sheth and Sharma, 2005). A segmented online marketplace can be beneficial to SMEs. SMEs often compensate for the lack of resources by adopting a niche-oriented strategy and by differentiating themselves through a more flexible and agile response to the market (Kalinic and Forza, 2012; Qian and Li, 2003).

Despite the advantages presented by digitalization, Archer *et al.*'s (2008) survey of Canadian SMEs shows that SMEs adopt partial e-business solutions because they are too small to justify automated supply chain linkages, or, their supply chain partners are unwilling to operate using advanced ISs. Sinkovics *et al.* (2013) also find that not all SMEs take advantage of the Internet to reduce export barriers. Born-global SMEs use the Internet to reduce export barriers when business practices in the exporting country are psychically distant from those in the home country. SMEs that are not born-globals do not rely on the Internet to reduce export barriers. Firms that use the Internet as a sales channel and as an alternative to physical presence have better export performance.

Studies that look at SMEs' internationalization rarely compare SMEs' performance to larger firms or compare small with medium-sized firms. As such, scholars have yet to provide evidence on whether DMCs help firms to overcome disadvantages in size and bring them to the same competitive standing as larger competitors. Therefore, I test the following hypothesis:

H3. SMEs will perform similarly to large firms thanks to digital marketing capabilities.

5. Methodology

5.1 Survey design

The survey uses tried-and-tested measures from existing literature. *Firm size* relates to the number of employees of the firm. Table 1 shows the items for multi-item constructs. *Entrepreneurial orientation* is measured using the bipolar scale items related to innovation and risk-taking from Covin and Slevin (1989). *Digital marketing capabilities* was operationalized by adapting the market-linking capabilities measure from Song *et al.* (2007) to the digital context. For example, I adjust the wording of the original item "customer-linking capabilities" to "customer-linking digital capabilities". The original scale has been tested on samples from the USA, China and Japan with comparable factor loadings across the different countries (Song *et al.*, 2008) and thus appears to be suitable for our international sample. The scale is suitable because it does not focus on the technology but on the capabilities to use digital technologies for fulfilling a demand or supply function. The five items measuring digital capabilities are customer-linking digital capabilities, market-sensing digital capabilities, channel-bonding digital capabilities, capabilities in creating durable relationships with suppliers through digital platforms, and the ability to use digital marketing to retain customers. I asked CEOs to evaluate how well (or poorly) they believe their company performs on these five items on a scale of 0–10, relative to their company's major competitors.

Firm performance is drawn from Naman and Slevin (1993) and measured by asking how satisfied the respondent is with the firm's performance in terms of common financial indicators, including sales, sales growth, cash flow, gross profit margin, net profit from operations, profit-to-sales ratio, return on investment and ability to fund business growth from profits. I supplemented subjective measurement of firm performance by a more objective question on actual return-on-sales (profit margin) for the previous year. However, due to a general lack of response to this question, the answers are removed from the final analysis.

