

Ciasullo, Maria Vincenza; Montera, Raffaella; Mercuri, Francesco; Mugova, Shame

Article

When digitalization meets omnichannel in international markets: A case study from the agri-food industry

Administrative Sciences

Provided in Cooperation with:

MDPI – Multidisciplinary Digital Publishing Institute, Basel

Suggested Citation: Ciasullo, Maria Vincenza; Montera, Raffaella; Mercuri, Francesco; Mugova, Shame (2022) : When digitalization meets omnichannel in international markets: A case study from the agri-food industry, Administrative Sciences, ISSN 2076-3387, MDPI, Basel, Vol. 12, Iss. 2, pp. 1-14, <https://doi.org/10.3390/admsci12020068>

This Version is available at:

<https://hdl.handle.net/10419/275339>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.




If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>

Article

When Digitalization Meets Omnichannel in International Markets: A Case Study from the Agri-Food Industry

Maria Vincenza Ciasullo ^{1,2,3} , Raffaella Montera ^{1,4,*} , Francesco Mercuri ⁵ and Shame Mugova ⁶ 

¹ Department of Management and Innovation Systems, University of Salerno, 84084 Fisciano, Italy; mciasullo@unisa.it

² Faculty of Business, Design and Arts, Swinburne University of Technology, Kuching 93350, Malaysia

³ Department of Management, University of Isfahan, Isfahan 81746-73441, Iran

⁴ Department of Economics and Business, University of Florence, 50127 Florence, Italy

⁵ Department of Management, Sapienza University of Rome, 00185 Rome, Italy; francesco.mercuri@uniroma1.it

⁶ Department of Management Accounting, Durban University of Technology, Durban 4001, South Africa; mugovas@gmail.com

* Correspondence: rmontera@unisa.it

Abstract: Digitalization is prompting small and medium-sized enterprises to structural and strategic transformations, also providing new opportunities to expand and succeed in foreign markets. However, relatively few studies have investigated emergent digital technologies in international business management. Contextually, there is still a dearth of research on the multi-faceted impacts of digitalization on omnichannel strategy characterizing most of the global business environment today. This paper, therefore, aims to examine the impact of digitalization on omnichannel choices adopted by internationalized SMEs. A qualitative approach, based on a single case study methodology, is adopted. An Italian agri-food SME is chosen as this industry is considered a key and distinctive pillar of Made in Italy in the international markets. Findings reveal the potential of digital technologies' applications in an omnichannel environment, blurring the boundaries between channels, through a synergetic integration of them. This evidence contributes to the existing literature on technology management and omnichannel strategies in the international context by rereading these phenomena through a smart ecosystem lens. In addition, this study provides practical insights on how multiple channels adopted by Made in Italy SMEs can be integrated, managed, and operated synergistically on international markets to sustain a digitalized value creation.

Keywords: digitalization; omnichannel; internationalization; Made in Italy SMEs; agri-food



Citation: Ciasullo, Maria Vincenza, Raffaella Montera, Francesco Mercuri, and Shame Mugova. 2022. When Digitalization Meets Omnichannel in International Markets: A Case Study from the Agri-Food Industry. *Administrative Sciences* 12: 68. <https://doi.org/10.3390/admsci12020068>

Received: 15 April 2022

Accepted: 2 June 2022

Published: 8 June 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

The growth of digital technologies, whose core is data management (e.g., big data, internet of things, artificial intelligence, virtual reality, augmented reality, blockchain, etc.), are transforming both societies and organizations. Digitalization assists in determining accurate agro-chemistry and weather conditions, automated quality control of agricultural products, and robotic devices with sensors and radio frequency identifiers in animal husbandry (Mironkina et al. 2020). Agriculture and food production is becoming more innovative with the implementation of new infrastructure, IT platforms, or biotechnologies, like gene editing or synthetic food production (Bakhtin et al. 2020). The use of digital technologies allows for monitoring the growth of crops, a decision-making system for irrigation, and the choice of fertilizers (Kolmykova et al. 2021). Digitalization has also enabled agricultural firms to gain access to markets abroad and overseas through online marketing platforms and international payments systems. Internationalization has indeed become a crucial condition for both the success and survival of most agri-food firms (Serrano et al. 2016), that need to enter international markets, helped by the technological advances (García-Álvarez de Perea et al. 2019).

Digitalization is changing the way companies do business and establishing deeper relationships with customers, suppliers, and other actors, and going global (Scuotto et al. 2017; Matarazzo et al. 2020). The digital revolution is prompting small and medium-sized enterprises (SMEs) to transform themselves and take advantage of opportunities in foreign markets (Hervé et al. 2020). The agri-food sector comprises many SMEs and represents the most contributing industries in the European Union in terms of economic output and employment (Zouaghi and Sánchez 2016). Despite its importance, studies on the agri-food sector are scarce (Serrano et al. 2018), as well as information regarding the digital transformation, which is a challenging issue for firms that were not originally digital or global and are willing to internationalize (Wamba and Queiroz 2020; Elia et al. 2021).

Digitalization leads to improved efficiency and effectiveness in business processes and enhances the understanding of customer experience thereby increasing competitiveness (Rossato and Castellani 2020). Significant competitive advantage will fall to companies that are able to develop an end-to-end digitalized ecosystem that delivers timely, manageable data-driven insights to optimize decision-making (Royston 2019). The use of big data enables better systems that are quicker to read market signals than business competitors.

Nonetheless, only a few studies have investigated the role of digital technologies in international business management (Coviello et al. 2017; Strange and Zucchella 2017; Hannibal and Knight 2018; Ojala et al. 2018) and in companies' internationalization processes (Watson et al. 2018; Gnizy 2019). Previously the implementation of digital technologies has been investigated in large enterprises (Cenamor et al. 2019) or explicitly innovative businesses such as digital start-ups and high-tech giants (Ghezzi and Cavallo 2020), while there is a paucity of studies on 'Made in Italy' SMEs, despite their important contribution to the competitiveness of the Italian economy (Matarazzo et al. 2020). The 'Made in Italy' concept refers to Italian handicraft and industrial products that excel internationally due to the quality of workmanship, attention to detail, design, and form (Festa et al. 2020). Most scholars tend to focus on the internet, wireless communication, and mobile technologies, whilst the role of more advanced technologies (e.g., artificial intelligence, cloud computing, big data, and analytics) has often been neglected despite their contribution to digital transformation (Matarazzo et al. 2020; Elia et al. 2021). There is still a dearth of research on the multi-faceted impacts of digitalization on omnichannel strategy (Sun et al. 2020; Hubner et al. 2021) prevalent in the global business environment today (Hult et al. 2020). In particular, the diversification and integration of the channels ranging from offline channels (directly operated stores, multi-brand and department stores, etc.) to online channels (company website, multi-brand e-commerce platforms, mobile app, digital advertising, social networks, etc.) affect the cross-border success of an organization (Guercini et al. 2020), starting from monitoring and improving product availability, to market forecasting (Derhami et al. 2021). Thus, there is a need for synergetic management of the several channels and touchpoints available in various markets, in such a way that a seamless experience across channels, and performance within channels, is optimized (Verhoef et al. 2015; Juaneda-Ayensa et al. 2016).

