



The e-commerce platform conundrum: How manufacturers' leanings affect their internationalization

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ABSTRACT

Internationalization is seen as a commercial opportunity and, in some circumstances, necessary for many firms' resilience in today's volatile and unpredictable global marketplace. Most exporting organizations must cope with various emergent e-commerce digital platforms, given the rising importance of digital and technological transformation of modern international trade and its related strategic challenges. The spread of third-party multi-sided platforms (TPMPs) and established actors such as Amazon, eBay, and Alibaba, has led research to overlook evaluations involving other types of multi-sided e-commerce platforms, such as content management systems (CMSs). Nevertheless, these other platforms are evolving by leaps and bounds and changing the rules of the game for e-commerce website development. This study draws on the transaction cost economics perspective and theory of boundary choices to shed light on the differences in manufacturing firms' internationalization performances from the reliance among CMSs and TPMPs. The study retrieves data from a survey of 263 manufacturing firms' managers and executives relying on structured equation modeling. The findings outline that adopting CMSs partially mediates the relationship between e-commerce strategic commitment and internationalization performances. In contrast, TPMPs negatively moderate the relationship between e-commerce commitment and CMS and between e-commerce commitment and internationalization despite directly partially enhancing internationalization performances. Finally, the study reveals an inverted U-shaped relationship between e-commerce commitment and TPMP reliance.

1. Introduction

The steep upswing of various types of digital platforms, fueled by the COVID-19 pandemic, is at the heart of the global digital transformation of organizations (Dwivedi et al., 2020, p. 4; Kraus et al., 2022, p. 7). Online commerce is one of the industrial verticals most affected by the digital platform breakthrough. For example, Amazon's revenue from its multi-sided "Amazon marketplace," platform, which allows third-party vendors to sell their products on Amazon, more than doubled from \$42.75 billion in 2018 to \$117.72 billion in 2022 (Amazon, 2023). Similarly, noteworthy is the turnaround of the well-known e-commerce platform Shopify, which has quintupled its sales from \$1.1 billion in 2018 to \$5.6 billion in 2022 (Shopify Inc., 2023). The evolution of these

platforms has favored newer approaches to online sales rather than the traditional indirect selling method in which a manufacturer sells to the distributor (whether a pure online player or an omnichannel player), which then resells to the final consumer (Chen et al., 2021). It is no accident that third-party multi-sided platforms (TPMPs) are gaining traction in the online commerce industry, encouraging manufacturers to use the so-called agency-selling strategy (Pu et al., 2020). Direct selling, whereby manufacturers sell directly to buyers via their website, is likewise undergoing drastic change as a result of the new content management system (CMS) platforms. CMS ecosystems are multi-sided ecosystems in which providers of user-friendly platforms (e.g., Magento, Shopify, or Woocommerce) enable firms to create e-commerce websites with their own domain, relieving them of the time-consuming

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burden of developing them from scratch (Engert et al., 2022; Zaheer et al., 2022). Indeed, CMS are used to build the vast majority of websites in existence today (Wibowo, 2021), particularly those of non-digitally native corporations with other core industries, such as manufacturing organizations.

Numerous firms have begun to recognize e-commerce as an effective route to trade with worldwide markets, considered almost an imperative strategy for businesses' resilience thanks to its rising simplicity and elimination of barriers and initiation expenses. According to the *International Trade Administration U.S. Department of Commerce (2022)*, European industrial cross-border e-commerce (CBEC) will increase at a rate of over 12 % per year, reaching 1.8 trillion dollars in 2025. Needless to say, working with CBEC has become more important than ever for manufacturing enterprises and their livelihood (Zahra, 2021).

Parallel to the increase in businesses' CBEC adoption, is the inevitable rise in scholarly output on the topic. One strand of this literature is concerned with outlining the benefits that CBEC can bring to implementers, such as speeding up foreign market penetration, mitigating the business risks involved in setting up an international sales campaign, and even counteracting corruption in certain markets through electronic transactions (Adomako et al., 2021; Deng and Wang, 2016; Pezderka and Sinkovics, 2011). Other studies focus on the function of TPMPs, characterizing them as crucial participants in the growth of CBEC (Deng et al., 2022; Hennart, 2022; Hui, 2020), primarily based on transaction cost theory. These, as intermediaries, can take satisfaction in specializing in the provision of the services that manufacturers embarking on internet sales often lack. Logistics is one of the most visible services as several TPMPs offer fulfillment and shipping services to their merchants, lowering their export costs (Hui, 2020). Furthermore, TPMPs can provide services such as first-class servers and digital infrastructure, data on international markets, training courses, and product catalogue translation (Deng et al., 2022; Qi et al., 2020). Another finding from the literature is that TPMPs play an important role in gaining the trust of overseas buyers, both by monitoring and directing their vendors toward virtuous practices and through their internationally recognized reputation, which wins buyers' trust (Ma et al., 2022; Qi et al., 2020). A second group of academics, using the capabilities viewpoint of resource-based theory (RBT), finally addresses the question of which business aspects influence the performance of CBEC practices. The companies that have invested the most resources and demonstrated the greatest commitment to implementing the CBEC strategy appear to be the most capable of developing specific capabilities that allow them to achieve successful internationalization performance (Bianchi and Mathews, 2016; Elia et al., 2021; Tolstoy et al., 2021, 2022).

However, the literature to date leaves a significant gap. In fact, to the best of the authors' knowledge, no empirical studies consider both types of digital platforms between TPMPs and CMSs, and dissect their differences in relation to their contribution to the internationalization of traditional manufacturing firms. Investigating this issue is of vital academic and practical importance, giving guidance to manufacturing companies, on which types of digital platforms to adopt to succeed in their CBEC strategies. As a result, the purpose of this study is to provide a response to the following naturally arising research question (RQ): What are the differences in internationalization performance between manufacturers who rely on TPMPs and those that rely on CMSs?

This study aims to answer this research question by developing hypotheses grounded in the perspective of transaction cost economics (TCE) and in the theory of boundary choice (Argyres and Zenger, 2012; Williamson, 1979). The researchers test the hypotheses empirically by distributing a questionnaire to 263 managers of manufacturing companies that have employed e-commerce strategies for internationalization. The data are firstly analyzed using a covariance-based structural equation modeling (CB-SEM) technique, and then further investigated with partial least squares structural equation modeling (PLS-SEM). The findings show that the reliance on CMSs partially mediates the relationship between strategic commitment to e-commerce and

internationalization performance, whereas TPMPs, generally having a positive impact on internationalization performance, negatively moderate the relationship between strategic commitment to e-commerce and CMSs. In addition, the connection between strategic commitment to e-commerce and TPMPs reliance is explained by an inverted U-shaped quadratic relationship.

This study brings novelty and development to the CBEC literature by being the first to include both TPMP and CMS reliance in manufacturing companies in the same investigation. This paper, by considering both types of digital platforms, also succeeds in framing them in depth under the theoretical lens of TCE, examining their peculiarities and singling them out as neatly distinct entities with their own pros and cons. Finally, the findings provided by this study highlight useful managerial implications, indicating that de facto TPMPs are more appropriate for companies that less committed to CBECs, whereas CMSs are more suitable for companies that are highly committed to the e-commerce channel.

2. Literature review

In times of uncertainty in global markets, especially in the post-pandemic era aggravated by international ongoing conflicts, it is natural for manufacturing companies around the world to try to protect themselves and be resilient. Internationalizing their operations by diversifying their revenues and remaining less dependent on their domestic demand are by now a well-established practice (Zahra, 2021).

In particular an emerging international business literature strand addresses the cross border e-commerce (CBEC) topic, in other words, the adoption of e-commerce platforms for internationalization. *Gabrielsson and Gabrielsson's (2011)* multiple case study argues that it is not the case that, generally, born global firms rely far more than non-global firms on several internet based channels to succeed, whether they carry out their own e-commerce or rely on e-commerce resellers and distributors. Grounded on organizational ecology, according to which companies, much like animals, are required to be resilient to survive, *Cuellar-Fernández et al.'s (2021)* compelling analysis of data from Spanish e-commerce companies covering 11 years supports the assertion that business internationalization can be portrayed as a resilient action. Despite more than half of Spanish e-commerce businesses having closed down, those with the highest survival rate are those that have managed to internationalize their business. A further association of resilience between internationalization and e-commerce is attributed by *Adomako et al. (2021)*, who refer to web-based business as a modality for sub-Saharan SMEs to move away from the corruption perceived in their domestic markets.

Operating under the same horizon as the literature on CBEC and international business, other studies focus on the TPMPs themselves. As emerging digital platforms basing their success on their user network, they attract the interest of literature that tries to explain the factors behind their internationalization. For example, *Brouthers et al. (2016)*, referring to social network theory and diffusion of innovation theory, propose that the internationalization of TPMPs can be fostered by Internet-based mass media, opinion leaders, and market change agents, and that the greater the diffusion of TPMPs in a country or the more countries in which they are present, the greater their success in entering a new market.

The transaction cost economics (TCE) perspective, conversely, is widely recognized for framing the role of TPMPs in facilitating their vendors' international sales (Hennart, 2022; Hui, 2020; Qi et al., 2020). It is generally no secret that CBEC is considered a cost-effective and risk-light method of exporting compared with other more traditional internationalization strategies (*Gabrielsson and Gabrielsson, 2011; Pezderka and Sinkovics, 2011; Reuber and Fischer, 2011; Tolstoy et al., 2016, 2021*). However, the peculiarity of TPMPs lies in the fact that, besides being per se a technology that allows manufacturers to sell online without even having to commit to and embed in their set-up and management a website of their own (Hennart, 2022), their intermediation

Table I
Examined literature on e-commerce and internationalization.