Scales and items (*items for one side of the bipolar scale is shown)	Factor loadings
<i>Dynamism*</i> (Cronbach α , CR, AVE)	(0.85, 0.801, 0.578)
Our firm must change its marketing practices extremely frequently (e.g. semi-annually)	0.77
The rate of obsolescence is very high (as in some fashion goods and semi-conductors)	0.77
Actions of competitors are unpredictable	0.80
Demand and tastes are almost unpredictable (e.g. high fashion goods)	0.82
The modes of production/services change often and in a major way (e.g. advanced electronic components)	0.82
<i>Heterogeneity*</i> (Cronbach α , CR, AVE)	(0.77, 0.809, 0.590)
Customers' buying habits varies a great deal from one line to another	0.80
The nature of the competition varies a great deal from one line to another	0.86
Market dynamism and uncertainty varies a great deal from one line to another	0.89
<i>Entrepreneurial orientation*</i> (Cronbach α , CR innovative/risk-taking, AVE innovative/risk-taking)	(0.85, 0.810/.896, 0.591/ 0.812)
Innovative: A strong emphasis on R&D, technological leadership and innovations	0.62
Very many new lines of products or services	0.73
Changes in product or service lines have usually been quite dramatic	0.78
Risk-taking: A strong proclivity for high-risk projects (with chances of very high returns)	0.71
Owing to the nature of the environment, bold, wide-ranging acts are necessary to achieve the firm's objectives	0.64
Typically adopts a bold, aggressive posture in order to maximize the probability of exploiting potential opportunities	0.63
<i>Digital marketing capabilities – relative to firm's major competitors</i> (Cronbach α , CR, AVE)	(0.93, 0.921, 0.700)
Customer-linking digital capabilities (i.e. creating and managing durable customer relationships through digital media)	0.92
Market-sensing digital capabilities (predicting changes in customer preferences using digital media)	0.88
Channel-bonding digital capabilities (creating durable relationship with channel members such as wholesalers, retailers using digital media)	0.84
Capabilities in creating durable relationships with suppliers through digital platforms	0.88
Ability to use digital marketing to retain customers	0.92
<i>Firm performance – level of satisfaction</i> (Cronbach α , CR, AVE)	(0.94, 0.944, 0.810)
Gross profit margin	0.87
Net profit from operations	0.89
Profit-to-sales ratio	0.90
Return on investment	0.87
Ability to fund business growth from profits	0.87

Table 1.
Measure validation

Control variables include environmental characteristics which are likely to influence firm performance, such as, *munificence*, in terms of how rich markets are in investment capital (Baum and Wally, 2003), *dynamism* (Miller and Friesen, 1982) and *heterogeneity* (Miller and Friesen, 1982). Control variables also address different firm characteristics that may affect performance, including, *firm age*, *headquartered country*, *industry* and whether or not it is a *family firm* and if so, whether it is in the first, second or third generation. Finally, I controlled for the level of internationalization of the firm by asking about the *number of foreign markets*.

5.2 Sample and data collection

I collected data from CEOs during a forum organized by the World Taiwanese Chambers of Commerce (WTCC). WTCC is an organization set up in 1994 for Taiwanese businesses

worldwide. In 2018, the organization counts around 800 members from 76 countries. As respondents were international firms of overseas Chinese, I designed a Chinese–English bilingual survey and repeated back-translation. I tested the questionnaire on two marketing managers of export firms in Taiwan and edited unclear wordings.

Attendees of the WTCC forum received the paper survey inside their conference packs and via email. The survey included an endorsement by the president of WTCC and the conference organizers referred to it during the talks. The attendees had the option to participate by handing the paper surveys back to the forum organizers or filling the survey out online. Overall, 78 (9.7%) useable paper surveys were collected by the end of the forum and 89 (11.1%) useable online surveys were collected after two reminders within two weeks after the forum had ended. Means for firm age, firm size, percentage of revenue abroad and number of markets across the two groups are similar although those who replied by email had a slightly higher average number of markets. On the basis of the minimal differences found between the two groups, the bias in different data collection methods is judged to be minimal.

In total, I received 167 responses from firms headquartered in 29 different countries. Around 68.5% of firms had one to five foreign markets, 14.2% in six to 10 foreign markets, 7.8% in 11–20 countries and the remaining 9.5% in 22–160 foreign markets. In terms of firm size, 76.2% of the sample had 250 employees or less, 18.4% had between 280 and 1000 employees and 5.4% had between 1100 and 1600 employees. Of all the samples, 54.5% were family firms. The sample included 19 different industries based on the North American Industry Classification System (NAICS) industry classification codes (two digits).