This paper aims to examine the impact of digitalization on omnichannel choices adopted by internationalized SMEs, in order to answer the following research questions: (1) How do digital technologies enable omnichannel management in foreign markets? and (2) What outcome can be achieved through the connection of the variety of channels at a global level?

To answer these research questions, the study adopts a qualitative approach, based on a single case study methodology (Yin 2017). An Italian agri-food SME is chosen as this industry is considered a key and distinctive pillar of 'Made in Italy' in international markets (Matarazzo et al. 2020). This case is investigated across three contexts of analysis (micro, meso, and macro) according to a service ecosystem lens (Vargo and Lusch 2016). It is especially fitting to gain a deep understanding of the strong interdependencies between different actors (such as customers, suppliers, technological providers, partners, universi-

ties, trade unions, institutions, etc.) who deeply interact to enact value co-creation in an international market scenario.

Our findings reveal the potential of digital technologies' applications in an omnichannel environment, blurring the boundaries between channels through their synergetic integration. This evidence contributes to the existing literature on technology management and omnichannel strategies in the international context by rereading these phenomena through a smart ecosystem lens. In addition, this study provides practical insights on how multiple channels adopted by 'Made in Italy' SMEs can be integrated, managed, and operated synergistically on international markets to sustain a digitalized value creation.

The remainder of the paper is organized as follows. The next section reviews the literature on digital transformation, internationalization, and omnichannel strategy, also describing the conceptual model used to analyze the selected case study. Next, the research method and case study findings are presented and discussed. Finally, theoretical and practical implications are highlighted.

2. Theoretical Background

2.1. Digital Transformation in International Markets

Digital transformation has become a part of the life of all organizations in the past years, and for this reason, the literature has paid much attention to it (Warner and Wäger 2019). There are many definitions of what digital transformation means, however, there is not one common definition yet. In general, the literature agrees on defining Digital Transformation as the adoption of digital technologies to facilitate key business improvements (Morakanyane et al. 2017; Westerman et al. 2014) and, in particular, as an organizational strategy through which to create differential value (Bharadwaj et al. 2013), and improve communication and information exchange worldwide (Coviello et al. 2017). This is possible through the adoption of new digital technologies such as big data, artificial intelligence, and 4.0 machines, which contribute to reaching a competitive advantage (Vial 2019), even with the customization of new products/services (Shahi and Sinha 2021) and the implementation of cost-effective processes (Chawla and Goyal 2021). This is gradually transforming the way companies do business (Rothberg and Scott 2017).

Since the internationalization process requires the collection of information, the analysis of new cultures, and heavy financial investments, it is very difficult to develop, especially for SMEs. In this regard, the introduction of digital transformation could represent the breaking point in facilitating the internationalization of SMEs. The internationalization process of SMEs should be intended as an opportunity for improving both organizational and business performance. As Wood and Mckinley (2020) stated, internationalization provides "the potential for introducing new goods, services, or organizing methods to a market". From the economic point of view, while it is true that internationalization represents a way to increase sales by making the firm's products/services available to customers in foreign markets and to obtain a competitive advantage, it is also true that it is often linked with a high level of investments (Ahsan and Musteen 2011), which may represent an important barrier to the internationalization of SMEs (Leonidou 2004).

In this sense, increased use and investments in digital technologies lead to higher degrees of internationalization and growth (Davis and Harveston 2000). As a consequence, digital transformation has brought a situation in which companies are more willing to start an internationalization process, because of decreased costs and risk of failure (Autio and Zander 2016). Digital transformation, with its tools, has made the barriers to the acquisition of market information and cross-border communications fewer (Lee et al. 2019). This means that new digital technologies have increased the ability to predict market demand and customize products and services so that the cultural distance between companies and the customer's country could be reduced (Matarazzo et al. 2016). This ability is highly dependent on the entrepreneurial orientation and strategic posture of firms (Covin 1991). Companies that operate internationally are more likely to detect opportunities and have a greater propensity for innovative technologies (Gupta et al. 2016) Still, thanks to new tech-

nologies, such as e-commerce, companies are able to provide a unique customer experience (Ipsmiller et al. 2022; Matarazzo et al. 2020). As a consequence, digital transformation has strongly impacted businesses, by introducing a third choice between the dyadic choices of internalization/hierarchy and outsourcing/market (Matarazzo et al. 2020). In particular, digital transformation introduces the possibility to create a market in which technology and human capital assets match each other and collaborate. Only in this case, digital transformation could reach the maximum of its usefulness. This means that companies should adopt an omnichannel strategy, merging the online and the offline environments (Ciasullo et al. 2019). The omnichannel strategy has been defined as “the synergetic management of the numerous available channels and customer touchpoints, in such a way that the customer experience across channels and the performance over channels are optimized” (Verhoef et al. 2015). Touchpoints could be a physical store, word of mouth, online magazine, or online research. The omnichannel strategy configures a situation in which the product is accessible from many channels, that are no more separated or independent among them but interact together allowing a unique and enhanced experience for consumers (Du et al. 2019). To this point, the literature has focused its studies on the concept of omnichannel in retailing and customer perspectives. On one hand, omnichannel retailing represents the subject on which the whole discipline of research has paid attention. From the retailer’s perspective, it affects logistics services, which has become a key factor in the transformation process of omnichannel retailing and retailing supply chains. On the other hand, from the perspective of consumers, scholars have focused on specific contact points that characterize the decision-making process, from search to purchase. Focus groups, expert interviews, economic decision-making models, machine learning, and other methods, are the elements that construct the omnichannel environment (Chen and Li 2021). As it has been shown, omnichannel studies have concentrated on different and specific perspectives, not considering omnichannel as a firm strategy of behavior in this environment. Consequently, there is the need to conduct a holistic consideration of the omnichannel strategy, which is crucial for the internationalization of SMEs.