Authors	Methods	Theories	Unspecific online channel	E-commerce websites	Online marketplaces	Key findings
Gabrielsson and Gabrielsson (2011)	Multiple case study	Globalization process; Transaction cost economics	✓	✓		Born global firms prefer Internet-based multiple sales channels. More B2C than B2B global firms use Internet-based sales channels. Born global firms value relationship building with local Internet-based channels and prefer reselling over direct sales. SMEs with firm-specific e-commerce assets prefer online market entry.
Pezderka and Sinkovics (2011)	Conceptual	Dunning's OLI framework; e-Risk perspective	✓			SMEs with high perceived international risk prefer online market entry. SMEs with high online market potential in a country prefer online market entry.
Reuber and Fischer (2011)	Literature review	Capabilities perspective	✓			Three internet-related firm-level resources affect firms' international online performance: online reputation, online technological capabilities, and online brand communities. Export information availability mediates Internet marketing capabilities and export growth.
Bianchi and Mathews (2016)	Survey	Capabilities perspective	✓			International business networks boost exports without mediating prior relationships. User adoption in a new foreign market will be more successful on platforms with a larger network of users outside the target market.
Brouthers et al. (2016)	Multiple case study	Social network theory; Diffusion of innovation theory			✓	Platforms with more users in more countries will be more successful at attracting users in new foreign markets. Platforms that use more Internet-based mass media, opinion leaders, and market change agents will increase user adoption in a new foreign market. The rapid, convenient, and wide market access offered by B2B platforms gives early-mover exporters an advantage over late movers.
Deng and Wang (2016)	Longitudinal secondary data analysis	Early mover advantage theory			✓	Early mover advantages diminish over time (inverted U shape). Product price and portfolio moderate early mover performance. Retailers' international sales increase with e-commerce website adoption.
Tolstoy et al. (2016)	Secondary data analysis	International business lit. review		✓		The effect dumps when exportation scope is too broad. Distribution and promotion efficiency mediate the relationship between e-commerce marketing capabilities and B2B firms' export performance.
Gregory et al. (2019)	Survey	Resource-based view; Capabilities perspective	✓			Banner standardization boosts global penetration, especially for retailers focused on emerging markets (if not too diverse), e-commerce websites, and status-based differentiation (instead of pricing). eBay increases exports, especially for small sellers, by integrating an administrative and logistic service (GSP procedure removes sellers' burden of understanding export procedures, customs regulation, and eBay shipping carriers). It is only on the extensive margin (from new sellers or destinations) and larger for distant countries and differentiated products.
Nath et al. (2019)	Longitudinal secondary data analysis	Economy of scale; Retail banner standardization		✓		Lower export entry costs increase export distribution. When manufacturers sell through TPMP accounts for CBEC, transaction costs drop and trust rises. TPMPs build trust and reduce risks and transaction costs with market knowledge and technology.
Hui (2020)	Field experiment	Not explicated			✓	Business process digitization and e-commerce adoption mediate the relationship between home country corruption and Sub-Saharan SMEs internationalization. Internationalization can make e-commerce businesses resilient.
Qi et al. (2020)	Qualitative case study	Transaction cost economics			✓	Internationalization helps e-commerce businesses survive. Companies with e-commerce managers export better than with export managers. Regardless of size, firms using digital technologies are more likely to increase digital exports.
Adomako et al. (2021)	Survey	Institution-based view	✓			Companies must invest in relevant resources and take risks to develop international e-commerce capabilities. E-commerce growth is moderately boosted by marketing skills. Digital business capabilities boost e-commerce growth.
Cuellar-Fernández et al. (2021)	Secondary data analysis	Organizational ecology theory	✓	✓		Speed of internationalization improves B2B e-commerce vendor survival.
Elia et al. (2021)	Survey + secondary data	Resource-based view; Capabilities perspective	✓	✓		
Tolstoy et al. (2021)	Qualitative case study	Effectuation theory; Capabilities perspective		✓	✓	
Deng et al. (2022)	Secondary data analysis	Transaction cost economics	✓		✓	

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Table I (continued)

Authors	Methods	Theories	Unspecific online channel	E-commerce websites	Online marketplaces	Key findings
Hennart (2022)	Conceptual	Transaction cost economics			✓	Digital infrastructure and quality signals moderate the relationship. Brouters et al.'s exploitation–exploration–embeddedness framework is criticized, but these entry modes deserve further study. TPMPs break the one-to-one relationship between embeddedness and commitment and digital platform entry mode.
Ma et al. (2022)	Dynamic simulation	Principal-agent perspective			✓	TPMP's proactive approach to preventing international vendor issues justifies its gatekeeping status. More control reduces the perceived distance between foreign clients and vendors.
Tolstoy et al. (2022)	Survey	Capabilities perspective	✓			Online marketing capabilities and internationalization are mediated by marketing ambidexterity. CMS mediates the e-commerce commitment-internationalization relationship.
This Study	Survey	Transaction cost economics; Theory of boundary choice	✓	✓	✓	Inverse U-shaped relationship between e-commerce commitment and TPMP. TPMP negatively moderates the e-commerce commitment-CMS relationship.

role between vendors and buyers leads them to specialize in facilitating this type of intermediation by offering dedicated services aimed at lowering whatever costs vendors may incur, be they perceived or tangible. First, the digital infrastructure services of TPMPs unburden the B2B vendors, who are generally less accustomed to online trading than B2C vendors (Gabrielsson and Gabrielsson, 2011), of infrastructure management (Deng et al., 2022). From an operational point of view, TPMPs offer their vendors services of fulfillment, delivery, and warehousing, reducing their logistical costs significantly whilst facilitating their exports (Hui, 2020; Qi et al., 2020). In addition, TPMPs play a strategic role in providing sellers with important data on the foreign markets that they approach, and at the same, time their reputation in these markets increases customers' confidence in buying from foreign sellers by mitigating the perceived distance (Ma et al., 2022; Qi et al., 2020).

However, TPMPs cannot be considered the panacea of every ill for vendors wishing for online internationalization. Deng and Wang's (2016) compelling study using longitudinal data from the Chinese TPMP DHgate, specialized in B2B exports, shows that sellers tend to increase their sales in their early move period but that, as time passes, this growth in sales systematically declines (inverted U-curve). For this reason, another strand of the literature on CBEC, referring to online commerce more generally, adopts a capability-focused RBT perspective (Bianchi and Mathews, 2016; Elia et al., 2021; Gregory et al., 2019; Tolstoy et al., 2021, 2022). The first precondition for companies that want to develop capabilities for international e-commerce is an initial investment in relevant resources and the willingness to make strategic commitments and take risks (Tolstoy et al., 2021). Research claims that companies that invest in their own e-commerce achieve better export performance than those that export traditionally (Elia et al., 2021; Tolstoy et al., 2016). Furthermore, Elia et al. (2021) argue that companies hiring e-commerce managers are more effective in export performance than those hiring a dedicated traditional export manager. Reuber and Fischer's (2011) forward-looking literature review identifies two factors that companies could manage to boost their CBEC performance, namely their online brand reputation and their online technology capabilities. Regarding firms' online brand reputation, Nath et al. (2019) support the idea that a foreign online brand reputation is particularly developed by retailers who invest heavily in their e-commerce through a brick-and-click strategy, allowing their brand to be identified through multiple channels, compared with those that only use the traditional channel. For CBEC, specific digital business capabilities become more effective than

the traditional "firepower" of a company's marketing capabilities (Tolstoy et al., 2021). Investing in CBEC-dedicated resources fosters these capabilities, leading to better online product distribution and promotion which in turn translate into better export performance (Gregory et al., 2019). Online marketing capabilities particularly fit with the development of companies' marketing ambidexterity, such as market-driven and market-driving orientation, leading again to better international performance (Tolstoy et al., 2022). Finally, online marketing capabilities also permit manufacturers to acquire foreign market knowledge, which, as mentioned above, is a fundamental factor affecting exports (Bianchi and Mathews, 2016).

According to the best common practice, we summarize the literature reviewed in Table I (Saura et al., 2023a). Although the literature investigating cross-border e-commerce and internationalization is growing rapidly, unanswered questions remain. Indeed, as shown in Table I, the literature frequently focuses either on e-commerce sites exclusively, or on the use of TPMPs, and most often it even treats CBEC in a non-binding manner regardless of whether it is referring to e-commerce proprietary sites, TPMPs, or other entities. Moreover, hardly any CBEC study yet compares the performance of TPMPs and CMS-based website platforms. Therefore, the research question that arises after reviewing the literature is the following: What are the differences in internationalization performance between manufacturers employing TPMPs and those employing CMSs?.

3. Theoretical background

Attempts to frame cross-border e-commerce from the TCE perspective, which seems to bear an indication of understanding the dynamics of this phenomenon, are reported in by a substantial amount of recent literature, as Table I also illustrates (Deng et al., 2022; Hennart, 2022; Hui, 2020; Qi et al., 2020). The TCE viewpoint recommends that businesses choose the route to international expansion that will result in the lowest possible transaction costs. This conceptualization could be mapped all the way back to Coase (1937), who points out that any examination of the structure of the economic system should take into consideration not only the manufacturing expenses but also the cost of transactions. Williamson (1985) proposes that the design of the industrial structure represents the cutting of the total manufacturing and transaction expenses to provide the highest possible level of effectiveness. Existing research on entry modes following the TCE rationale typically analyses transaction expenses across its main delineated

domains: asset specificity, uncertainty, and frequency of transactions (Williamson, 1979, 1985). Williamson's seminal study on TCE led to the development of these factors, which are extensively debated in a broad variety of entryway research. Asset specificity is defined as "the degree to which an asset can be redeployed to alternative uses and by alternative users without sacrifice of productive value". These items of value might be either physical or intangible. When it comes to repurposing an asset for a different use, the more specialized it is, the higher the associated expenses will be. Unpredictability in transactions manifests itself in both the possibility of unexpected developments and the effects of such variations. A rise in controlled unpredictability has minimal effect on generic transactions. New commercial contacts are easy to set up, thus frequency and unpredictability are unimportant. Vice versa, the more asset-specific a transaction is, the higher the transaction costs are.

The TCE rationale claims that the marketplace is the most effective governing structure for all transactions involving generic assets since providers may sell seamless goods or offerings to many buyers, achieving scaling cost-effectiveness (Young, 2013). Considering the aforementioned dimensions, TCE suggests favoring a more vertical integration when the transactions become frequent and especially asset-specific. In this case, the manufacturer might obtain almost market-level cost-effectiveness in production, achieving economy of scale. Furthermore, vertical integration has the benefit of allowing updates to be performed sequentially, avoiding discussions, wrapping up, refreshment, or renegotiations between firm bargains and contracts (Williamson, 1979). All of this, of course, is paired with potentially more exacting investment and set-up costs versus contacting the open marketplace. Finally, a unified form of governance reduces the behavioral opportunism side of the uncertainty dimension. Firms rely on themselves alone and not on third parties' actions.

4. Hypotheses development

4.1. E-commerce Commitment, Digital Platforms and Internationalization

Following the TCE rationale, the literature generally supports the idea that cross-border e-commerce could be a powerful format to overtake certain asset-specificity issues typical of traditional offline-specific exporting modalities (Hennart, 2022; Hui, 2020; Qi et al., 2020). When opposed to the traditional method of selling internationally through brick-and-mortar stores, the adoption of the online channel allows businesses to offer items with standard designs to a greater number of locations (Banalieva and Dhanaraj, 2019). This could enable them to obtain more substantial economies of scale (Nambisan et al., 2019). Manufacturers operating through online channels may be able to gain advantages, thereby saving a significant amount of money that would have been invested in geographically restricted assets, including distribution hubs, local subsidiaries, local sales agents, or interpreters (Deng et al., 2022). This would allow manufacturers to overcome the associated challenges, handling customs, and retail complexity, which would have required a higher degree of vertically integrated governance. In accordance with Williamson's (1979 p. 260) research, the more a manufacturer is able to avoid asset-specific investments foster its distribution, the less it needs to undertake a forward-integrated governance structure. In this light, the adoption of an e-commerce channel would avoid the aforementioned asset-specific investments related to traditional international distribution modalities. Therefore, the following hypothesis is formulated:

H1. : Manufacturers' e-commerce commitment positively relates to internationalization performances.

However, the e-commerce channel is not uniform. Recent technological developments have enabled the proliferation and spread of multiple ways to conduct e-commerce through the creation of digital platforms of different kinds (de Reuver et al., 2018; Kraus et al., 2022). In particular, there is no longer a single reference to the a

manufacturer's decision to pass by a specialized online reseller. As an example, the German gardening equipment label Gardena, is not forced to sell its products exclusively to e-resellers, such as [Amazon.fr](https://www.amazon.fr), if it wants to enter the French online market; rather, it deploys the Salesforce Cloud CMS to sell directly on its online website domain, or it holds its own account on the third-party marketplace platform specialized in do-it-yourself equipment, [Manomano.fr](https://www.manomano.fr).¹ Albeit with different characteristics, these digital platforms market themselves as facilitators for enterprises' uptake of the e-commerce channel. These, therefore, if nothing else, could amplify the circumvention of asset-specific investments related to traditional offline distribution for international markets. Already examined in different contexts, the literature supports the assertion that either third-party marketplaces (Hui, 2020; Ma et al., 2022) or own-domain websites (Elia et al., 2021; Tolstoy et al., 2016) would favor the internationalization of businesses. Hence, drawing on the above reasoning, the following hypothesis is conceivable:

H2. : Manufacturers' reliance on e-commerce digital platforms, such as third-party multi-sided platforms (H2a) or content management systems (H2b) relates positively to their internationalization performance.

