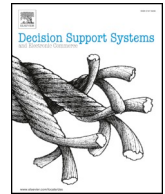




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# How do agribusinesses thrive through complexity? The pivotal role of e-commerce capability and business agility



Jiabao Lin<sup>a</sup>, Lei Li<sup>a,\*</sup>, Xin (Robert) Luo<sup>b</sup>, Jose Benitez<sup>c,\*</sup>

<sup>a</sup> College of Economics and Management, South China Agricultural University, Guangzhou, China

<sup>b</sup> Anderson School of Management, University of New Mexico, Albuquerque, NM, USA

<sup>c</sup> Department of Supply Chain Management and Information Systems, Rennes School of Business, Rennes, France

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## ABSTRACT

The recent COVID-19 pandemic has clearly shown how agricultural foods and e-commerce initiatives are critical for many organizations, regions, and countries worldwide. Despite this vital importance, prior IS research on the business value of IT has not paid enough attention to the potential specificities of the agribusinesses. This study examines the impact of e-commerce capability on business agility in agribusinesses. Using a sample of Chinese agriculture firms, we find that: 1) The e-commerce capability of agribusinesses enables two types of business agility: market capitalizing agility and operational adjustment agility, and 2) while environmental complexity positively moderates the effects of e-commerce capability on the market capitalizing agility and operational adjustment agility, environmental dynamism does not. This study contributes to the IS research on the business value of IT by providing an eloquent theoretical explanation and empirical evidence on how e-commerce capability help agricultural firms to thrive through complexity by enabling market capitalizing agility (strategic focus) and operational adjustment agility (operational focus).

## 1. Introduction

The recent COVID-19 pandemic has clearly shown how agricultural foods and e-commerce initiatives are critical for many organizations, regions, and countries worldwide. The COVID-19 pandemic has forced a global lockdown that has suspended almost the entire economy worldwide except strategic industries such as the one of agribusiness.<sup>1</sup> This industry, which is sometimes undervalued, presents several specificities that convert it in a unique context of the study. Agribusinesses face idiosyncratic product characteristics, production processes, and commercialization. Unlike industrial products, agricultural products come from living organisms (plants or animals). Their breeding, growth, and death have significant regularity [31]. The fresh, perishable, and vulnerable characteristics of agricultural products bring about high constraints in the production, processing, storage, and transportation [42]. Agricultural production is the activity making use of the structure of life and natural forces. It is not only governed by agricultural product's life force structure, but it also needs to cope with the constraints of the natural environment and climate [12]. The agricultural production has cyclical, seasonal, regional characteristics, which make it different from other standardized industrial production,

which can increase or decrease the production with the flexibility [1]. Finally, the commercialization of agricultural products involves many links in the supply chain, such as wholesale-distribution-retail mode, resulting in low efficiency, high cost, and risk [36].

E-commerce technology can play an increasingly paramount role in empowering such a traditional industry as agriculture. The technological underpinnings of e-commerce avail to expand the market channels of agricultural products, realizing the scale and organizational realm of agricultural product circulation, reducing the intermediaries of distribution, and reducing transaction costs [38]. Recent studies have suggested that e-commerce helps firms to increase the information flow of agricultural products, reduce asymmetric information of farm products, and promote the creation of traceability information system for agricultural product chains (e.g., [18]). E-commerce has become a critical mechanism for increasing agricultural efficiency and supporting rural prosperity. Authoritative statistics epitomize that the nationwide online rural retail transactions in China (the context of this study) amounted to 113.30 billion US Dollars in the first half of 2019, among which retail sales of agricultural products reached 27.32 billion US Dollars [48]. However, other than a few successes, e-commerce continues to face challenges to penetrate the agricultural industry. A recent

\* Corresponding authors.

E-mail addresses: [linjb@scau.edu.cn](mailto:linjb@scau.edu.cn) (J. Lin), [674815685@qq.com](mailto:674815685@qq.com) (L. Li), [xinluo@unm.edu](mailto:xinluo@unm.edu) (X.R. Luo), [jose.benitez@rennes-sb.com](mailto:jose.benitez@rennes-sb.com) (J. Benitez).