2.2. The Service Ecosystems View of Digital-Enabled International Omnichannel

The need for a holistic view of the omnichannel strategy in an international setting under the wave of digitalization calls for the conceptualization of the omnichannel as a complex service system. In line with the service-ecosystems view (Chandler and Vargo 2011; Akaka et al. 2013), in fact, omnichannel can be recognized as a self-regulating system of actors that integrate resources according to the alignment of purposes, shared institutional agreements, and the creation of mutual value through the service exchange (Storbacka et al. 2016; Ciasullo et al. 2021). Thus, actors are willing to share resources, overcoming the myopic view of exclusively maximizing their own advantage (Barile et al. 2017). Technology is a key element of the service system ‘omnichannel’ if it is used to engage actors and continuously stimulate resource integration. Through innovative technologies, the channels through which a company can interact with its customers have changed, evolving towards omnichannel access. This phenomenon has generated a better customer experience by incorporating both direct and indirect channels. In this sense, digitalization helped diversify customers’ buying dynamics by sharply changing the interaction with retailers (Frishammar et al. 2018). Today, more than ever, retailers are aware of the fact that it is no longer possible to manage channels separately as customers increasingly use their mobile devices to compare offers on the digital marketplace (Sun et al. 2020). Additionally, in accordance with Verhoef et al. (2015) digitalization enables a better integration of multiple distribution channels and a more efficient resource allocation. The capacity to interpret the needs of customers has influenced their behavioral patterns, which are increasingly attracted to an omnichannel model.

It derives a framework where the concept of value assumes a contextual and experiential nature, which may be read through a service-ecosystem perspective considering both value-in-use, as “real value”, and value-in-exchange, as “nominal value” (Smith

1776). In this approach, the value co-creation process takes on value as a joint process of integration and exchange of resources between several actors, which bases its strength on the relationship between company and customer.

Being a complex service system, omnichannel can be framed through a three-tier architecture (Vargo and Lusch 2016), starting with the micro-level, passing through the meso-level, and reaching the macro-level (Ciasullo et al. 2019). The adoption of a multi-level perspective represents a valuable solution to the digital-enabled international omnichannel as a “wicked” problem (Zuiderwijk et al. 2016), that is, a complex problem, characterized by intricate interactions among a variety of actors, and insolvable by only considering part of the problem. More in-depth, the micro-level embraces the integration of resources and the exchange of value among stakeholders (Frow et al. 2016). The micro boundary is herein outlined by technology-enabled interactions among and between managers, teams, and departments in the various branches and manufacturing sites of the organizations, also considering perceptions and behaviors underpinning these interactions. The meso level comprises a network of actors that interact by exchanging resources and pursuing compatible objectives (Chandler and Vargo 2011). Our study shapes the meso boundary by considering all the interactions among and between an organization, and its foreign partners, clients, suppliers, and intermediaries. Finally, the macro-level emerges through the combination of different networks governed according to institutional arrangements (Akaka et al. 2013). The macro boundary of this work comprises interactions affecting the broader economic and social system by producing new institutions, practices, and social development.

The three levels described above are nested (Mars et al. 2012), since every actor may have access to each of them (Frow et al. 2016), and interdependent because each level depends on the existence of the other two (Akaka and Vargo 2015).

3. Methodology

3.1. Research Approach

In line with a service- ecosystems based view and the framework proposed in the last section, a qualitative approach was selected as being particularly suitable to explore complex phenomena (i.e., digitalization, omnichannel strategy, and internationalization) (Yin 2017). The qualitative research methodology helps to gain an understanding of underlying reasons, opinions, and motivations. To investigate how digitalization enables an omnichannel strategy in international business a qualitative case study was considered the most appropriate research strategy (Eisenhardt and Graebner 2007). The knowledge gained through qualitative investigation is more informative and richer compared to a quantitative study by yielding a high level of detail, which serves the exploratory purpose of this research (Tewksbury 2009). For our study, we selected a critical case in the food and agricultural sector as explained below.

3.2. Empirical Context and Case Selection

The work contextualizes the analysis in the agri-food setting that represents one of the three ‘Made in Italy’ industries (fashion, food, and furniture) praised in the world. The agri-food sector is characterized by a large number of SMEs that are increasingly taking their business to international markets (Penco et al. 2019). This is due to, among others, the barriers to trade becoming more blurred, also thanks to many technological innovations that allow doing business in a global village, eliminating the distance barrier (García-Álvarez de Perea et al. 2019). Moreover, digital transformation shapes new enterprises and processes leading to changes in the agri-food supply chains and networks (Wolfert et al. 2017).

In accordance with the exploratory research purpose, the case is chosen through internet research with many keywords (e.g., digitalization, Industry 4.0, smart agriculture, omnichannel, internationalization, etc.) to find and select an information-rich case (Russo Spena and Mele 2020). We identified a suitable case by using the following screening parameters: (i) an Italian agri-food SME; (ii) which operates in both B2B and B2C markets;

(iii) belongs to an international ecosystem in which multiple actors are engaged to co-create value; and (iv) have pursued a digital omnichannel strategy in international markets at least over the last five years. We found a number of SMEs that met the criteria and chose the one which had more digitalization news articles reported in the media.

The company selected under these criteria is identified by the pseudonym Omega to preserve confidentiality. It is a Southern-Italian tomato producer, originated in the 1960s, of medium size and operating worldwide from 15 branches and eight manufacturing sites. Furthermore, Omega is depicted as a reference firm and change instigator in its industry, confirming itself as a suitable source of in-depth insights for this single case study (Dwyer and Wilkins 1991).

The setting of the research is Salerno, a region of Southern Italy, where traditional agri-food firms that do not implement digital technology and other firms committed to digitalization processes coexist. Salerno is also considered a proliferating area for agri-food enterprises; there are more than five medium-sized enterprises marketing tomatoes. The effects of the COVID-19 health crisis and the severe restrictive measures for its containment put in place by public authorities have shaped a dramatic scenario around the world. This situation has generated the need to undertake new forms and modes on the part of enterprises.

Among the latter, Omega was one of the first tomato companies to exploit the opportunity provided by digital transformation in the agriculture domain in terms of evolution from a single channel to a multichannel approach to expand business activity and succeed in foreign markets. This is evidenced by the analysis of both economic and sustainability reports which show that Omega has been better able to react to crisis situations than more traditional competitors thanks to the online channel sales, which have contributed significantly to increasing the company's economic performance. Thus, the case company serves global markets such as the USA, North Europe, and Russia and the amount of foreign turnover is about 70% compared to the national one.

Thus, Omega was chosen as a pioneering case within SME agri-businesses that struggle in implementing digitalization mainly due to cultural resistance to the changes in distribution strategy required by new technologies (Anastasiadis et al. 2018).