6. Results

Table 1 shows the measures used and the internal consistency of items for each construct. Convergent validity is evidenced by average variance extracted (AVE) scores above 0.5, and reliability by composite reliability (CR) scores above 0.7. Discriminant validity is adequate as the square roots of AVE scores are bigger than any interfactor correlation. Model fit in the confirmatory factor analysis was adequate (chi-sq = 201.1, df = 152, $p = 0.001$; comparative fit index (CFI) = 0.977, goodness-of-fit index (GFI) = 0.901, PClose = 0.708, root mean square error of approximation (RMSEA) = 0.045). Harman's single factor test for checking common method bias shows that when extracting a common factor using principal components analysis, this common factor represented 17.35% of the data explained. Therefore, the pervasiveness of common method variance in the dataset is considered low (Chang *et al.*, 2010). To further check for common methods bias in the confirmatory factor analysis, a common latent factor is added to compare the unconstrained model with the fully constrained model of multi-item constructs. The unconstrained model (chi-square 198.8, df = 148) and the constrained model (chi-square = 236.6, df = 188) are invariant ($p = 0.570$). Hence, the risk of common methods bias is minimal. Table 2 presents the Pearson correlations between the variables. All the correlations are below 0.5. The survey was analyzed using hierarchical regression with listwise deletion of missing variables. Analysis of residuals met normality requirements. Variance inflation factors (VIF) in the regression analyses indicate whether estimation is likely to suffer from multicollinearity; all VIF scores obtained were lower than 2.0, considerably below the suggested threshold of 5 recommended by De Vaus (2002).

Table 3 presents the results of the regression analysis. Model 1, the controls-only model, is significant ($p < 0.001$) accounting for around 23% of the variance in firm performance ($R^2 = 0.228$; $p < 0.001$). In particular, dynamism, munificence and country are significant predictors of performance in the controls-only model. Model 2 shows the hypothesized variables, *digital capabilities*, *entrepreneurial orientation* and *firm size* by number of employees. As hypothesized in H1, DMCs positively influence performance ($B = 119$,

	DMCs	Entrepreneurial orientation	Performance	Firm age (employee)	Firm size (employee)	Country	Industry	% revenue abroad	Number of markets	Munificence	Dynamism	Heterogeneity
Entrepreneurial orientation	0.301**	1										
Performance	0.331**	0.144*	1									
Firm age	0.060	-0.011	0.103	1								
Firm size (employees)	-0.029	-0.044	-0.003	0.129	1							
Country	0.112	0.022	0.176*	0.032	-0.092	1						
Industry	-0.062	0.072	-0.039	-0.178*	0.076	-0.099	1					
% Revenue abroad	0.105	0.069	0.151*	0.040	-0.098	0.060	-0.176*	1				
Number of markets	-0.006	0.161*	0.064	0.032	0.023	-0.162*	-0.004	0.272**	1			
Munificence	0.027	0.022*	0.058	0.218**	0.008	-0.020	-0.173*	0.040	-0.070	1		
Dynamism	0.125	0.186**	0.287**	0.179*	0.130	0.135	-0.055	0.078	0.097	0.005	1	
Heterogeneity	0.007	0.344**	-0.226**	-0.082	0.061	-0.040	0.199**	-0.139	0.072	-0.033	0.103	1
Mean	7.147	3.818	2.912	22.138	213.024	8.339	43.579	35.723	10.329	2.646	4.265	3.543
SD	1.980	1.066	0.864	16.180	348.323	10.285	15.240	35.793	24.641	0.849	1.267	1.298
N	167	167	167	167	167	165	164	157	167	167	167	167

Note(s): *Correlation is significant at the 0.05 level (2-tailed); **Correlation is significant at the 0.01 level (2-tailed)

Table 2. Pearson correlation and descriptives

Table 3.
Hierarchical regression
($N = 156$ after listwise
deletion of missing
variables)