<sup>1</sup> An agribusiness or agricultural firm is an organization that engages in production and marketing of agricultural products.

report on the development of agricultural e-commerce in China reveals that only 1% of agricultural firms are profitable in e-commerce initiatives [17]. Agribusinesses face challenges such as limited budget to implement e-commerce initiatives, a lack of technological culture, and limited information technology (IT) knowledge. As such, there is a pressing need to investigate this predicament vis-à-vis the prosperity of agricultural firms.

With the growth of agricultural firms being plagued by the lack of underlying revenue models or by their insufficiency, knowledge of how to leverage e-commerce initiatives for business transformation is essential for the development and survival of those organizations. However, there is a lack of understanding of how e-commerce initiatives can support agribusinesses in terms of cultivating their business agility for the business transformation. Prior Information Systems (IS) research on the business value of IT has not paid enough attention to the role of IT in agribusinesses.

E-commerce capability, as a specific IT capability, reflects a firm's ability "to use the Internet to share information, facilitate transactions, improve customer service, and strengthen backend integration" ([72], p. 279; [71], p. 169). Business agility is a firm's organizational capability that refers to the firm's ability to sense and respond to continuous changes rapidly (e.g., business opportunities) in the market and helps firms to develop and thrive in a competitive environment [7,29]. Prior IS research indicates that business agility enables companies to sense better business opportunities for competitive action in target markets ([8,59]; [69]). At present, the deployment of e-commerce initiatives in agribusinesses in China is still in the embryonic stage, as agricultural firms are typically slow in responding to rapid market changes. Moreover, owing to the intense sensitivity of agricultural products to time factors and consumers' concern of health and quality of life, the demand for timeliness and responsiveness of agricultural firms is becoming increasingly stringent. Thus, understanding how to improve business agility is salient to agricultural firms' survival and sustainability.

Examining the impact of IT on business agility has been a critical research topic in extant IS research [7,26,59]. The focus of this body of IS research can be epitomized in four lines of investigation. The first one covers the conceptualization of IT infrastructure flexibility and the execution of evidence-based research on how IT infrastructure flexibility impacts firm performance [7,16]. The second refers to the theoretical conceptualization of business agility (or business flexibility)<sup>2</sup> [51,59,67]. The third line of research has focused on the empirical study of the impact of a firm's IT infrastructure capability on business agility and firm performance [8,19]. The last one has explored the contingency factors that may affect how IT influences business agility and firm performance [22,23]. However, prior IS research has not examined the possible impact of specific IT capabilities (e.g., e-commerce capability) on business agility nor has explored the role of external contingency factors (e.g., environmental dynamism, environmental complexity) on this equation in the specific context of agribusiness, which has several specificities, as it has been explained above. Our study has the research goal to fill all these gaps.

We examine whether e-commerce capability affects business agility in agricultural firms and whether environmental uncertainty (environmental dynamism and environmental complexity) may exert a reinforcing moderating role in this equation. Drawn on the organizational "capabilities-based theory and the IT-enabled organizational capabilities perspective" ([8], p. 509), the central thesis of this study is that agricultural firms can use e-commerce capability to enable two types of business agility: market capitalizing agility (strategic focus) and operational adjustment agility (operational focus), while environmental dynamism and environmental complexity may have a positive moderating effect on this equation.

<sup>2</sup> Drawn on prior IS research (e.g., [7]), business agility and business flexibility are considered as similar concepts in this study.

Our research model was tested using firm-level survey data from 290 agricultural companies in China. We found that e-commerce capability has positive effects on both market capitalizing agility and operational adjustment agility. Furthermore, e-commerce capability has a more significant effect on market capitalizing agility than on operational adjustment agility. We also found that while environmental complexity positively moderates the effects of e-commerce capability on the market capitalizing agility and operational adjustment agility, environmental dynamism does not. This paper makes two critical incremental contributions to IS research: 1) This study extends prior IS research on IT and business agility by theoretically explaining and empirically proving how agribusinesses can leverage e-commerce capability to facilitate market capitalizing agility and operational adjustment agility; and 2) this study also sheds new light on IS theory as to how environmental uncertainty (i.e., environmental dynamism and environmental complexity) affects the impact of e-commerce capability on business agility, illuminating that while environmental complexity makes the impact of e-commerce capability on business agility more robust, environmental dynamism does not, in the specific context of agribusinesses.