3.3. Data Collection

Data were collected during Spring 2021 by performing both a desktop study and a field analysis (Eisenhardt 1989). The desktop analysis was carried out including corporate reports, handbooks, and brochures provided by the case company or accessed via its corporate website and social networks. The field analysis consists of 13 in-depth interviews based on virtual meetings with the entrepreneur and 12 company executives of the headquarters in Italy (i.e., general manager, export manager, digital marketing manager, technology manager, R&D manager). A semi-structured interview guide was used to obtain information about the multilevel use of digital technologies to enable omnichannel strategy abroad, also identifying the main outcome achieved. The interviewer made introductions at the beginning of the interview, explained the aim of the study, and ensured that the respondent was relaxed. The interviewer introduced the open-ended questions that were outlined to elicit views and opinions from the participants and push them to freely report in-depth explanations and detailed descriptions in terms of: digital technologies and their applications at macro, meso, and micro levels; how digitalization contributes to overcoming barriers of entry into global markets; risks in international distribution channels and the role of digitalization in managing these risks; typologies of channels employed; reasons behind using the omnichannel approach enabled by digitalization; integration modes of physical and digital channels; advantages of the omnichannel approach in international business; the outcome of the channels' connection at a global level.

The interviewer tried to interpret the responses and sought clarity and understanding throughout the interview. The interviewer's side notes were also included in the transcription in a separate category. The responses were complemented with written notes

by the interviewer. When patterns emerged, the interviewer sought feedback from the participants about them. The interviews lasted on average 45 min and all the answers were audio-recorded, transcribed, and translated from Italian into English. Follow-up correspondence with the key respondents was carried out to clarify some aspects.

3.4. Data Analysis

The collected data were classified into homogeneous themes in order to improve the comparability of the obtained evidence and then triangulated with secondary data to reinforce the knowledge about the case company. The method of data analysis used is thematic analysis which has the benefits of flexibility (Braun and Clarke 2019). Thematic analysis involves drawing patterns of experiences from the transcribed conversations which can be from direct quotes or paraphrasing common ideas. The coding process was iterative in nature and is based on the classification, testing, and redefinition of gathered data through a critical and mutual debate between the authors. Following a thematic approach (Eriksson and Kovalainen 2015) based on the above-described multilevel framework, data obtained were at first analyzed individually and then compared in order to determine similarities and differences between them by avoiding subjectivity in the interpretation. A theme captures something important about the data in relation to the research question.

Thus, data were grouped into three thematic categories for each level considered. Responses on the opportunities and challenges of digitalization in implementing the firm's internationalization were grouped into enablers and inhibitors. Comments relating to the opportunities and challenges of digitalization in implementing the omnichannel approach in foreign markets were grouped into drivers and barriers. The analysis continued by classifying the data into the outcome of the channels' connection at a global level. Triangulation was accomplished by using two different data collections, mainly the collection of secondary data from company reports and documents and interviews. The triangulation process enabled us to improve the credibility of the interview data, as to whether it accurately reflected the state of the company and its internationalization. Finally, a research report was written.

4. Findings

The main research findings are herein described by drawing upon the three-tier analytical framework described in Section 2. Table 1 is a summary of the research findings developed from the interview themes.

At the micro-level, the interviews with key respondents indicate that digital technologies make Omega, foreign branches, and manufacturing sites more powerful and effective in their activities. In particular, digitalization helps to remove the barriers to cross-unit collaboration and to increase the coordination, communication, and decision-making across the whole organization, allowing quicker and systemic reactions to the changes in the international environment. As the general manager reports: "The advancement of innovative technologies has allowed us to break down the distance from various corporate departments around the world. This has simplified our job, making it more agile and flexible, and has favored the problem solving on issues related an increasingly 'always-on' and 'multidevice' global stakeholders".

Table 1. An overview of findings.

Levels	Main Enabling Digital Platforms/Tools	Omnichannel in International Markets
Micro	<ul style="list-style-type: none"> - Platforms for text and video conferencing - Platforms for webinars - Digitally enabled corporate hackathons through ideation crowdsourcing tools 	<ul style="list-style-type: none"> - Cross-unit collaboration across international borders - Coordination - Communication with international branches - Decision-making across the whole organization - Flexibility
Meso	<ul style="list-style-type: none"> - Automation of data capturing and sharing through QR codes - Central and integrated data system based on cloud computing - Web-based interactional platform with AI-based chatbots 	<ul style="list-style-type: none"> - Efficiency and Effectiveness in data handling - Tracking and tracing of products in international omnichannel - Web-based interactive digital marketing platforms - Social media data collection and analytics
Macro	Augmented reality	<ul style="list-style-type: none"> - New culture of data-driven international omnichannel - Shared knowledge of the cultural features, including food habits, of the covered foreign markets - Ethical and cyber-security concerns

Specific digital tools contribute to smoother interactions among and between Omega and its cross-border units. In this regard, the interviewers report the frequent use of platforms for text and video conferencing (i.e., Google Meet, Zoom, and Skype) to discuss challenges and opportunities, solicit input and feedback, reduce time communicating, and increase commitment and cooperation with foreign subunits. As the export manager states: “When travel is not an option, impractical, or undesirable, especially during the COVID19 pandemic, online communication has emerged more efficient. Thus, we have monthly virtual meetings to bring colleagues from different locations together. According to our experience, useful features of online meeting platforms are the screen sharing that boosts the communication and the ability to create channels and join them between many participants”. In general, these meetings are aimed at setting clear rules, sharing routines, and aligning the strategy across the whole organization despite the branches adapting the strategic orientation to their specific countries and markets. Foreign branches, in fact, deeply know the local markets, whose habits, customs, beliefs, and purchasing preferences are transferred to the organization for understanding and exploiting both threats and opportunities emerging from the international scenario. Besides such meetings, digital platforms are also used for webinars that train the management teams in both domestic and foreign markets to become upskilled on omnichannel management issues.

Additionally, Omega organizes digitally enabled corporate hackathons through ideation crowdsourcing tools to promote creative thinking of foreign units, that are stimulated to build synergies and to propose new ideas and projects for developing the international omnichannel. The R&D manager clarifies: “Digital hackathons are contests in which many teams, from different fields of expertise and different geographical areas, work together for a common goal, such as to catch-up opportunities for innovation outside their current positions. The dynamics of hackathons sustains cooperation even after the event”.

At the meso level, the interviews with key respondents indicate that digital technologies improve the tracking and tracing of products in international omnichannel, thus avoiding inconsistencies, errors, and inefficiencies associated with manual data handling by companies, including finished-product manufacturers and retailers. The digital marketing manager reports: “For all our condiments and bases for ready-made sauces, we use a single QR code that uniquely identifies each product from the point of manufacturing to the retail tills”. Thus, the automation of data capturing and sharing through QR codes improves the activities of omnichannel actors, reducing time and possible mismatches related to data

entry. The digital marketing manager adds: “In the perspective of our business clients, such as mass-market retailers and hotel, restaurant, and catering (HoReCa) players, QR code provides the opportunity for real-time track and trace which are crucial in the offering’s delivery”.