Dependent variable: firm performance	Model 1	Model 2	Model 3
(Constant)	2.461***	2.831***	3.008***
<i>Control variables</i>			
Firm age	0.002	0.002	0.001
Country	0.016*	0.013*	0.014*
Industry	0.005	0.005	0.005
% Revenue abroad	0.001	0.001	0.001
Number of markets	0.003	0.002	0.003
Family firm	0.109	0.085	0.080
Munificence	0.226***	0.187**	0.174**
Dynamism	-0.239***	-0.263***	-0.309***
Heterogeneity	0.020	0.009	0.006
<i>Hypothesized variables</i>			
Digital marketing capabilities (DMCs)		0.119***	0.114***
Entrepreneurial orientation (EO)		0.110	0.116
Firm size (employees)		9.876E-6	2.841E-5
DMCs x EO			0.083*
DMCs x Firm size (employees)			1.822E-5^
R^2	0.228	0.317	0.362
ΔR^2 from Model 1		0.089	
ΔR^2 from Model 2			0.045
F	5.209***	6.038***	6.240***
ΔF		6.812***	5.402**
Note(s): ^ $p \leq 0.1$; * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$			

$p < 0.0001$). Performance is stronger for firms that possess an advantage in DMCs, and weaker for firms that are lagging behind their major competitors in DMCs. Being able to use digital technology to effectively address customers', suppliers' and channel members relationships' at the same time can contribute to performance.

In Model 3, the effects of two moderators, entrepreneurial orientation and firm size, on the relationship between digital capabilities and performance are tested. Based on Hair *et al.* (2006), moderator effects are significant if the change in R -square between the unmoderated model (Model 2) and the moderated model (Model 3) is statistically significant. Table 3 shows a significant change in R -square from Model 2 to Model 3 ($\Delta R^2 = 0.045$, $p < 0.005$). The interaction effect of digital capabilities and entrepreneurial orientation is significant with $p = 0.003$. This result supports H2: entrepreneurial orientation plays an important role in enhancing the effectiveness of DMCs. Such a finding can explain why some firms perform better than others despite having similar levels of DMCs. The stronger the organizational willingness to be innovative and risk-taking, the more likely a firm's DMCs (for example, the capability to sense new digital market trends and the capability to create durable relationships with stakeholders through digital platforms) will leverage digital technology effectively and enhance performance. The importance of entrepreneurial orientation in the capabilities-performance equation implies that not only should firms invest in digital technology and develop DMCs but also, they need to embrace a culture of innovation and recruit people who are not afraid to explore the limits of new technology.

H3 posits that SMEs can perform as well as large firms thanks to DMCs. The interaction between DMCs and firm size is marginally insignificant ($p = 0.088$), implying that although H3 can be supported, there are effects that need further exploration. Plotting the interaction effects (see Figure 1) using PROCESS Model 2 by Hayes (2012) allows further investigation of the moderating effects. The plots show that when DMCs increase, performance increase more