4.2. E-commerce Commitment and Reliance on Platforms

Although CMS-based e-commerce makes it possible to reduce the cost and development time of a corporate domain without having to program the website from scratch (Chong et al., 2011; Lizorkin and Lisovsky, 2005), it still involves a certain degree of complexity compared to the trivial opening of an account on a TPMP and requires some specific platform capabilities (Ahmed et al., 2022). When using a CMS to sell online, a large number of stakeholders are directly involved, from the still-necessary IT department, through analytics and marketing, to the more self-evident logistics, order management, and product management functions (Short, 2010; H. Yu et al., 2021). When all the shareholders are not fully committed to and capable of satisfying companies' objectives, CMS projects often fail (Short, 2010).

Therefore, it is conceivable that, in a certain way, the reliance on this type of platform would turn out to be a more vertically integrated solution than others, such as TPMPs, requiring some sort of asset-specific investment processes for its successful management. According to the TCE angle, if a brand manufacturer aims to increase its e-commerce channel penetration, it should predict increasingly frequent transactions through that channel. Corporate governance and capabilities can often intersect, with capabilities likely to influence the governance of the company itself (Argyres and Zenger, 2012). It is plausible, then, to predict that the more a manufacturer intends to make a commitment to an e-commerce strategy, the more it is likely to make asset-specific investments and to increase the frequency of transactions via that channel compared with others. In addition, also considering the uncertainty factor of TCE, it should be considered that proprietary e-commerce enables direct access to much more information than depending solely on a third party, such as a TPMP (Aker and Wamba, 2016; Ballerini et al., 2023a). In light of these arguments, and following the TCE logic, which suggests that a vertically integrated structure is preferable in the context of high asset-specific investments, with frequent transactions and the willingness to decrease uncertainty, the following hypothesis is

¹ We retrieved [Amazon.fr](https://www.amazon.fr) information from the website's shop-in-sop dedicated to the Gardena brand and where it is disclosed that all the products sold are sold and shipped by Amazon: https://www.amazon.fr/stores/GARDENA/page/23F768C9-316E-4C5E-B0CA-2F666715D0BB?ref=ast_bln; concerning the CMS adoption, we detected it through whatcms.org at the link <https://whatcms.org/?s=www.gardena.com%2Ffr>; Regarding [ManoMano.fr](https://www.manomano.fr) we retrieved information from the website shop-in-sop dedicated to the brand and where it is disclosed that all the products sold are sold and shipped by Gardena: <https://www.manomano.fr/marque/gardena-551>. Information retrieved November 14th 2023.

formulated:

H3. : Manufacturers' e-commerce commitment positively relates to Content Management Systems Platforms reliance.

TCE posits that firms seek to minimize the costs associated with economic transactions, and these costs include search, contracting, monitoring and adaptation costs. In the context of the e-commerce channel, the use of TPMPs can be beneficial in reducing some of these. Indeed, the literature argues the benefits of TPMPs, especially for companies in traditional industrial sectors that are usually less likely to have specific in-house e-commerce expertise (Pezderka and Sinkovics, 2011). Their ease of use and the few asset-specific investments required allow them to make up for the shortcomings of the manufacturing companies that adopt them (Qi et al., 2020). Moreover, their strong reputation in international markets fosters buyers' confidence and mitigates the perceived distance and distrust of foreign sellers (Ma et al., 2022). They also offer networking opportunities and sometimes provide sellers with data and information on the foreign markets that they approach (Qi et al., 2020). It seems that manufacturing companies would have nothing to lose by relying on TPMPs.

However, the above description would fit well with companies with little capacity and perhaps no major expectations from the electronic channel. Argyres and Zenger's (2012) theory of boundary choice, which relates TCE to the resource-based view and firm capabilities, infers that firm's capabilities induce the constitution of its governance. A governance configuration that involves outsourcing services to the market is desirable for those that have no specific requirements and generally vice versa (Argyres and Zenger, 2012; Jacobides and Winter, 2005). Accordingly, in the case in which a manufacturer has little capability and possibly few expectations from the e-commerce channel, the reliance on TPMPs seems to greatly be highly suitable. Just as CMSs are primarily considered as a vertical form of integration, TPMPs could be understood as a more hybrid form in which the manufacturer has the ability to manage its online strategy itself but only partially.

However, the company may become vulnerable to a range of increasing transaction costs related to TPMP reliance. One such cost dimension is frequency, which represents the frequency with which transactions must be made. The fact that TPMPs constantly charge a commission on sales through their platform should not be overlooked (Abhishek et al., 2016). The moment a company becomes highly committed to the online channel and this begins to account for a large proportion of its total sales, having low margins on an overly prominent channel with frequent transactions can certainly prove to be a concern. Asset-specificity remains another critical aspect to consider. The more a company's commitment to its e-commerce increases, the more pronounceable is its intention to operate in a channel-specific and targeted manner. It is conceivable that, if there is a strong focus on a channel, a firm will, for example, either advertise on it or dedicate customized offers and packages to that specific consumer segment or in any case try to improve the coherence of the user experience. Unfortunately, the visibility of a brand within a platform is minimal being only one among many (Deng and Wang, 2016). Although there is the possibility for brands to pay for their own specific and dedicated space to increase their visibility within TPMPs, this is in any case costly (O'Reilly and Stevens, 2018). Furthermore, the ability to provide custom offerings via TPMPs is minimal and requires bargaining with the TPMPs themselves. In addition, the uncertainty associated with transactions may increase if a company is heavily dependent on TPMPs only. Their policies, changes in fees, or rules may be unforeseen factors that affect the company's business, increasing uncertainty and associated costs.

Thus, having considered the emerging issues related to these three TCE dimensions, and implied that the theory of boundary choice envisions the intersection of capabilities and governance structure, it could be argued that TPMPs represent an optimal governance solution for relatively inexperienced manufacturing firms, but as their commitment increases, this solution may prove to be increasingly less appropriate. Therefore, the following hypothesis is formulated:

H4. : Manufacturers' e-commerce commitment relates to the reliance on third-party multi-sided platforms in an inverse quadratic relationship (inverted U-shape).

Another factor is that all the above-mentioned services offered by these TPMPs risk disincentivizing the companies adopting them from developing useful capabilities for online commerce management (Tolstoy et al., 2021). The rapid attainment of such a large consumer base can almost be expected to turn into a golden prison for companies that have decided to invest, even with conviction, in the online channel. Improving an online channel based on TPMPs will probably require investment that is less asset-specific than investment in CMS development. The large volumes that TPMPs can entail may lead to companies hiring additional logistics or customer service staff, or at least relocating existing staff whereas adopting CMSs requires the employment of otherwise highly qualified workers who are capable of handling the management of a company's own site (Short, 2010). Furthermore, although it is not impossible from a theoretical point of view, it is difficult to imagine a manufacturing company being able to manage a TPMP account and its own proprietary e-commerce in a comparable manner at the same time. Even if a company decided strategically to focus heavily on CBEC and had already adopted the use of a TPMP, it would perhaps view it as more natural to continue investing in that direction, or even to open further accounts on other TPMPs with the same logic. For instance, TPMPs enable vendors to build a reputation in a certain way within the platform itself, allowing them to receive positive feedback and reviews of their products (Deng et al., 2022). If they were to leave or otherwise decrease their usage, they would first have to start collecting reviews all over again or, if they channeled too much attention toward their CMS, it is conceivable that they might lose focus and scores in the active TPMP account or achieve lower scores on their websites since normally TPMPs' feedback scores are very high (Tadelis, 2016). Based on this rationale, it is conceivable that the more a manufacturing company, committing to the e-commerce channel, opts for TPMP reliance, the fewer are the chances that it can then switch to rely more on its CMS-based own e-commerce website. Therefore, we formulate the following hypothesis:

H5. : Third-party multi-sided platform reliance negatively moderates the relationship between manufacturers' commitment to e-commerce and content management systems platform reliance.

4.3. Digital platforms mediation effect

Against the background of the foregoing discussion, it could be suggested that, by itself, the reliance on both CMS and TPMP digital platforms is a factor that can positively exert an influence on the internationalization performance of a manufacturing company. Hypothesis H2, (both H2a and H2b) details these arguments. However, the rationale adopted leads to the view that a linear and positive relationship exists between a manufacturing company's e-commerce commitment and its reliance on a CMS solution (H3), while, regarding the reliance on TPMP solutions, this relationship appears to be quadratic with an inverted U-shape (H4). Therefore, it is possible to make a strong assumption that, if

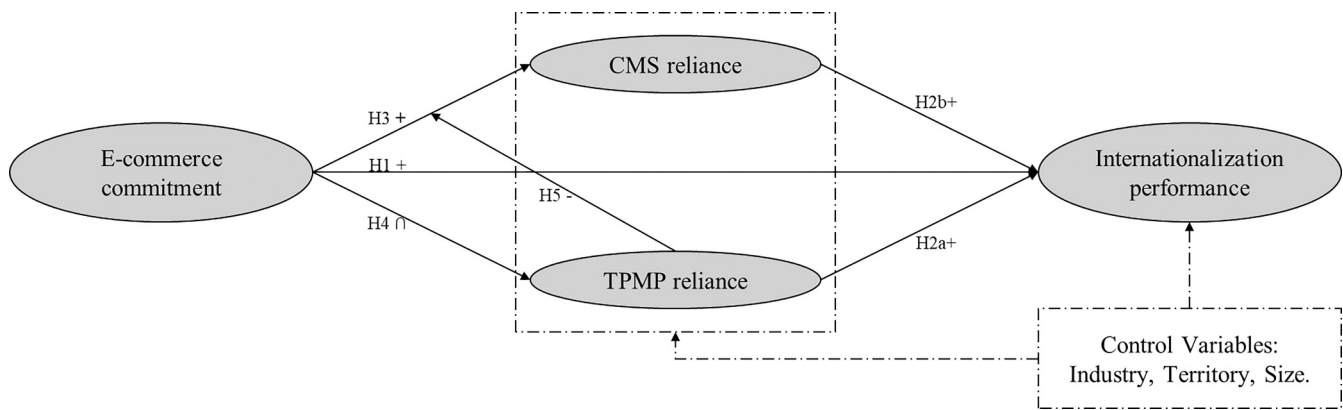


Fig. 1. Hypothesized framework.

a manufacturing company invests in e-commerce and consequently uses a CMS solution, this will be the means for it to increase its international performance. It is not equally possible to make such an assumption linearly for the reliance on TPMPs, on the contrary, as, believing that these solutions are not ideal for companies with a high degree of commitment to e-commerce, it is feared that they may simply bring adverse results to their internationalization ambitions. Therefore, the following hypotheses can be formulated:

H6. : Content management systems platform reliance positively mediates the relationship between e-commerce commitment and internationalization performance.