The ongoing data flow activated by the QR code, and other international omnichannel data are stored in a central and integrated data system based on cloud computing. The technology manager states: “Omega has taken the responsibility for creating and managing data in a security-protected format. Such data can be collected and used by other companies in the omnichannel, including retailers, logistics companies and even consumers, if they have got authorization for access and use standardized data capturing and sharing protocols”.

Another important digital technology belonging to the meso boundary consists of the e-commerce platform that goes beyond its exclusively commercial aim to become a web-based interactional architecture. This interaction platform creates a virtual connection between Omega and other actors through chatbots enabled by artificial intelligence. In this regard, the digital marketing manager points out: “Our chatbot readily responds to specific queries but it is not all: it has been designed to adapt the possibilities of conversation to the different features (i.e., language and culture) of the global users to improve their overall experience”. The meso-level also comprises social media (i.e., Facebook, Twitter, etc.) that enables access to a wider network of worldwide consumers and users. Data and information generated by such interactions are used for a better knowledge of international markets. To this end, “some influencers, such as starred chef, world famous taster, are also involved to stimulate the discussion and exchange of ideas, suggestions and opinions with their global followers”, as reported by the digital marketing manager.

At the macro-level, the interviews with key respondents indicate that digital technologies realize the proposition of a new culture of data-driven international omnichannel that spreads through the entire food value chain and across society as a whole. The general manager states: “Within a few years, we have shifted from ‘hands-on’ and experience driven management of the channels to a data-driven approach”. This cultural shift implies both ethical and cyber-security concerns. In the first case (ethical concerns), the technology aimed at automating tasks and increasing efficiency may deskill employees and exclude or discriminate against those not digitally literate. Thus, “Omega has activated traineeships, education activities, workshops, and an integrated set of actions to inform, share, and make users participate in adopting a digital attitude to omnichannel management” as the general manager clarifies. In the second case (cyber-security concerns), data protection is under threat. Thus, the R&D manager states: “Omega has developed a new protocol for the global cyber-security which includes a number of detection techniques and countermeasures to protect the omnichannel data, attracting the attention of government, industry, and academia”. Another important societal effect rises from a new solution built on the shared knowledge of the cultural features, including food habits, of the covered foreign markets. In this direction, of note is an interactive tool implemented in augmented reality to assist users with everyday tasks such as cooking, suggesting a wide range of tomato-based recipes according to the most varied eating styles (i.e., vegan, vegetarian, omnivorous, etc). As the technology manager reports: “Once selected a recipe, the app displays a linear set of instructions supplemented by animated holograms. The holograms demonstrate to the user how to cook in the real world, allowing them to easily follow along by using voice commands”.

5. Discussion and Conclusions

The case study findings help to understand how digital technologies enable omnichannel management in foreign markets (RQ1). On the basis of the previous results, it emerges that digitalization ensures a real-time and circular exchange of knowledge among actors (Polese et al. 2018; Ciasullo and Montera 2021) with the aim of fostering informative and cognitive alignment at the micro-level. In this way, the firm and its cross-border units recog-

nize a common identity and are stirred by a collaborative spirit toward the implementation of a shared strategic direction on an international omnichannel. Then, it is possible to infer that omnichannel management not only offers the possibility to share information with customers but also to channel information allowing the synchronization of content across different channels. This provides enabling digital firm capabilities to actively respond to different actors' channel behaviors. Furthermore, digitalization actively engages the network actors, enhancing autonomous co-creation (Jayashankar et al. 2019) at the meso-level. This means that the set of QR codes, cloud, chatbot, and augmented reality empowers the opportunities for generating knowledge on an international omnichannel through diverse forms of value-in-use. Moreover, digital technologies realize the proposition of a new value proposition, inspired by a new culture of data-driven international omnichannel, whose socio-economic effects span the macro-level. The societal approach stresses the role of context-based variables (geographical, institutional, and cultural elements) in influencing value co-creation through value-in-context (Chandler and Vargo 2011).

This case study contributes to identifying the outcome that can be achieved through the connection of the variety of channels at a global level (RQ2). Specifically, the systematic and systemic integration of the wide range of digital technologies into a modular and integrated platform leads to the emergence of a smart service system (Barile and Polese 2010) that is the international omnichannel. In this all-encompassing logic, the global exchanges of value enabled by the integrated platform can be redefined in terms of a seamless and totalizing journey as a set of embedded and recursive interactions among actors and their experiences which increase the final value of the smart service system.

Our work entails some interesting theoretical and practical insights. In particular, the paper provides two theoretical implications: (i) we contribute to enriching the existing literature on digital transformation in international markets for SMEs which is still a neglected area of research. In fact, to the best of the authors' knowledge, this explorative study is one of the first attempts to conceptualize the digital-enabled international omnichannel in a service-ecosystem view, by answering the call for a theoretical lens with which to read the phenomenon from a holistic perspective. This has helped us to arrive at a second theoretical contribution (ii) whereby the integration of different dimensions (multiple and omnichannel) contributes to eliminating the clear distinction which existed between them so far, then considering a third distribution channel called phygital. As the present study shows, the omnichannel allows the development of smart ecosystems that are able to interact directly with the net of clients and users to understand and satisfy their needs in the best way possible and to create a total and all-encompassing customer experience. To better meet consumer needs, organizations are pushed to integrate phygital channels into their omnichannel strategy (Banik 2021). In this regard, Klaus (2021) has proposed the phygitality concept as the most complete form of omnichannel management. However, issues of consumer security and confidence need to be taken into consideration.

As stated, the paper also provides practical implications, i.e., (i) it has been demonstrated that the improvement in business value is superior when the different channels are implemented in a simultaneous way; indeed, by implementing an omnichannel strategy, introducing showrooms increases both online and offline sales. This confirms what has already been demonstrated by extant literature that analyzes the impact of an integrated strategy on a retailer's economic value, such as cross-channel purchasing or showrooming while adopting omnichannel functionalities (Bell et al. 2017; Melacini et al. 2018; Kumar et al. 2019).

Moreover, (ii) the study highlights the paramount importance of a smart omnichannel as a coopetition and competition lever for internationalized SMEs operating in traditional businesses, such as 'Made in Italy'. In this sense, the importance of digitalization processes within companies that operate via omnichannel has also been demonstrated, as they generate positive effects at the micro- (i.e., more accessible information flow, which improves relations between actors working within the same organization), meso- (i.e., stimulate a constant interaction between actors to satisfy the present and future needs of customers)

and macro-level (implementation of new practices through which collaborations between actors of different levels and the reduction of information asymmetries also at institutional level may generate patterns of value co-creation).