## 2. Theoretical foundations

### 2.1. Organizational capabilities-based theory and IT-enabled organizational capabilities perspective

The organizational capabilities-based theory has become the evolution of the resource-based theory, where overall organizational capabilities have been defined as the firm's ability to use and leverage the firm's resources [10]. Organizational capabilities are sophisticated firm's abilities and requirements of core knowledge [37]. Helfat and Peteraf [33] defined organizational capabilities as "the ability of an organization to perform a coordinated set of tasks, utilizing organizational resources, for the purpose of achieving a particular end result" ([33], p. 999). Organizational capabilities are fundamental abilities for firms to efficiently solve organizational problems [66]. Prior IS and Strategy research have used organizational capabilities-based theory to conceptualize, understand, and explain both IT and organizational/business capabilities, and the relationships between them [6,9]. Different levels and types of capabilities can coexist in the contemporary firm, and traditionally prior IS research on the business value of IT has discriminated between IT capabilities and business/organizational/non-IT capabilities ([7]; [69]). E-commerce capability is a specific IT capability examined in this study (e.g., [15]). Business agility is a particular organizational capability studied in this IS research [64].

Based on the organizational capabilities-based theory, the perspective of IT-enabled organizational capabilities argues that IT capabilities influence firm performance through the development of organizational capabilities, such as business flexibility, talent management, operational competence, absorptive capacity, and knowledge sharing [8,9,47]. For example, Liu et al. [44] find that IT capabilities positively affect firm performance by providing absorptive capability and supply chain agility. Chen et al. [21] suggest that IT capabilities improve product innovation performance by enhancing corporate entrepreneurship. Benitez et al. [9] show that e-business technology improves firm profitability by affecting operational competence, and the effect changes dynamically. Goh and Arenas [30] find that public organizations can solve the salient tradeoffs of public management by executing mitigation strategies derived from IT-enabled organizational capabilities. IT-enabled organizational capabilities perspective has become one of the strongest theoretical explanations resolving the so-called IT productivity paradox [8]. Our study builds on the IT-enabled organizational capabilities perspective to conceptualize e-commerce capability and explain its effects on business agility. Also, we theorize that the effect of e-commerce capability on business agility may be conditioned/moderated/amplified by environmental dynamism and

environmental complexity (two dimensions of the business environment).

## 2.2. E-commerce capability

IS research on the business value of IT has conceptualized and studied different types of IT capabilities [57]. E-commerce capability refers to the firm's ability "to use the Internet to share information, facilitate transactions, improve customer service, and strengthen backend integration" ([72], p. 279; [71], p. 169). E-commerce capability is a unique IT capability ([41]; [15]) that reflects a company's "ability to apply e-commerce to collaboratively manage intra- and inter-organizational processes, such as services to consumers, collaboration with business partners, and intra-organizational relationships" ([39], p. 644).<sup>3</sup> Based on prior IS research [3,27,28,35], we conceptualize e-commerce capability as a second-order construct composed of three key e-commerce lower-order capabilities: e-commerce management capability, e-commerce technical capability, and e-commerce talent capability. E-commerce management capability is the combination of foresight, business intelligence, and e-commerce knowledge, and it can effectively foresee and utilize e-commerce technologies, making business processes consistent with organizational goals [21]. Firms with a high e-commerce management capability can coordinate various activities, optimize e-commerce work to help agricultural firms successfully integrate and apply new technologies, and achieve efficient management [13]. E-commerce "technical capability is defined as the firm's ability to deliver technical solutions" efficiently, which will enable firms to integrate e-commerce initiatives into their IT infrastructure ([28], p. 380). E-commerce technical capability refers to various aspects of a firm's e-commerce capability. On the one hand, the technical capability may present the physical assets (computers, network facility) that provide the scope of information sharing for agricultural firms [7,23]. On the other hand, e-commerce technical capabilities can quickly provide technical solutions that include enterprise-specific "know-how, problem-solving processes, and/or business unit collaboration strategies" to enable agricultural enterprises to integrate new e-commerce technologies effectively and help them overcome technical deficiencies ([7,39], p. 644). E-commerce talent capability refers to the employees' professional knowledge and skills, which are fundamental to deploy e-commerce initiatives [7,35]. Employees with high e-commerce skills will design e-commerce initiatives based on key performance indicators and the interconnection, compatibility, and modularity of e-commerce. At the same time, these skills will help to predict the change of e-commerce demand and align the firm's e-commerce strategy with the business strategy [27].