H7. : Third-party multi-sided platform reliance negatively mediates the relationship between e-commerce commitment and internationalization performance.

5. Methodology

5.1. Measurement

To test our hypothesized framework (shown in Fig. 1), we opted to collect primary data through a survey methodology. First, we identified different possible measurement approaches suggested by literature. By referring to the existing literature we found four items from Ballerini et al., 2023a and Thompson et al. (2019) suitable for measuring internationalization strategic performance. Indeed, the study’s aim consist not just of measuring the financial performance, such as profit, and ROI, but also of understanding the knowledge and penetration developed on the international markets, which are considered as achievements of strategic internationalization performance (Jeong, 2016). Moreover, e-commerce strategic commitment was retrieved using four items from Kowtha and Choon (2001). Second, to measure the newly conceived factors, such as CMS reliance and TPMP reliance, we developed an additional pool of six items conceived autonomously brainstorming with three e-commerce managers and another external scholar. All the items are shown in Table II. Third, we tested the psychometric quality of the scales as detailed in the following sections. All the items were measured on a 7-point scale from “strongly disagree” = 1 to “strongly agree” = 7. Additional control variables that could explain some of the impact on internationalization strategic performance regarding the online channel should be considered, decreasing the threat of unobserved heterogeneity issues. Therefore, in accordance with the literature, we considered as potential control variables the company territory, size and industry (Erdmann and Ponzoa, 2021; Troise et al., 2020; Xie et al., 2022). Territoriality was coded in four different territories as categorical variables, size was coded as a dummy distinguishing SMEs and non-SMEs and company industry was coded into four different categories, namely textiles, fast moving consumer goods (FMCG), electronics and other manufacturing industries.

Table II Measurement items and CFA loadings.

Item n	From:	Questions:	CFA
INT1	Ballerini et al. (2023a); Thompson et al. (2019)	Investing in Online channel distribution affords our company to increase sales into already present international markets	0.835
INT2		Investing in Online channel distribution affords our company to lower shipping prices to foreign markets	ND
INT3		Investing in Online channel distribution affords our company to increase our foreign market knowledge	0.892
INT4		Investing in Online channel distribution affords our company to having more procurement inputs	0.864
TPMP1	Authors elaboration	Most of our online market share comes from agency selling through our account in third-party digital platforms (for ex Amazon marketplace or Alibaba)	0.732
TPMP2		Selling through online third-party digital platforms (for ex Amazon marketplace or Alibaba) represents the most promising approach to online channel for our company in future	0.897
TPMP3		Online sales through our third-party digital platforms (for ex Amazon marketplace or Alibaba) are the ones with the highest growth rate for our company	0.866
CMS1	Authors elaboration	Most of our online market share comes from our E-commerce platform (CMS)	0.756
CMS2		Selling through our E-commerce platform (CMS) represents the most promising approach to online channel for our company in future	0.894
CMS3		Online sales through our E-commerce platform (CMS) are the ones with the highest growth rate for our company	0.812
COM1	Kowtha and Choon (2001)	Our company offers trainings (courses, literature, coaching) to improve the expertise on E-commerce of our team members	0.722
COM2		Skills related to E-commerce are an important selection criterion in recruiting new team members	0.863
COM3		Our team members for themselves adopt Online distribution services and products we approach as a company	0.880
COM4		We actively discuss our Online channel projects within our company including failures and best practices	0.788

5.2. Data collection

The survey was originally designed in English and reviewed by three e-commerce managers and an external knowledgeable scholar. After a few minor changes, it was finalized and ready to be distributed. We posted the questionnaire on the Prolific survey platform, commonly used in the research field (Tandon et al., 2022; Tu et al., 2021). The respondents were pre-screened using the platforms filters with the following criteria: i) they should be employed by a manufacturing company; ii) they should be in a managerial position at least at the middle management level; iii) they should have at least two subordinates; iv) they should be fluent in English. To ensure that all the interviewees were representing an optimal target company we introduced the following screening section: “Our company manufactures products that, among others, are marketed through the online distribution channel”. Respondents who answered to the question negatively were not considered. The survey was submitted to a total of 300 managers. After eliminating respondents based on the screening question, we ended with 263 considerable valid replies representing 88 % of the respondents.

Considering the global gender distribution in average in management positions, women (37 %) were not underrepresented in our sample (Dyvik, 2023). The informants’ age is normally distributed with the relative majority of the respondents between 35 and 45 years of age (35 %). The most represented countries are the UK (38 %) and the USA (17 %), providing the selected sample with solid reliability since they are two of the largest economies worldwide. The most represented industry sectors are the textiles, electronics and FMCG, which in three represent almost the half (47 %) of the total sample. Finally, the sample provides an almost balanced share of SMEs (65 %) and large companies. Interviewees’ detailed demographics are presented in Table III.

5.3. Data reliability

To determine whether a set of data is suitable for factor analyses, the two preliminary conditions to consider are the sample size and the strength of the correlation between items, therefore requiring the researchers to perform respectively the Kaiser-Meyer-Olkin (KMO) test and Bartlett’s test of sphericity (Pallant, 2020). Both tests produced positive results (KMO >0,6 (0,909) and Bartlett’s test $p < 0,05$). In addition, to prevent possible social desirability and common method biases, some precautions were taken. The questionnaire was set up as

Table III
Sample characteristics.

Demographic variable	Category	Frequency	Percentage
Gender	Male	167	63 %
	Female	96	37 %
Age	<25	16	6 %
	>25 < 35	90	34 %
	>35 < 45	91	35 %
	>45 < 55	55	21 %
	>55	11	4 %
Seniority	Middle Manager	209	79 %
	Senior Manager	41	16 %
	Board Member	13	5 %
Territory	European Union	77	29 %
	United Kingdom	101	38 %
	USA	44	17 %
	Other non EU countries	41	16 %
Industry	Textile	16	6 %
	Electronics	55	21 %
	FMCG	53	20 %
	Other manufacturing industries	139	53 %
	Size	SMEs	172
Large Companies		91	35 %

follows: (i) the questions appeared as neutral as possible; (ii) the questions were asked in random order; (iii) the respondents were assured that there were no right or wrong answers; and (iv) the respondents’ anonymity was guaranteed (v) without even collecting their email addresses thanks to the adoption of the Prolific platform (Podsakoff et al., 2012).

6. Analyses

6.1. Exploratory factor analysis

Since the two factors, CMS reliance and TPMP reliance, are newly conceived, an exploratory factor analysis (EFA) was needed to verify their validity. The item loadings’ communalities were shown to be above 0.7, ranging from 0,724 to 0,845 (Tabachnick et al., 2007). Moreover, the results of the Varimax rotation indicated that all the components strongly loaded on their factor with coefficients ranging from 0,831 to 0,907. Therefore, the CMS and TPMP reliance factors can be considered validated.

6.2. Confirmatory factor analysis

Following the EFA, we conducted a full confirmatory factor analysis (CFA). After the exclusion of one item that did not load sufficiently, the outcome was convincing since every item loaded on the latent variables for at least 0.7 ranging from 0,722 to 0,897, beyond the thresholds generally imposed in the literature (Hair et al., 2017). All the retained item loadings are shown in Table II. Afterwards, we conducted a convergent validity test by calculating the AVE value for each construct, which obtained positive results all of which were above the 0.5 cutoff (Hair et al., 2017). We then we conducted the discriminant validity test by comparing the AVE’s square root of each construct with its correlation coefficients, and all appeared higher than the correlation coefficients, confirming that there were no discriminant validity issues (Fornell and Larcker, 1981). The construct reliability was tested again with the composite reliability coefficient (CR) for every construct. The CFA validity and reliability tests are reported in Table IV.

The last step of the adopted CFA protocol involves conducting of goodness-of-fit tests. A first model, containing all the items in one single factor, was compared with a second model involving three factors, in which both multi-sided platforms were grouped into a single one, and a third and a fourth model with the items assigned to their respective four factors from EFA, firstly with the two multi-sided platforms uncorrelated and then with the multi-sided platform factors correlated. The four-factors correlated model provided the best results and was therefore accepted as the model representation, providing solid goodness of fit indices (Table V).

6.3. Structural model testing

After implementing the EFA and CFA protocols, we could finally test the hypotheses. Given the self-reported nature of the data the collected observations, a CB-SEM, would normally be the most indicated SEM technique to test the hypotheses. However, a model including the measurement of a quadratic relationship, and a moderating interaction term cannot be tested by a common CB-SEM software such as Amos because of the lack of orthodox solutions to compute a quadratic measurement, and especially because a CB-SEM requires to respect strict goodness-of-fit indices to be respected, and these can be undermined when including an interaction term (Aguinis et al., 2017). Therefore, the study primarily tested H1, H2a, H2b, H3, and H5 but not H4, H6 and H7, through CB-SEM and then relied on PLS-SEM to test all the hypotheses again.

First, the Mahalanobis distance test was conducted, identifying nine potential outliers that were excluded from the final dataset. Subsequently, we performed a bootstrapping test (5000 bootstrap samples)

Table IV
Correlation matrix, discriminant validity & construct reliability.

N.	Variable	CR	AVE	1	2	3	4	5	6	7	8	9	10	11	12
1	e-commerce commitment	0.888	0.665	0.816											
2	CMS reliance	0.862	0.677	0.650*	0.823										
3	TPMP reliance	0.873	0.697	0.498*	0.403*	0.835									
4	Internationalization	0.893	0.736	0.696*	0.593*	0.452*	0.858								
5	EU			0.003	0.038	0.050	0.053								
6	UK			-0.248*	-0.215*	-0.210*	-0.286*								
7	USA			0.185*	0.104	0.139*	0.213*	-0.508*							
8	Other countries			0.140*	0.134*	0.077	0.100	-0.281*	-0.348*						
9	Size			0.114	0.062	-0.077	0.195*	0.007	-0.067	0.085					
10	Textiles			0.102	0.102	0.117	0.132*	0.023	-0.027	0.026	-0.005				
11	Electronics			0.192*	0.121	0.160*	0.110	0.112	-0.096	0.007	-0.019	-0.042			
12	FMCG			0.028	0.004	-0.020	0.123	-0.078	-0.026	0.052	0.079	0.077	-0.130*		
13	Other industries			-0.227*	-0.151*	-0.170*	-0.251*	-0.040	0.112	-0.060	-0.038	0.004	-0.267*	-0.257*	-0.527*

Note: Content in bold represents the AVE square root; * stands for significant correlation (two-tailed) with p-value < .05.

Table V
CFA and CB-SEM goodness-of-fit indices.