Specifically, the integrated platform underlying the smart international omnichannel based on a perfect synchronization between one device and another accomplishes closer connections and interactions between multiple actors within the global value chain (cooperation lever) and, at the same time, supports growth strategies abroad (i.e., enlarging the covered markets, deeply entering the existing markets) (competition lever), despite the financial constraints and entry barriers that SMEs usually face. In sum, the adoption of an omnichannel strategy enables higher visibility at the global level and reduces investments abroad. Transactional costs of doing business internationally also decrease through a better knowledge of the products' characteristics, which is particularly useful in the agri-food sector. Therefore, neglecting the smart omnichannel is risky and may seriously compromise the survival of the firm in the international market.

Despite the contributions outlined above, this study is somewhat limited by the investigation of a single case study that does not allow generalizations. Thus, future studies require a multiple case study design including other internationalized SMEs, also operating in different industries of the Made in Italy category. Digitalization and omnichannel strategy also require further investigation of their influence on SMEs' organizational structure and the creation of wholly-owned subsidiaries abroad.

Author Contributions: Conceptualization, M.V.C. and R.M.; methodology, M.V.C., R.M. and S.M.; writing—original draft preparation, M.V.C. and R.M.; findings, M.V.C., R.M. and S.M.; discussion, M.V.C., R.M. and F.M.; conclusions, M.V.C., R.M. and F.M.; writing—review and editing, M.V.C., R.M., F.M. and S.M. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

References

- Ahsan, Mujtaba, and Martina Musteen. 2011. Multinational enterprises' entry mode strategies and uncertainty: A review and extension. *International Journal of Management Review* 13: 376–92. [\[CrossRef\]](#)
- Akaka, Melissa Archpru, and Stephen L. Vargo. 2015. Extending the context of service: From encounters to ecosystems. *Journal of Services Marketing* 29: 453–62. [\[CrossRef\]](#)
- Akaka, Melissa Archpru, Stephen L. Vargo, and Robert F. Lusch. 2013. The complexity of context: A service ecosystems approach for international marketing. *Journal of International Marketing* 21: 1–20. [\[CrossRef\]](#)
- Anastasiadis, Foivos, Naoum Tsolakis, and Jagjit Srari. 2018. Digital technologies towards resource efficiency in the agri-food sector: Key challenges in developing countries. *Sustainability* 10: 4850. [\[CrossRef\]](#)
- Autio, Erkko, and Ivo Zander. 2016. Lean internationalization. *Academy of Management Proceedings* 1: 2–27. [\[CrossRef\]](#)
- Bakhtin, Pavel, Elena Khabirov, Ilya Kuzminov, and Thomas Thurner. 2020. The future of food production—A text-mining approach. *Technology Analysis & Strategic Management* 32: 516–28.
- Banik, Shanta. 2021. Exploring the involvement-patronage link in the phygital retail experiences. *Journal of Retailing and Consumer Services* 63: 102739. [\[CrossRef\]](#)
- Barile, Sergio, and Francesco Polese. 2010. Smart service systems and viable service systems: Applying systems theory to service science. *Service Science* 2: 21–40. [\[CrossRef\]](#)
- Barile, Sergio, Maria Vincenza Ciasullo, Orlando Troisi, and Debora Sarno. 2017. The role of technology and institutions in tourism service ecosystems. *The TQM Journal* 29: 811–33. [\[CrossRef\]](#)
- Bell, David R., Santiago Gallino, and Antonio Moreno. 2017. Offline showrooms in omnichannel retail: Demand and operational benefits. *Management Science* 64: 1629–51. [\[CrossRef\]](#)
- Bharadwaj, Anandhi, Omar El Sawy, Paul Pavlou, and N. Venkatraman. 2013. Digital business strategy: Toward a next generation of insights. *MIS Quarterly* 37: 471–82. [\[CrossRef\]](#)
- Braun, Virginia, and Victoria Clarke. 2019. Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health* 11: 589–97. [\[CrossRef\]](#)