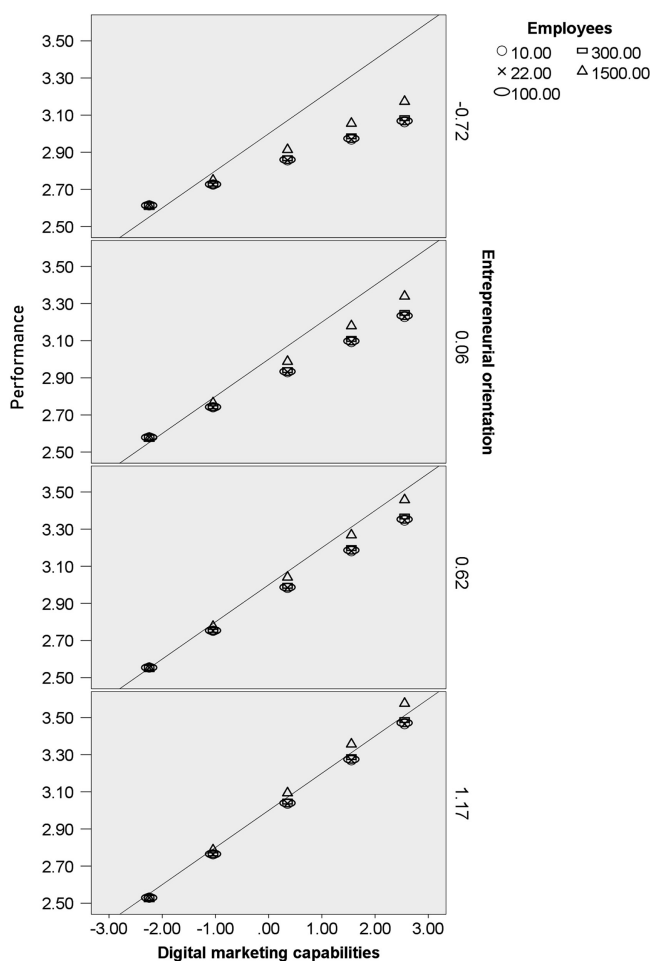


Figure 1. Conditional effect of digital marketing capabilities on firm performance at values of two moderators, entrepreneurial orientation and firm size

significantly when entrepreneurial orientation is high. Firms with high entrepreneurial orientation outperform firms with low entrepreneurial orientation. The results suggest that innovativeness, risk-taking and proactiveness lead to better performance outcomes for DMCs.

The plots in Figure 1 also reveal that small firms of 10 or 22 employees perform similarly to medium-sized firms of 100 and 300 employees. However, at higher levels of DMCs, the performance of these SMEs is slightly worse than that of large firms of 1,500 or more employees. Analyzing the plots and the regression results together, I conclude that DMCs benefit small firms, enabling them to compete effectively with medium-sized firms. At high levels of DMCs, there is a difference in performance for both small- and medium-sized firms as compared to large firms, but the difference is relatively small and statistically insignificant. Previous studies claiming that smaller firms can reduce their liabilities of size thanks to the internet (e.g. Gabriellson and Gabriellson, 2011; Lituchy and Rail, 2000) do not verify the claims through comparative studies between small and large firms. The findings of the present study confirm that DMCs contribute to reducing liabilities of size for small- and

medium-sized firms. Although larger firms perform better than small- and medium-sized firms do, the difference is not significantly large and may be due to greater resources.

7. Discussion

Scholars and practitioners increasingly realize that the value of digitalization comes from the ability to create seamlessness between different channels, stakeholders and organizational units (Bharadwaj *et al.*, 2013; Day, 2011). From an international marketing perspective, digital technology allows firms to have greater and immediate access to suppliers, customers and channel members around the world. The challenge is to manage these relationships simultaneously. This paper provides a conceptualization of DMCs that considers the firm's relationship with multiple stakeholders. A key contribution consists of propounding a holistic view of DMCs and showing that conjointly addressing customers', suppliers' and channel activities can enhance firm performance. As such, this paper integrates studies that separately look at firms' linkage with either customers, suppliers or channel members.

This conceptualization of DMCs is tested in relation to the performance of international firms. As hypothesized, DMCs positively influence firm performance. The results are consistent with the dynamic capabilities view, which argues that firms can sustain competitive advantage by developing capabilities that allow them to reconfigure resources according to changes in the business environment (Teece *et al.*, 1997). Digital technologies demand interconnectivity, speed and accuracy in the online environment (Lancioni *et al.*, 2000; Yusuf *et al.*, 2004). The findings suggest that DMCs should be dynamic and comprehensive (Day, 2011).