Analyses	Absolute Fit Indices		Incremental Fit Indices	
	RMSEA	GFI	NFI	CFI
CFA 4 correlated factors	0.055	0.942	0.957	0.980
SEM with no interaction term	0.057	0.913	0.914	0.958
Model with standardized mean centred interaction	0.126	0.862	0.783	0.814

using bias-corrected confidence intervals (CI) at the 95 % level to test the hypothesized model. Firstly, we ran a model without the interaction term of the hypothesized moderation relationships to assess in an unbiased manner the direct relationship between the moderator and the independent and dependent variables (Rasoolimanesh et al., 2021, p. 4329). Model I supported the existence of a significant relationship between e-commerce commitment and internationalization performance ($\beta = 0.466$; $p < .01$) supporting H1. Model I also supported H2a ($\beta = 0.260$; $p < .01$), H2b ($\beta = 0.109$; $p < .05$) and H3 ($\beta = 0.702$; $p < .01$). Thereafter, we developed a model with the standardized centered mean of the latent variables interaction to include moderation, namely the interaction between e-commerce commitment and TPMP reliance, in the relationship between e-commerce commitment and CMS reliance. The results obtained were consistent with Model I, thus still supporting H1, H2a, and H3, as outlined by Table VI. Slight inconsistency occurred with H2b, which, in this case, was not supported ($p > .05$). Moreover, Model II showed a negative moderation effect, thus supporting H5 ($\beta = -0.434$; $p < .01$), which is graphically represented in Fig. 2b. As premised and foreseen, unfortunately, including the interaction term, even if standardized, in the CB-SEM model lowers all of its goodness of fit indicators (Table V), producing a model that was not fully reliable (Aguinis et al., 2017). Therefore, the authors opted for PLS-SEM to test the hypothesized relationships again with the still untested hypotheses.

Prior to the PLS-SEM, the authors checked, using the SPSS quadratic functionality, whether a quadratic relationship exists between e-commerce commitment and TPMP reliance and eventually whether it is stronger, and thus more reliable, than a linear one. The measurement of the standardized mean-centered latent variables provided significant results for both the linear relationship and the quadratic relationship at $p < .001$; however the quadratic relationship produced a greater R squared (0.276) than the linear relationship (0.245). Thus, H4 was initially supported, considering the quadratic effect to be more reliable. The relationships are graphically represented in Fig. 2a.

Next, the authors tested Model III using PLS-SEM. The results obtained, were quite consistent with the previous ones. In fact, all the hypotheses that were supported by the two previous models, H1, H2a, H3, H5, and H6, were confirmed. Also in line with Model II but in contrast to Model I, H2b was not supported ($p > .05$). Moreover, Model III confirmed the quadratic relationship between e-commerce commitment and TPMP reliance, supporting H4 ($\beta = -0.145$; $p < .01$). Finally, the authors tested the mediation effects of CMS reliance and TPMP reliance on the relationship between e-commerce commitment and internationalization performance (results shown in Table VII). The path analyses supported the existence of a positive partial mediation effect of CMS reliance on the relationship between e-commerce commitment and internationalization ($\beta = 0.131$; L. CI = 0.073; U. CI = 0.198; $p = .001$). Despite both lower and upper confidence intervals seeming to confirm the relationship, both presenting negative values (L. CI = -0.033; U. CI = -0.001), the p value of the e-commerce commitment (QE) \rightarrow TPMP reliance \rightarrow internationalization path was not significant ($p > .05$), therefore H7 cannot be not fully supported.

Table VI
Structural equation models results.

Relationships			MODEL I			MODEL II			MODEL III		
			CB-SEM no interaction			CB-SEM with interaction			PLS-SEM with interaction and quadratic effect		
			β	S.E.	T value	β	S.E.	T value	β	S. E.	T value
E-commerce commitment	→	Internationalization	0.466**	0.08	5.663	0.455**	0.07	6.808	0.416**	0.07	6.002
TPMP reliance	→	Internationalization	0.109*	0.05	2.117	0.089	0.07	1.356	0.080	0.05	1.624
CMS reliance	→	Internationalization	0.260**	0.08	3.338	0.310**	0.06	4.235	0.249**	0.07	3.631
E-commerce commitment	→	CMS reliance	0.702**	0.08	9.378	0.577**	0.08	8.758	0.526**	0.05	9.737
TPMP reliance	→	CMS reliance	0.103	0.06	1.784	0.536**	0.08	8.434	0.120*	0.06	2.063
E-commerce commitment x TPMP reliance	→	CMS reliance				-0.434**	0.02	-8.259	-0.160**	0.04	3.664
E-commerce commitment (Quadratic effect)	→	TPMP reliance							-0.145**	0.06	2.606
SIZE	→	Internationalization	0.135**	0.13	2.956	0.134**	0.13	2.91	0.271**	0.09	3.076
EU	→	Internationalization	0.019	0.19	0.300	0.019	0.19	0.288	-0.019	0.14	0.137
UK	→	Internationalization	-0.065	0.19	-0.962	-0.068	0.19	-1.001	-0.219	0.14	1.544
USA	→	Internationalization	0.057	0.22	0.98	0.059	0.22	1.008	0.109	0.15	0.737
Textiles	→	Internationalization	0.072	0.27	1.525	0.073	0.27	1.55	0.328*	0.17	1.962
Electronics	→	Internationalization	0.001	0.17	0.006	0.003	0.17	0.063	0.020	0.10	0.201
FMCG	→	Internationalization	0.115*	0.16	2.405	0.116*	0.16	2.418	0.279*	0.12	2.326
SIZE	→	TPMP reliance	-0.075	0.17	-1.172	-0.075	0.18	-1.178	-0.297*	0.12	2.538
EU	→	TPMP reliance	-0.044	0.26	-0.487	-0.044	0.26	-0.492	0.017	0.17	0.102
UK	→	TPMP reliance	-0.234*	0.25	-2.542	-0.234*	0.25	-2.54	-0.181	0.16	1.132
USA	→	TPMP reliance	0.054	0.29	0.666	0.055	0.29	0.668	0.084	0.20	0.426
Textiles	→	TPMP reliance	0.124	0.36	1.91	0.124	0.36	1.916	0.278	0.24	1.148
Electronics	→	TPMP reliance	0.173**	0.22	2.567	0.173**	0.22	2.569	0.112	0.13	0.840
FMCG	→	TPMP reliance	0.024	0.22	0.356	0.024	0.22	0.359	-0.018	0.14	0.123
SIZE	→	CMS reliance	-0.004	0.15	-0.073	-0.015	0.16	-0.319	-0.009	0.10	0.091
EU	→	CMS reliance	-0.031	0.23	-0.422	-0.056	0.23	-0.852	-0.105	0.13	0.792
UK	→	CMS reliance	-0.089	0.22	-1.145	-0.087	0.22	-1.256	-0.211	0.13	1.660
USA	→	CMS reliance	-0.096	0.26	-1.437	-0.102	0.25	-1.726	-0.202	0.15	1.313
Textiles	→	CMS reliance	0.014	0.32	0.252	0.013	0.32	0.269	0.098	0.14	0.717
Electronics	→	CMS reliance	-0.044	0.2	-0.767	-0.057	0.19	-1.127	-0.071	0.13	0.571
FMCG	→	CMS reliance	-0.023	0.19	-0.431	-0.021	0.19	-0.444	-0.044	0.13	0.343

Note: * stands for p-value < .05; ** stands for p-value < .01.

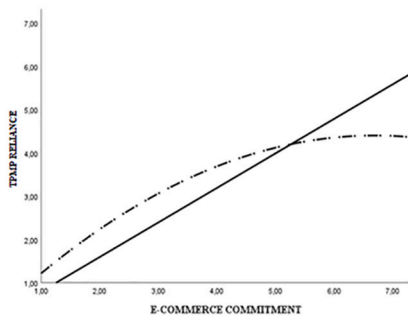


Fig. 2a. Quadratic relationship between Commitment and TPMP

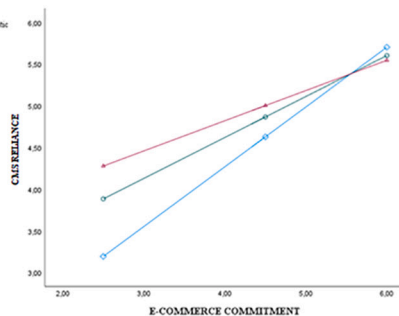


Fig. 2b. TPMP moderation on CMS and Commitment

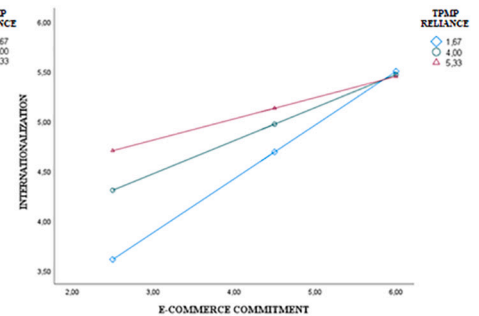


Fig. 2c. TPMP moderation on Internationalization and Commitment

Fig. 2. Representations of the quadratic relationship and moderation interactions.

Note: Plots drawn by the authors from SPSS; the relationships in Fig. 2b and Fig. 2c, are highlighted at the 16th, 50th, and 80th, percentile of the TPMP reliance level.

Table VII
Path analyses for indirect effects.

Indirect relationships paths	H	Std. ind. effect	L. CI	U. CI	S. dev.	T. value	p value
E-commerce commitment → CMS reliance → Internationalization	H6	0.131	0.073	0.198	0.038	3.410	0.001
E-commerce commitment (QE) → TPMP reliance → Internationalization	H7	-0.012	-0.033	-0.001	0.009	1.309	0.191
TPMP reliance x e-commerce commitment → CMS reliance → Internationalization		-0.040	-0.075	-0.017	0.017	2.294	0.022
E-commerce commitment (QE) → TPMP reliance → CMS reliance		-0.017	-0.040	-0.004	0.010	1.707	0.088

Note: L. CI and U. CI stand for Lower and Upper confidence intervals; QE stands for Quadratic effect.

6.4. Additional analyses

Considering that Model III provided a significant inverse quadratic effect for H4, and showed a non-significant but evident negative mediation effect of TPMP reliance on the relationship between e-commerce commitment and internationalization performance, the authors further investigated a plausible negative moderation effect from the interaction

between TPMP reliance and e-commerce commitment on internationalization performance. This interaction was tested adopting PLS-SEM and the results provided a significant negative moderation effect ($\beta = -0.129$; $p < .01$), with the rest of the other tested relationships remaining consistent with Model III. This negative moderation effect is graphically represented in Fig. 2c. In addition, for comprehensiveness, it is pointed out that Models I, II, and III include, as per best practice, the

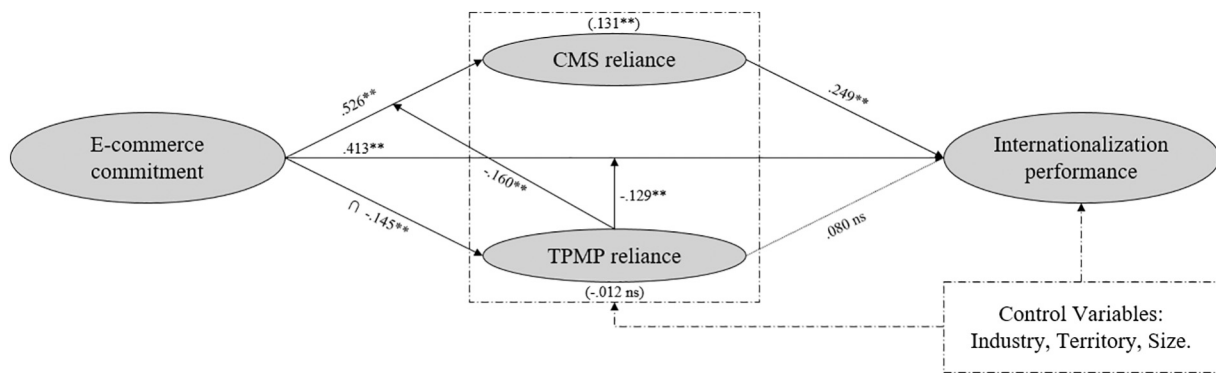


Fig. 3. Finalized model of tested relationships.