- Cenamor, Javier, Vinit Parida, and Joakim Wincent. 2019. How entrepreneurial SMEs compete through digital platforms: The roles of digital platform capability, network capability and ambidexterity. *Journal of Business Research* 100: 196–206. [\[CrossRef\]](#)
- Chandler, Jennifer, and Stephen L. Vargo. 2011. Contextualization: Network intersections, value-incontext, and the co-creation of markets. *Marketing Theory* 11: 35–49. [\[CrossRef\]](#)
- Chawla, Raghu, and Praveen Goyal. 2021. Emerging trends in digital transformation: A bibliometric analysis. *Benchmarking: An International Journal* 29: 1069–112. [\[CrossRef\]](#)
- Chen, Xiaoxia, and Zhongbin Li. 2021. Scientific Measurement and Visualization Analysis of International Omni-channel Retailing Research (2011–2020) Research on Knowledge Graph-Based on Co-word Analysis. *Journal of Physics: Conference Series* 1861: 012078. [\[CrossRef\]](#)
- Ciasullo, Maria Vincenza, and Raffaella Montera. 2021. *Digital Servitization in B2B Manufacturing Systems. Combining Theory and Practice for Competitiveness Enhancement*. Milano: Franco Angeli.
- Ciasullo, Maria Vincenza, Paola Castellani, Silvia Cosimato, and Chiara Rossato. 2019. How smartness enables value co-creation: An explorative study of Italian fashion retail. In *Predicting Trends and Building Strategies for Consumer Engagement in Retail Environments*. Edited by Giuseppe Granata, Andrea Moretta and Theodosios Tsiakis. Hershey: IGI Global, pp. 226–48. [\[CrossRef\]](#)
- Ciasullo, Maria Vincenza, Francesco Polese, Raffaella Montera, and Luca Carrubbo. 2021. A digital servitization framework for viable manufacturing companies. *Journal of Business & Industrial Marketing* 36: 142–60.
- Coviello, Nicole, Liena Kano, and Peter W. Liesch. 2017. Adapting the Uppsala model to a modern world: Macro-context and microfoundations. *Journal of International Business Studies* 48: 1151–64. [\[CrossRef\]](#)
- Covin, Jeffrey G. 1991. Entrepreneurial versus conservative firms: A comparison of strategies and performance. *Journal of Management Studies* 28: 439–62. [\[CrossRef\]](#)
- Davis, Peter S., and Paula D. Harveston. 2000. Internationalization and Organizational Growth: The Impact of Internet Usage and Technology Involvement Among Entrepreneur-led Family Businesses. *Family Business Review* 13: 107–20. [\[CrossRef\]](#)
- Derhami, Shahab, Benoit Montreuil, and Guilhem Bau. 2021. Assessing product availability in omnichannel retail networks in the presence of on-demand inventory transshipment and product substitution. *Omega (United Kingdom)*. [\[CrossRef\]](#)
- Du, Shaofu, Li Wang, and Li Hu. 2019. Omnichannel management with consumer disappointment aversion. *International Journal of Production Economics* 215: 84–101. [\[CrossRef\]](#)
- Dwyer, W. Gibb, and Alan L. Wilkins. 1991. Better stories, not better constructs, to generate better theory: A rejoinder to Eisenhardt. *Academy of Management Review* 16: 613–19. [\[CrossRef\]](#)
- Eisenhardt, Kathleen M. 1989. Making fast strategic decisions in high-velocity environments. *Academy of Management Journal* 32: 543–76.
- Eisenhardt, Kathleen M., and Melissa E. Graebner. 2007. Theory building from cases: Opportunities and challenges. *Academy of Management Journal* 50: 25–32. [\[CrossRef\]](#)
- Elia, Stefano, Maria Giuffrida, Marcello M. Mariani, and Stefano Bresciani. 2021. Resources and digital export: An RBV perspective on the role of digital technologies and capabilities in cross-border e-commerce. *Journal of Business Research* 132: 158–69. [\[CrossRef\]](#)
- Eriksson, Paivi, and Anne Kovalainen. 2015. *Qualitative Methods in Business Research: A Practical Guide to Social Research*. London: Sage.
- Festa, Giuseppe, Matteo Rossi, Ashutosh Kolte, and Mario Situm. 2020. Territory-based knowledge management in international marketing processes—The case of “Made in Italy” SMEs. In *European Business Review*. London: Emerald Publishing.
- Frishammar, Johan, Javier Cenamor, Harald Cavalli-Björkman, Emma Hernell, and Johan Carlsson. 2018. Digital strategies for two-sided markets: A case study of shopping malls. *Decision Support Systems* 108: 34–44. [\[CrossRef\]](#)
- Frow, Pennie, Janet R. McColl-Kennedy, and Adrian Payne. 2016. Co-creation practices: Their role in shaping a health care ecosystem. *Industrial Marketing Management* 56: 24–39. [\[CrossRef\]](#)
- García-Álvarez de Perea, Juan, Carolina Ramírez-García, and Aida Del Cubo-Molina. 2019. Internationalization business models and patterns of SMEs and MNEs: A qualitative multi-case study in the agrifood sector. *Sustainability* 11: 2755. [\[CrossRef\]](#)
- Ghezzi, Antonio, and Angelo Cavallo. 2020. Agile business model innovation in digital entrepreneurship: Lean startup approaches. *Journal of Business Research* 110: 519–37. [\[CrossRef\]](#)
- Gnizy, Itzhak. 2019. Big data and its strategic path to value in international firms. *International Marketing Review* 36: 318–41. [\[CrossRef\]](#)
- Guercini, Simone, Silvia Ranfagni, and Andrea Runfola. 2020. E-commerce internationalization for top luxury fashion brands: Some emerging strategic issues. *Journal of Management Development* 39: 423–36. [\[CrossRef\]](#)
- Gupta, Vishal K., Suman Niranjana, Banu A. Goktan, and John Eriskon. 2016. Individual entrepreneurial orientation role in shaping reactions to new technologies. *International Entrepreneurship and Management Journal* 12: 935–61. [\[CrossRef\]](#)
- Hannibal, Martin, and Gary Knight. 2018. Additive manufacturing and the global factory: Disruptive technologies and the location of international business. *International Business Review* 27: 1116–27. [\[CrossRef\]](#)
- Hervé, Annaële, Christophe Schmitt, and Rico Baldeger. 2020. Digitalization, entrepreneurial orientation and internationalization of micro-, small- and medium-sized enterprises. *Technology Innovation Management Review* 10: 5–17. [\[CrossRef\]](#)
- Hubner, Alexander, Pedro Amorim, Jan Fransoo, Dorothee Honhon, Heinrich Kuhn, Victor Martinez del Albeniz, and David Robb. 2021. Digitalization and omnichannel retailing: Innovative OR approaches for retail operations. *European Journal of Operational Research* 294: 817–19. [\[CrossRef\]](#)
- Hult, G. Tomas M., Maria Alejandra Gonzalez-Perez, and Katarina Lagerström. 2020. The theoretical evolution and use of the Uppsala Model of internationalization in the international business ecosystem. *Journal of International Business Studies* 51: 38–49. [\[CrossRef\]](#)