This study also contributes to the literature on entrepreneurship and digitalization (e.g. Jelonek, 2015; Nambisan, 2017; Niemand *et al.*, 2020; Reuber and Fischer, 2011) by introducing the notion of DMCs to these topics. The evidence supplied in this paper points to the moderating effect of entrepreneurial orientation on the DMCs-performance relationship. In other words, firms that are more innovative and risk-taking tend to leverage DMCs more effectively across foreign markets. Firms with low entrepreneurial orientation can fail to understand how to tackle the rapidly changing expectations in the digital environment. Contrarily, firms with high entrepreneurial orientation tend to align innovativeness and risk-taking with the development of DMCs. A higher number of entrepreneurial hires can ensure that DMCs are used not only to enhance current processes but also, to seize new market opportunities and find innovative ways to meet the emerging needs of customers, suppliers and channel partners worldwide.

Regarding firm size, this paper provides stronger theoretical support for studies that argue how doing business on the Internet reduces the liabilities of size, newness and foreignness for SMEs but do not make a comparison between different sized companies (Gabrielsson and Gabrielsson, 2011; Lituchy and Rail, 2000). The findings show that DMCs enable small international firms to perform on par with medium-sized firms. Although larger firms appear to benefit more from high DMCs, the difference with SMEs is statistically insignificant. Thus, firm size matters less in the digital age.

Firms should interpret the DMCs-performance relationship carefully. First, as Bharadwaj *et al.* (2013) suggest, traditional functional boundaries prevent firms from fully exploiting the potential of digital technology. Firms wishing to embrace digitalization should first try to break down the barriers between different traditional functions through internal re-organization, then develop DMCs key performance indicators to measure the management of interrelationships between customers, market data, suppliers and channel partners around the world. Developing DMCs without putting proper infrastructure and new business processes in place may not be effective (Lorentz *et al.*, 2018). Second, managers should note that the focus of this paper is on DMCs and not digital technology investments.

This distinction is particularly important for small- and medium-sized enterprises, given the limited resources of these firms. Forming strategic alliances with digital media companies can reduce capital investment in digital technology. By outsourcing the technology, managers can truly focus on developing the DMCs and rely on alliance partners to provide the most updated digital infrastructure.

7.1 Limitations and future research

Although this paper provides useful insights on DMCs, it has several limitations. For instance, the present study is unable to make country-level inferences from the data due to sample size. With a larger sample for each country, it would have been possible to find out whether the particularities of each market (e.g. regulations and culture) influence the development of DMCs. Similarly, this study does not focus on single industries, although to do so would provide a more fine-tuned analysis on DMCs specific to an industry.

Another area that this study does not measure is the actual disruption digital adoption brings to business processes. This is an important aspect that may influence performance. Research suggests that rigidity and resistance to change influence internationalization decisions negatively (Tan *et al.*, 2018). Macro-economic factors may also disrupt business processes. For example, taxation of digitally supplied goods is currently a topic of debate. Sales performance may suffer if governments start taxing foreign online goods. Firms may need to adopt flexible sourcing.

Survey data only provide a snapshot and does not provide sufficient depth on DMCs' implementation. Gathering qualitative data is important if we wish to understand how top management devises digital strategy and reorganize processes across borders. Further research could focus on recruitment and training in relation to developing DMCs and entrepreneurial orientation. A longitudinal research design would gather more information on how firms sustain competitive advantage over time through DMCs.

Advances in Internet technology have created fast-moving and uncertain environments that require managers to experiment new ways of engaging with customers, suppliers and channel members, including the cocreation of digital products and services (Day, 2011). This study does not delve into specific aspects of engagement and cocreation, which are interesting areas for future research.

The digital revolution has led to endless possibilities and with that come operational challenges and the marketing capabilities gap (Day, 2011; Leeflang *et al.*, 2014). This paper recommends that international managers develop DMCs as dynamic capabilities geared toward sensing new digital market trends and simultaneously managing customers, suppliers and channel members. As technology continues to change the business landscape, DMCs will continue to be important in the years to come. There is room for further conceptualization of DMCs in the field of international marketing. The role of DMCs in branding, market adaptation and evolving technologies of 5G and artificial intelligence, for instance, are important research avenues to explore.

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