Notes: ** indicates $p < .01$; ∩ indicates inverted quadratic relationship; "ns" stands for non-significant; coefficients in brackets refer to the mediating relationships.

direct relationship between the moderator, TPMP reliance, and CMS reliance shown in Table VI. The tested relationships are graphically represented in Fig. 3. Finally, two further indirect relationships were computed and reported in Table VII, in addition to the results of the H6 and H7 hypotheses tests. The former, TPMP reliance x e-commerce commitment → CMS reliance → internationalization, was statistically significant, while the latter, e-commerce commitment (QE) → TPMP reliance → CMS reliance, was not significant.

7. Discussion

This study intended to delve into the subject of CBEC, which, in this current global scenario of conflict and political and climatic instability (Saura et al., 2023b) is identified by several researchers as a pathway to resilience for many businesses (Adomako et al., 2021; Cuellar-Fernández et al., 2021). In particular, it departs from a certain strand of previous literature, dealing with CBEC, which consistently reputes to be a univocal occurrence without investigating the substance of the digital platforms that are being adopted by traditional businesses to carry it forward (Bianchi and Mathews, 2016; Gregory et al., 2019; Pezderka and Sinkovics, 2011; Tolstoy et al., 2022).

The authors concede that the originality of this study is certainly not in testing and supporting H1 and H2a, which being merely in line with the mainstream literature covered in depth in the article, simply suggest that firms that commit to and employ e-commerce practices succeed in achieving good internationalization performance. What emerges from testing H2b is already more controversial. In fact, two out of the three models, the most insightful, point out that the use of a certain type of e-commerce platform, such as TPMPs, which have been booming in recent years, contributes very slightly and not in statistically significant terms to the international success of manufacturing firms. At first glance, this deviates somewhat from the outcomes of the pioneering recent literature that tries to focus exclusively on TPMPs and generally attributes their positive contribution to internationalization (Hui, 2020; Ma et al., 2022; Qi et al., 2020). Conversely, a study that appears to be explicitly in line with what is pointed out here is that by Deng and Wang (2016), which shows that, while the businesses that use a TPMP typically begin to reap benefits from it at its early and growing stages, gradually this edge wanes as more and more manufacturers list on the TPMP as it gains popularity, and the advantages progressively fade as they become just another seller among many. Although not tackling the issue directly, Deng and Wang (2016) espouse the TCE rationale addressed by this study, which points out that TPMPs are a medium that creates much more uncertainty and less ability for manufacturers to maneuver than CMSs or a company's own site more generally.

The reasoning expressed for H2b offers a more full-bodied and original argument that the study results force us to adopt regarding H4. In fact, the significance of the inverse quadratic relationship (inverse U-

shape), between e-commerce commitment and the manufacturing firms' reliance on TPMPs suggests a double-edged nature of these solutions, which should be adopted with care. The findings show that manufacturing companies with a higher degree of commitment, tend to decrease their reliance on this type of platform; furthermore, this is proved to be a limitation for internationalization as commitment increases both in a direct way (negative moderation effect on the e-commerce commitment and internationalization performance relationship) and by negatively moderating the reliance on other platforms, such as CMSs, that instead turn out to be positive mediators of the relationship between e-commerce commitment and internationalization performance (H2a, H3, and H6). In other words, it can be argued that companies with a high level of commitment, if they rely too much on TPMPs, framed as an external solution by a TCE logic, will lose the effectiveness of their international business sales strategies. The theory of boundary choice and TCE give us a clue that, if a committed company eventually also wants to raise the bar in terms of services and features to be offered to consumers through the online channel (Lin et al., 2023), relying on a third party penalizes them as uncertainty, negotiation, flexibility, and frequent transactions will turn out to be costly (Argyres and Zenger, 2012; Williamson, 1985).

Finally, examining the apparently conflicting studies mentioned above, it is noted that even these actually show some consistency with what has been argued. For instance, Hui (2020) states that TPMPs, in this case eBay, make a contribution to internationalization by helping sellers with special shipping programs; however, the dataset concerned only addresses SMEs, which are certainly resource constrained and probably not strongly committed to the online channel if they require support to handle deliveries. Similarly, although Qi et al. (2020) assert that TPMPs promote internationalization, they substantiate it by claiming that TPMPs can make up for manufacturers' lack of knowledge. Ultimately, it seems that even such research, though not explicitly, may converge in this study, which therefore argues that TPMPs may be indicated and more viable for manufacturers with a modest level of commitment, and thus resources and expectations, than more comprehensive CMS solutions that certainly require a more specific level of commitment.

7.1. Theoretical contribution

The theoretical contribution of the study is manifold. First, the study corroborates evidence from a growing strand of research that highlights the e-commerce channel as a suitable avenue to pursue internationalization goals even for non-digitally native businesses (Elia et al., 2021; Tolstoy et al., 2022). Moreover, this study brings a peculiar novelty to this strand of research by introducing the analysis of a specific type of e-commerce digital platform, such as CMSs, that has remained rather neglected in the context of CBEC research to date (Engert et al., 2022).

Even more compelling, however, is the initially counterintuitive evidence that the study offers compared with the prior literature that have analyzed other types of e-commerce digital platforms, such as TPMPs (Deng et al., 2022; Hui, 2020; Qi et al., 2020), by identifying a hitherto-unseen inverse quadratic relationship with manufacturers' e-commerce commitment. By including both types of e-commerce platforms, this study pioneers in envisioning both of them and relating them to e-commerce commitment and firm internationalization.

In terms of the economic and managerial theories underlying the reasoning behind the exploration of the proposed model, this study undoubtedly brings traits of originality. First, as Table I highlights, TCE, although already partly captured by recent studies from a CBEC perspective (Deng et al., 2022; Hennart, 2022), still takes a back seat to the RBT and the business capabilities perspective (Ahmed et al., 2022; Elia et al., 2021; Gregory et al., 2019; Qi et al., 2020; Tolstoy et al., 2022). This study succeeds in including all three dimensions of TCE, specifically transactional frequency, asset specificity, and uncertainty, in the logic behind the formulation of the hypotheses that constitute the tested model. Moreover, summoning the more recent theory of boundary choice (Argyres and Zenger, 2012), which itself considers aspects of both TCE and the capabilities perspective, the study adds to the literature on CBEC, which, to date, never refers to Argyres and Zenger (2012) work, which instead has already gained recognition in strands of literature on internationalization, albeit in traditional channel contexts (Mayer et al., 2012; Miller and Toh, 2022).

Highlighting a deeper insight, it should be noted that the study also extrapolates peculiarities of the two distinct e-commerce digital platforms examined, and based on their characteristics, reclassifies them as forms of governance with different levels of vertical integration. More specifically, following the logic of TCE, TPMP reliance is described as a form of governance of outsourcing or possibly, as Williamson's (1979, 1985) work would define, one that is hybrid in nature, while CMS reliance is associated with a more vertical form of governance. In addition, considering the theory of boundary choice and supported by statistical evidence, the study identifies TPMPs as the most appropriate type of e-commerce platforms for manufacturers that are less committed, and thus have fewer e-commerce capabilities, while CMSs to be more effective options for companies with already-proven capabilities.

Finally, this study contributes to the literature focusing on digital platforms. This strand often attributes to them the nature of facilitators for business, frequently for digitally-native activities or otherwise as carriers of business model innovation (Nambisan et al., 2019; Wollborn et al., 2023). This study joins it by pointing out that digital platforms can also have a facilitating effect on activities conducted by non-digitally-native manufacturing firms, such as e-commerce practices (Ballerini et al., 2023b).

7.2. Practical implications

The findings of this study provide persuasive insights based on empirical data. First and foremost, business owners or top executives of manufacturing companies that wish to internationalize their business are encouraged to explore multi-sided e-commerce platforms as a means of entering or enhancing their performance in international markets. This is because multi-sided e-commerce platforms allow businesses to trade with several parties at the same time, which can improve their overall performance in foreign markets. Before making any kind of investment in a platform, whether a CMS or a TPMP, it is still extremely important to perform a preventative evaluation of the level of competence and know-how that already exists within the business. An applicable evaluation scheme, effective albeit abstract, remains that proposed by Argyres and Zenger (2012), which suggests choosing outsourced solutions (in this case a TPMP) when the activities that a firm wants to implement with its own investment remain generic and/or non-complementary to the company's core operations or moving more

vertically (with a CMS in this case) when the implementable activities are complementary to the core business. A manufacturing company's management may additionally employ consolidated evaluation frameworks, for instance the business model interactive canvas (Wang et al., 2023), which considers the transformation at the strategic level that the company intends to undertake, making it suitable for evaluating companies in transformative phases, such as those moving into the online channel or a new market in general.

Since TPMPs are typically simpler to implement, they are an excellent choice for elevating the degree of internationalization of companies that have limited access to specialized knowledge. The increased comprehensiveness and complexity brought about by CMSs, conversely, can open up remarkable possibilities for the internationalization of businesses. Indeed, this research reveals that managers of highly committed organizations view CMSs as having a greater potential for success. Contrarily, an incorrect evaluation could result in investments that are not profitable because, if the company already has sufficient know-how in-house, TPMPs would be unnecessary if not limiting. One of many explanatory factors is, for example, the fact that an e-commerce corporate image is considered to be a big driver of customer loyalty and satisfaction (Liu et al., 2022; Nath et al., 2019); it is unambiguous that, if a firm decides to turn the online channel into its primary business channel, it would hardly be successful with a mere presence in a TPMP, where it would just be a merchant among many (Deng and Wang, 2016). It would be more appropriate, against a more copious initial investment, to invest in its own website, facilitated by CMS platforms, following several successful brands from different sectors, such as Dell, Unilever and Nike (Li et al., 2018; Zhang and Hezarkhani, 2021). However, this should not be misconstrued as indicating that a company just having its own site through CMS is the only way; there have been multiple instances of CMS projects failing due to a lack of competences among all of the company's stakeholders (Short, 2010). Traveling the extra mile could only result in losses. Therefore, we reiterate that a proper preliminary assessment considering a manufacturers' capabilities and the strategic direction that it wants to take is crucial in determining the most appropriate e-commerce platform to rely on.

The e-commerce commitment assessed in the study also bring with it indications for human resources and managers of different business areas directly involved in sales activities, such as sales, marketing logistics, and customer care. Human resources are in fact encouraged to consider the expertise of candidates for different business areas from an e-commerce perspective. Moreover, personnel with an affinity for online purchasing for personal use are certainly more naturally oriented toward an understanding of the logic behind online commerce. In addition, new and existing staff could undergo different kinds of training. Conversely, as far as the managers of the different operational areas are concerned, the encouragement of joint and cross-functional work is crucial for the best effectiveness of online internationalization projects. Hence, the more ambitious and articulated the strategic objectives of online trade become, the more online channel management will turn out to be the result of an integration of business processes (Y. Yu et al., 2021).