- Ipsmiller, Edith, Desislava Dikova, and Keith D. Brouthers. 2022. Digital Internationalization of Traditional Firms: Virtual Presence and Entrepreneurial Orientation. *Journal of International Management* 28: 100940. [\[CrossRef\]](#)
- Jayashankar, Priyanka, Wesley J. Johnston, Sree Nilakanta, and Reed Burres. 2019. Co-creation of value-in-use through big data technology—a B2B agricultural perspective. *Journal of Business & Industrial Marketing* 35: 508–23.
- Juaneda-Ayensa, Emma, Ana Mosquera, and Yolanda Sierra Murillo. 2016. Omnichannel customer behavior: Key drivers of technology acceptance and use and their effects on purchase intention. *Frontiers in Psychology* 7: 1117. [\[CrossRef\]](#)
- Klaus, Philipp P. 2021. Phygital—the emperor’s new clothes? *Journal of Strategic Marketing*, 1–8. [\[CrossRef\]](#)
- Kolmykova, Tatiana Sergeevna, Anna Sergeevna Obukhova, Snezhanna Vladimirovna Klykova, Petr Nikolaevic Mashegov, Alexey Gennadievic Zaitsev, and Olga Vasilevna Popova. 2021. Features and benefits of digital technologies in agricultural enterprises. In *E3S Web of Conferences*. Les Ulis: EDP Sciences, vol. 247, p. 01018.
- Kumar, Anuj, Amit Mehra, and Subodha Kumat. 2019. Why do stores drive online sales? Evidence of underlying mechanisms from a multichannel retailer. *Information Systems Research* 30: 319–38. [\[CrossRef\]](#)
- Lee, Yan-Yin, Mohammad Falahat, and Bik-Kai Sia. 2019. Impact of Digitalization on the Speed of Internationalization. *International Business Research* 12: 4. [\[CrossRef\]](#)
- Leonidou, Leonidas C. 2004. An analysis of the barriers hindering small business export development. *Journal of Small Business Management* 42: 279–302. [\[CrossRef\]](#)
- Mars, Matthew M., Judith L. Bronstein, and Robert F. Lusch. 2012. The value of a metaphor: Organizations and ecosystems. *Organizational Dynamics* 41: 271–80. [\[CrossRef\]](#)
- Matarazzo, Michela, Gabriele Barbaresco, and Riccardo Resciniti. 2016. Effects on cultural distance of foreign acquisitions: Evidence from Italian acquired firms. *Mercati e Competitività* 3: 159–81. [\[CrossRef\]](#)
- Matarazzo, Michela, Lara Penco, and Giorgia Profumo. 2020. How is digital transformation changing business models and internationalisation in Made in Italy SMEs? *Sinergie Italian Journal of Management* 38: 89–107. [\[CrossRef\]](#)
- Melacini, Marco, Sara Perotti, Monica Rasini, and Elena Tappia. 2018. E-fulfilment and distribution in omni-channel retailing: A systematic literature review. *International Journal of Physical Distribution & Logistics Management* 48: 391–414.
- Mironkina, Alina, Sergei Kharitonov, Alexey Kuchumov, and Alexey Belokopytov. 2020. Digital technologies for efficient farming. In *IOP Conference Series: Earth and Environmental Science*. Bristol: IOP Publishing, vol. 578, p. 012017.
- Morakanyane, Resego, Audrey A. Grace, and Philip O'Reilly. 2017. Conceptualizing digital transformation in business organizations: A systematic review of literature. Paper presented at Bled eConference, Bled, Slovenia, June 18–21.
- Ojala, Arto, Natasha Evers, and Alex Rialp. 2018. Extending the international new venture phenomenon to digital platform providers: A longitudinal case study. *Journal of World Business* 53: 725–39. [\[CrossRef\]](#)
- Penco, Lara, Teresina Torre, and Roberta Scarsi. 2019. Does strategic orientation influence strategy formulation and organisational design in Italian food medium sized enterprises? The role of the family. *British Food Journal* 122: 1397–419. [\[CrossRef\]](#)
- Polese, Francesco, Sergio Barile, Francesco Caputo, Luca Carrubbo, and Leonard Waletzky. 2018. Determinants for value cocreation and collaborative paths in complex service systems: A focus on (smart) cities. *Service Science* 10: 397–407. [\[CrossRef\]](#)
- Rossato, Chiara, and Paola Castellani. 2020. The contribution of digitalisation to business longevity from a competitiveness perspective. *The TQM Journal* 32: 617–45. [\[CrossRef\]](#)
- Rothberg, Helen, and Erickson G. Scott. 2017. *From Knowledge to Intelligence*, 1st ed. London: Routledge.
- Royston, Steve. 2019. Digitalisation driving competitiveness. *The APPEA Journal* 59: 712–14. [\[CrossRef\]](#)
- Russo Spena, Tiziana, and Cristina Mele. 2020. Practising innovation in the healthcare ecosystem: The agency of third-party actors. *Journal of Business & Industrial Marketing* 35: 390–403.
- Scuotto, Veronica, Gabriele Santoro, Stefano Bresciani, and Manlio Del Giudice. 2017. Shifting intra-and inter-organizational innovation processes towards digital business: An empirical analysis of SMEs. *Creativity and Innovation Management* 26: 247–55.
- Serrano, Raúl, Isabel Acero, and Marta Fernandez-Olmos. 2016. Networks and export performance of agri-food firms: New evidence linking micro and macro determinants. *Agricultural Economics* 62: 459–70.
- Serrano, Raúl, Marta Fernandez-Olmos, and Vicente Pinilla. 2018. Internationalization and performance in agri-food firms. *Spanish Journal of Agricultural Research* 16: 1–16. [\[CrossRef\]](#)
- Shahi, Chinmay, and Manish Sinha. 2021. Digital transformation: Challenges faced by organizations and their potential solutions. *International Journal of Innovation Science* 13: 17–33. [\[CrossRef\]](#)
- Smith, Adam. 1776. *The Wealth of Nations*. New York: The Modern Library.
- Storbacka, Kaj, Roderick J. Brodie, Tilo Böhmman, Paul P. Maglio, and Suvi Nenonen. 2016. Actor engagement as a microfoundation for value co-creation. *Journal of Business Research* 69: 3008–17. [\[CrossRef\]](#)
- Strange, Roger, and Antonella Zucchella. 2017. Industry 4.0, global value chains and international business. *Multinational Business Review* 25: 174–84. [\[CrossRef\]](#)
- Sun, Yongqiang, Chaofan Yang, Xiao-Liang Shen, and Nan Wang. 2020. When digitalized customers meet digitalized services: A digitalized social cognitive perspective of omnichannel service usage. *International Journal of Information Management* 54: 102200. [\[CrossRef\]](#)
- Tewksbury, Richard. 2009. Qualitative versus quantitative methods: Understanding why qualitative methods are superior for criminology and criminal justice. *Journal of Theoretical and Philosophical Criminology* 1: 38–58.

- Vargo, Stephen L., and Robert F. Lusch. 2016. Institutions and axioms: An extension and update of service-dominant logic. *Journal of the Academy of Marketing Science* 44: 5–23. [\[CrossRef\]](#)
- Verhoef, Peter C., P. K. Kannan, and Jeffrey J. Inman. 2015. From multi-channel retailing to omni-channel retailing introduction to the special issue on multi-channel retailing. *Journal of Retailing* 91: 174–81. [\[CrossRef\]](#)
- Vial, Gregory. 2019. Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems* 28: 118–44. [\[CrossRef\]](#)
- Wamba, Samuel Fosso, and Maciel M. Queiroz. 2020. Industry 4.0 and the supply chain digitalisation: A blockchain diffusion perspective. *Production Planning & Control* 33: 1–18.
- Warner, Karl S., and Maximilian Wäger. 2019. Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning* 52: 326–49. [\[CrossRef\]](#)
- Watson, George F., IV, Scott Weaven, Helen Perkins, Deepak Sardana, and Robert W. Palmatier. 2018. International market entry strategies: Relational, digital, and hybrid approaches. *Journal of International Marketing* 26: 30–60. [\[CrossRef\]](#)
- Westerman, George, Didier Bonnet, and Andrew McAfee. 2014. *Leading Digital: Turning Technology into Business Transformation*. Boston: Harvard Business Press.
- Wolfert, Sjaak, Lan Ge, Cor Verdouw, and Marc-Jeroen Bogaardt. 2017. Big data in smart farming—A review. *Agricultural Systems* 153: 69–80. [\[CrossRef\]](#)
- Wood, Matthew S., and William Mckinley. 2020. The entrepreneurial opportunity construct: Dislodge or leverage? *Academy of Management Perspectives* 34: 352–36. [\[CrossRef\]](#)
- Yin, Robert K. 2017. *Case Study Research and Applications: Design and Methods*, 6th ed. Thousand Oaks: Sage.
- Zouaghi, Ferdaous, and Mercedes Sánchez. 2016. Has the global financial crisis had different effects on innovation performance in the agri-food sector by comparison to the rest of the economy? *Trends in Food Science & Technology* 50: 230–42.
- Zuiderwijk, Anneke, Marijn Janssen, Geerten van de Kaa, and Kostas Poulis. 2016. The wicked problem of commercial value creation in open data ecosystems: Policy guidelines for governments. *Information Polity* 21: 223–36. [\[CrossRef\]](#)