8. Research limitations

It is impossible to deny that this research incorporates some shortcomings. First, from a methodological point of view, the research was conducted by questioning a limited representative population of respondents for a cross-sectional survey. In addition, despite all of the precautions that were taken, the survey was only conducted with a single informant for each organization. This poses a possible danger of bias, despite all the protections taken. Furthermore, the respondents provided the internationalization degree personally, and the researchers did not derive it from official secondary data. Therefore future research may depend on other official data sources. In conclusion, the Prolific platform ensures the respondents' anonymity, which reduces the

likelihood of answer biases. However, the platform also anonymizes the respondents' firms, so there is no way to determine the reputation of the manufacturers that were polled. This unmeasured variable has the potential to influence the ease with which businesses can enter new markets. Although the inclusion of the businesses' size helps to mitigate this unknown factor to some extent, this research cannot fully account for it entirely on its own.

9. Conclusion

Digital platforms are most frequently perceived as an avenue through which digitally native businesses can achieve success (Cuellar-Fernández et al., 2021; González-Padilla et al., 2023) and, at the same time, resourceful means for CBEC implementation, boosting traditional firms' resilience in this uncertain global scenario (Adomako et al., 2021; Deng et al., 2022; Tolstoy et al., 2022). Therefore, thoroughly investigating which e-commerce platforms are best suited to achieving this internationalization objective proves to be of vital importance to both scholars and practitioners. This study considers how e-commerce commitment drives the internationalization performance of manufacturing firms. In addition, as its most valuable contribution, the study identifies and characterizes, through the TCE and theory of boundary choice lens, two different types of e-commerce multi-sided platforms, namely CMSs and TPMPs, and their impact on internationalization. While TPMPs' reliance is particularly suitable for manufacturers with lower commitment and low capabilities and expectations, CMSs positively mediate the relationship between e-commerce commitment and internationalization performance, proving to be a valuable option, especially for companies with a high degree of e-commerce commitment and expectations.

This study makes a solid contribution to the literature dealing with e-commerce and internationalization, contemplating the differences between the characteristics of different e-commerce digital platforms in terms of their support of strategic goals for the survival of traditional companies. Nonetheless, it can be a starting point for future research on e-commerce platforms. For instance, a strand of research argues that the e-commerce distribution channel can boost corporate environmental sustainability (Xie et al., 2022); investigating in detail which kinds of e-commerce platforms are best suited to achieving corporate sustainability would be of definite scientific and practical relevance. Finally, on the same wavelength, it would be valuable to assess the differences in the impact of reliance on these platforms on firms' business processes or their overall sales and profit performance.

CRedit authorship contribution statement

Jacopo Ballerini: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Visualization, Writing – original draft, Writing – review & editing. **Aleksandr Ključnikov:** Supervision. **David Juárez-Varón:** Supervision. **Stefano Bresciani:** Funding acquisition, Supervision.

Declaration of competing interest

The authors declare no potential conflicts of interest.

Data availability

Data will be made available on request.

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References

- Abhishek, V., Jerath, K., Zhang, Z.J., 2016. Agency selling or reselling? Channel structures in electronic retailing. *Manag. Sci.* 62 (8), 2259–2280. <https://doi.org/10.1287/mnsc.2015.2230>.
- Adomako, S., Amankwah-Amoah, J., Tarba, S.Y., Khan, Z., 2021. Perceived corruption, business process digitization, and SMEs' degree of internationalization in sub-Saharan Africa. *J. Bus. Res.* 123, 196–207. <https://doi.org/10.1016/j.jbusres.2020.09.065>.
- Aguinis, H., Edwards, J.R., Bradley, K.J., 2017. Improving our understanding of moderation and mediation in strategic management research. *Organ. Res. Methods* 20 (4), 665–685. <https://doi.org/10.1177/1094428115627498>.
- Ahmed, A., Bhatti, S.H., Gölgeci, I., Arslan, A., 2022. Digital platform capability and organizational agility of emerging market manufacturing SMEs: the mediating role of intellectual capital and the moderating role of environmental dynamism. *Technol. Forecast. Soc. Chang.* 177, 121513. <https://doi.org/10.1016/j.techfore.2022.121513>.
- Akter, S., Wamba, S.F., 2016. Big data analytics in E-commerce: a systematic review and agenda for future research. *Electron. Mark.* 26 (2), 173–194. <https://doi.org/10.1007/s12525-016-0219-0>.
- Amazon, 2023. Annual report for the fiscal year ended December, 31, 2022. <https://d18rn0p25nwr6d.cloudfront.net/CIK-0001018724/d2fde7ee-05f7-419d-9ce8-186d4c96e25.pdf>.
- Argyres, N.S., Zenger, T.R., 2012. Capabilities, transaction costs, and firm boundaries. *Organ. Sci.* 23 (6), 1643–1657. <https://doi.org/10.1287/orsc.1110.0736>.
- Ballerini, J., Herhausen, D., Ferraris, A., 2023a. How commitment and platform adoption drive the e-commerce performance of SMEs: a mixed-method inquiry into e-commerce affordances. *Int. J. Inf. Manag.* 102649. <https://doi.org/10.1016/j.ijinfomgt.2023.102649>.
- Ballerini, J., Yahiaoui, D., Giovando, G., Ferraris, A., 2023b. E-commerce channel management on the manufacturers' side: ongoing debates and future research pathways. *Rev. Manag. Sci.* <https://doi.org/10.1007/s11846-023-00645-w>.
- Banalieva, E.R., Dhanaraj, C., 2019. Internalization theory for the digital economy. *J. Int. Bus. Stud.* 50 (8), 1372–1387. <https://doi.org/10.1057/s41267-019-00243-7>.
- Bianchi, C., Mathews, S., 2016. Internet marketing and export market growth in Chile. *J. Bus. Res.* 69 (2), 426–434. <https://doi.org/10.1016/j.jbusres.2015.06.048>.
- Brouthers, K.D., Geisser, K.D., Rothlauf, F., 2016. Explaining the internationalization of ibusiness firms. *J. Int. Bus. Stud.* 47 (5), 513–534. <https://doi.org/10.1057/jibs.2015.20>.
- Chen, C., Zhuo, X., Li, Y., 2021. Online channel introduction under contract negotiation: reselling versus agency selling. *Manag. Decis. Econ.* 42, 1–13. <https://doi.org/10.1002/mde.3364>.
- Chong, L., Mei, W., Guang, A.W., 2011. Research and implementation of self-publishing website platforms for universities based on CMS. *Int. J. Adv. Perv. Ubiquit. Comput.* 3 (3), 32–45. <https://doi.org/10.4018/japuc.2011070104>.
- Coase, R.H., 1937. The nature of the firm. *Economica* 4 (16), 386–405. <https://doi.org/10.2307/2626876>.
- Cuellar-Fernández, B., Fuertes-Callén, Y., Serrano-Cinca, C., 2021. Survival of e-commerce entrepreneurs: the importance of brick-and-click and internationalization strategies. *Electron. Commer. Res. Appl.* 46, 101035. <https://doi.org/10.1016/j.elerap.2021.101035>.
- de Reuver, M., Sørensen, C., Basole, R.C., 2018. The digital platform: a research agenda. *J. Inf. Technol.* 33 (2), 124–135. <https://doi.org/10.1057/s41265-016-0033-3>.
- Deng, Z., Wang, Z., 2016. Early-mover advantages at cross-border business-to-business e-commerce portals. *J. Bus. Res.* 69 (12), 6002–6011. <https://doi.org/10.1016/j.jbusres.2016.05.015>.
- Deng, Z., Zhu, Z., Johanson, M., Hilmersson, M., 2022. Rapid internationalization and exit of exporters: the role of digital platforms. *Int. Bus. Rev.* 31 (1), 101896. <https://doi.org/10.1016/j.ibusrev.2021.101896>.
- Dwivedi, Y.K., Hughes, D.L., Coombs, C., Constantiou, I., Duan, Y., Edwards, J.S., Gupta, B., Lal, B., Misra, S., Prashant, P., Raman, R., Rana, N.P., Sharma, S.K., Upadhyay, N., 2020. Impact of COVID-19 pandemic on information management research and practice: transforming education, work and life. *Int. J. Inf. Manag.* 55, 102211. <https://doi.org/10.1016/j.ijinfomgt.2020.102211>.
- Dyvik, E., 2023. Proportion of women in managerial positions worldwide from 1991 to 2020. Statista. <https://www.statista.com/statistics/1259478/women-in-managerial-positions-worldwide/>.
- Elia, S., Giuffrida, M., Mariani, M.M., Bresciani, S., 2021. Resources and digital export: an RBV perspective on the role of digital technologies and capabilities in cross-border e-commerce. *J. Bus. Res.* 132, 158–169. <https://doi.org/10.1016/j.jbusres.2021.04.010>.
- Engert, M., Evers, J., Hein, A., Krcmar, H., 2022. The engagement of Complementors and the role of platform boundary resources in e-commerce platform ecosystems. *Inf. Syst. Front.* <https://doi.org/10.1007/s10796-021-10236-3>.
- Erdmann, A., Ponzoa, J.M., 2021. Digital inbound marketing: measuring the economic performance of grocery e-commerce in Europe and the USA. *Technol. Forecast. Soc. Chang.* 162, 120373. <https://doi.org/10.1016/j.techfore.2020.120373>.
- Fornell, C., Larcker, D.F., 1981. Evaluating structural equation models with unobservable variables and measurement error. *J. Mark. Res.* 18 (1), 39–50. <https://doi.org/10.2307/3151312>.
- Gabrielsson, M., Gabrielsson, P., 2011. Internet-based sales channel strategies of born global firms. *Int. Bus. Rev.* 20 (1), 88–99. <https://doi.org/10.1016/j.ibusrev.2010.05.001>.
- González-Padilla, P., Navalpotro, F.D., Saura, J.R., 2023. Managing entrepreneurs' behavior personalities in digital environments: a review. *Int. Entrep. Manag. J.* <https://doi.org/10.1007/s11365-022-00823-4>.

- Gregory, G.D., Ngo, L.V., Karavdic, M., 2019. Developing e-commerce marketing capabilities and efficiencies for enhanced performance in business-to-business export ventures. *Ind. Mark. Manag.* 78, 146–157. <https://doi.org/10.1016/j.indmarman.2017.03.002>.
- Hair, J.F., Babin, B.J., Krey, N., 2017. Covariance-based structural equation modeling in the journal of advertising: review and recommendations. *J. Advert.* 46 (1), 163–177. <https://doi.org/10.1080/00913367.2017.1281777>.
- Hennart, J.-F. (2022). How much is new in Brouthers et al.'s new foreign entry modes, and do they challenge the transaction cost theory of entry mode choice? *J. Int. Bus. Stud.*, 53(9), 2116–2132. doi:<https://doi.org/10.1057/s41267-022-00523-9>.
- Hui, X., 2020. Facilitating inclusive global trade: evidence from a field experiment. *Manag. Sci.* 66 (4), 1737–1755. <https://doi.org/10.1287/mnsc.2018.3263>.
- International Trade Administration U.S. Department of Commerce, 2022. European B2B eCommerce Markets Forecast. Official Website of the International Trade Administration. <https://www.trade.gov/european-b2b-e-commerce-markets-forecast>.
- Jacobides, M.G., Winter, S.G., 2005. The co-evolution of capabilities and transaction costs: explaining the institutional structure of production. *Strateg. Manag. J.* 26 (5), 395–413. <https://doi.org/10.1002/smj.460>.
- Jeong, S.W., 2016. Types of foreign networks and internationalization performance of Korean SMEs. *Multinat. Bus. Rev.* 24 (1), 47–61. <https://doi.org/10.1108/MBR-08-2015-0039>.
- Kowtha, N.R., Choon, T.W.L., 2001. Determinants of website development: a study of electronic commerce in Singapore. *Inf. Manag.* 39 (3), 227–242. [https://doi.org/10.1016/S0378-7206\(01\)00092-1](https://doi.org/10.1016/S0378-7206(01)00092-1).
- Kraus, S., Durst, S., Ferreira, J.J., Veiga, P., Kailer, N., Weinmann, A., 2022. Digital transformation in business and management research: an overview of the current status quo. *Int. J. Inf. Manag.* 63, 102466 <https://doi.org/10.1016/j.ijinfomgt.2021.102466>.
- Li, H., Leng, K., Qing, Q., Zhu, S.X., 2018. Strategic interplay between store brand introduction and online direct channel introduction. *Transp. Res. E Logist. Transp. Rev.* 118, 272–290. <https://doi.org/10.1016/j.tre.2018.08.004>.
- Lin, G.-H., Chen, P., Li, Y., Zhu, X., 2023. Service selection strategic analysis for self-operated e-commerce platforms under settlement. *Econ. Res.-Ekon. Istraz.* 36 (2), 2175009 <https://doi.org/10.1080/1331677X.2023.2175009>.
- Liu, Y., Li, Q., Edu, T., Negricea, C., Fam, K.-S., Zaharia, R., 2022. Modelling e-commerce customer reactions. Exploring online shopping carnivals in China. *Econ. Res.-Ekon. Istraz.* 35 (1), 3060–3082. <https://doi.org/10.1080/1331677X.2021.1985576>.
- Lizorkin, D.A., Lisovsky, K.Y., 2005. Implementation of the XML linking language XLink by functional methods. *Program. Comput. Softw.* 31 (1), 34–46.
- Ma, S., Chai, Y., Jia, F., 2022. Mitigating transaction risk for cross-border e-commerce firms: a multiagent-based simulation study. *Int. Bus. Rev.* 31 (4), 101965 <https://doi.org/10.1016/j.ibusrev.2021.101965>.
- Mayer, K.J., Somaya, D., Williamson, I.O., 2012. Firm-specific, industry-specific, and occupational human capital and the sourcing of knowledge work. *Organ. Sci.* 23 (5), 1311–1329. <https://doi.org/10.1287/orsc.1110.0722>.
- Miller, C.D., Toh, P.K., 2022. Complementary components and returns from coordination within ecosystems via standard setting. *Strateg. Manag. J.* 43 (3), 627–662. <https://doi.org/10.1002/smj.3143>.
- Nambisan, S., Zahra, S.A., Luo, Y., 2019. Global platforms and ecosystems: implications for international business theories. *J. Int. Bus. Stud.* 50 (9), 1464–1486. <https://doi.org/10.1057/s41267-019-00262-4>.
- Nath, P., Kirca, A.H., Kim, S., Andras, T.L., 2019. The effects of retail banner standardization on the performance of global retailers. *J. Retail.* 95 (3), 30–46. <https://doi.org/10.1016/j.jretai.2019.04.002>.
- O'Reilly, L., Stevens, L., 2018. Amazon, with little fanfare, emerges as an advertising Giant. *Wall Street J.* 1–5.
- Pallant, J., 2020. SPSS Survival Manual: A Step by Step Guide to Data Analysis Using IBM SPSS, 7th ed. Routledge. <https://doi.org/10.4324/9781003117452>.
- Pezderka, N., Sinkovics, R.R., 2011. A conceptualization of e-risk perceptions and implications for small firm active online internationalization. *Int. Bus. Rev.* 20 (4), 409–422. <https://doi.org/10.1016/j.ibusrev.2010.06.004>.
- Podsakoff, P.M., MacKenzie, S.B., Podsakoff, N.P., 2012. Sources of method bias in social science research and recommendations on how to control it. *Annu. Rev. Psychol.* 63 (1), 539–569. <https://doi.org/10.1146/annurev-psych-120710-100452>.
- Pu, X., Sun, S., Shao, J., 2020. Direct selling, reselling, or agency selling? Manufacturer's online distribution strategies and their impact. *Int. J. Electron. Commer.* 24 (2), 232–254. <https://doi.org/10.1080/10864415.2020.1715530>.
- Qi, X., Chan, J.H., Hu, J., Li, Y., 2020. Motivations for selecting cross-border e-commerce as a foreign market entry mode. *Ind. Mark. Manag.* 89, 50–60. <https://doi.org/10.1016/j.indmarman.2020.01.009>.
- Rasoolimanesh, S.M., Wang, M., Mikulić, J., Kunasekaran, P., 2021. A critical review of moderation analysis in tourism and hospitality research toward robust guidelines. *Int. J. Contemp. Hosp. Manag.* 33 (12), 4311–4333. <https://doi.org/10.1108/IJCHM-02-2021-0272>.
- Reuber, A.R., Fischer, E., 2011. International entrepreneurship in internet-enabled markets. *J. Bus. Ventur.* 26 (6), 660–679. <https://doi.org/10.1016/j.jbusvent.2011.05.002>.
- Saura, J.R., Palacios-Marqués, D., Ribeiro-Soriano, D., 2023a. Exploring the boundaries of open innovation: evidence from social media mining. *Technovation* 119, 102447. <https://doi.org/10.1016/j.technovation.2021.102447>.
- Saura, J.R., Ribeiro-Navarrete, S., Palacios-Marqués, D., Mardani, A., 2023b. Impact of extreme weather in production economics: extracting evidence from user-generated content. *Int. J. Prod. Econ.* 260, 108861 <https://doi.org/10.1016/j.ijpe.2023.108861>.
- Shopify Inc., 2023. Shopify Inc. Annual Report for the fiscal year ended December 31, 2022. https://s27.q4cdn.com/572064924/files/doc_financials/2022/ar/4cdd44db-ca94-4d2a-ae03-4dad70a72c58.pdf.
- Short, C., 2010. Web content management: CMS for competitive advantage. *J. Direct Data Digit. Mark. Pract.* 11 (3), 198–206. <https://doi.org/10.1057/ddmp.2009.32>.
- Tabachnick, B.G., Fidell, L.S., Ullman, J.B., 2007. *Using Multivariate Statistics*, vol. 5. Pearson, Boston, MA.
- Tadelis, S., 2016. Reputation and feedback systems in online platform markets. *Annu. Rev. Econ.* 8 (1), 321–340. <https://doi.org/10.1146/annurev-economics-080315-015325>.
- Tandon, A., Dhir, A., Talwar, S., Kaur, P., Mäntymäki, M., 2022. Social media induced fear of missing out (FoMO) and phubbing: Behavioural, relational and psychological outcomes. *Technol. Forecast. Soc. Chang.* 174, 121149 <https://doi.org/10.1016/j.techfore.2021.121149>.
- Thompson, E.R., Dericks, G.H., Fai, F., 2019. Development and validation of a firm-level vertical and horizontal internationalization metric. *Int. Bus. Rev.* 28 (3), 533–543. <https://doi.org/10.1016/j.ibusrev.2018.11.009>.
- Tolstoy, D., Jonsson, A., Sharma, D.D., 2016. The influence of a retail firm's geographic scope of operations on its international online sales. *Int. J. Electron. Commer.* 20 (3), 293–318. <https://doi.org/10.1080/10864415.2016.1212760>.
- Tolstoy, D., Nordman, E.R., Hännell, S.M., Özbek, N., 2021. The development of international e-commerce in retail SMEs: an effectuation perspective. *J. World Bus.* 56 (3), 101165 <https://doi.org/10.1016/j.jwb.2020.101165>.
- Tolstoy, D., Nordman, E.R., Vu, U., 2022. The indirect effect of online marketing capabilities on the international performance of e-commerce SMEs. *Int. Bus. Rev.* 31 (3), 101946 <https://doi.org/10.1016/j.ibusrev.2021.101946>.
- Troise, C., Tani, M., Jones, P., 2020. Investigating the impact of multidimensional social capital on equity crowdfunding performance. *Int. J. Inf. Manag.* 55, 102230 <https://doi.org/10.1016/j.ijinfomgt.2020.102230>.
- Tu, G., Faure, C., Schleich, J., Guetlein, M.-C., 2021. The heat is off! The role of technology attributes and individual attitudes in the diffusion of Smart thermostats – findings from a multi-country survey. *Technol. Forecast. Soc. Chang.* 163, 120508 <https://doi.org/10.1016/j.techfore.2020.120508>.
- Wang, C., Chen, M., Wang, Q., Fang, Y., 2023. The study of value network reconstruction and business model innovation driven by entrepreneurial orientation. *Int. Entrep. Manag. J.* <https://doi.org/10.1007/s11365-023-00869-y>.
- Wibowo, I., 2021, June 14. CMS Market Share—The Most Popular Platforms in 2021. Tooltester. <https://www.tooltester.com/en/blog/cms-market-share/>.
- Williamson, O.E., 1979. Transaction-cost economics: the governance of contractual relations. *J. Law Econ.* 22 (2), 233–261. <https://doi.org/10.1086/466942>.
- Williamson, O.E., 1985. *The Economic Institutions of Capitalism*. Simon and Schuster.
- Wollborn, P., Dornkott, D., Holder, U., 2023. Entrepreneurial efforts and opportunity costs: evidence from twitch streamers. *Int. Entrep. Manag. J.* 19 (3), 1209–1238. <https://doi.org/10.1007/s11365-023-00849-2>.
- Xie, X., Wu, Y., Palacios-Marqués, D., Ribeiro-Navarrete, S., 2022. Business networks and organizational resilience capacity in the digital age during COVID-19: a perspective utilizing organizational information processing theory. *Technol. Forecast. Soc. Chang.* 177, 121548 <https://doi.org/10.1016/j.techfore.2022.121548>.
- Young, S., 2013. Transaction cost economics. In: Idowu, S.O., Capaldi, N., Zu, L., Gupta, A.D. (Eds.), *Encyclopedia of Corporate Social Responsibility*. Springer, pp. 2547–2552. https://doi.org/10.1007/978-3-642-28036-8_221.
- Yu, Y., Huo, B., Zhang, Z. (Justin), 2021a. Impact of information technology on supply chain integration and company performance: evidence from cross-border e-commerce companies in China. *J. Enterp. Inf. Manag.* 34 (1), 460–489. <https://doi.org/10.1108/JEIM-03-2020-0101>.
- Yu, H., Zhao, Y., Liu, Z., Liu, W., Zhang, S., Wang, F., Shi, L., 2021b. Research on the financing income of supply chains based on an E-commerce platform. *Technol. Forecast. Soc. Chang.* 169, 120820 <https://doi.org/10.1016/j.techfore.2021.120820>.
- Zaheer, H., Breyer, Y., Dumay, J., Enjeti, M., 2022. The entrepreneurial journeys of digital start-up founders. *Technol. Forecast. Soc. Chang.* 179, 121638 <https://doi.org/10.1016/j.techfore.2022.121638>.
- Zahra, S.A., 2021. International entrepreneurship in the post Covid world. *J. World Bus.* 56 (1), 101143 <https://doi.org/10.1016/j.jwb.2020.101143>.
- Zhang, Y., Hezarkhani, B., 2021. Competition in dual-channel supply chains: the manufacturers' channel selection. *Eur. J. Oper. Res.* 291 (1), 244–262. <https://doi.org/10.1016/j.ejor.2020.09.031>.

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