## 2.3. Business agility

With the increasing organizational pressure of running IT-driven business transformation initiatives and the growing market uncertainty, business agility is considered a critical organizational capability to respond to globalization needs and new business opportunities [46]. Business agility enables companies to sense better business opportunities for competitive actions in target markets [59], reorganize and adjust firm activities in a changing business environment [32], increase product customization, and shorten reaction time [63]. Business agility

<sup>3</sup> Wens Food Group is the largest agribusiness in the Guangdong province (China). Since 1983 it produces and sells food mainly derived from pork and chicken. Wens has a high-level e-commerce capability. The company started its digital transformation journey in 2000, which included the e-commerce experimentation. In 2018 this agribusiness had developed fully the capability to sell its food online, which has provided Wens an agility-driven competitive advantage during the COVID-19 pandemic, where online purchasing has become the preferred method for daily food procurement for Chinese customers and sellers.

refers to a firm's ability to quickly sense and respond to market opportunities for competitive action, thus helping the firm thrive more successfully in a competitive environment [8,45,52,53,59].

In line with Lu and Ramamurthy [45] and Sunghun et al. [62], we focus on two critical types of business agility: market capitalizing agility and operational adjustment agility. Market capitalizing agility emphasizes the perception and utilization of environmental changes to develop new strategic directions, which is the ability of agricultural firms to quickly improve products and services to meet customer needs by continuously monitoring and utilizing environmental changes [29]. This capability regards the changing market environment as an opportunity to formulate new strategic directions and decisions and reflects the development direction of the firms and the attitude of entrepreneurs [59,62]. In extant IS research, market capitalizing agility has also been referred to as strategic agility/flexibility (e.g., [8,22]). For example, Mercadona (a leading food supermarket in Spain) has become an agile agribusiness by developing a market capitalizing agility capability, which has converted it into the leader of the food marketers in Spain. Mercadona identified the opportunity to transform the concept of a supermarket and the customer value proposition. This company deployed large supermarkets in the downtown opposed to the hypermarkets in the suburbs of the cities executed by its direct competitors (e.g., Carrefour). They developed "the sheep business model" by providing customers an outstanding value proposition and good value for money for their white brands. Through this model, customers are forced to decide between the leading brand in the market (better but more expensive) and the Mercadona white brand (excellent value for money). Given the good reputation of its white brands (e.g., Hacendado, Deliplus, El Bosque Verde), customers just follow the recommendations from other customers, which seems to simulate the sheep behavior. Just serving as an analogy, a sheep goes where others go.

Operational adjustment agility refers to the rapid adaptation of internal processes to market changes and other external stimuli. It emphasizes rapid operational processes reconfiguration and relaxes the cooperative relationships with business partners when changes are needed [45]. Also, operational adjustment agility has been referred to as operational agility/flexibility [7,8]. For example, Mercadona is also agile at the operational level by reconfiguring its internal processes and adapting them to the needs of its white brand manufacturers to execute its business model. The operational agility of this company has become evident when it has been able to provide face masks more efficiently than the Spanish Government during the COVID-19 pandemic.

## 2.4. Environmental uncertainty

Although the organizational capabilities-based theory has been widely used in Strategy, researchers have found that it ignores the effect of the external business environment on firms [43]. Therefore, some studies have supplemented the organizational capabilities-based theory and suggested that a proper combination between internal mechanisms and external variables could better explain how and why some firms achieve more exceptional performance than others [55]. For example, Aragon and Sharma [4] suggest that some environmental factors provide appropriate conditions for the deployment of organizational capabilities. In the specific IS research on the business value of IT, Stoel and Muhanna [61] examine the moderating role of environmental conditions on the relationship between IT capability and firm performance. In the same vein, Chen et al. [23] argue that environmental factors may moderate the relationship between IT capabilities and operational agility.

Compared with other industrial firms, e-commerce initiatives of agricultural firms will be more easily affected by the external environment because of an imperfect infrastructure, a shortage of technical talent, and an unsound logistics system. For these reasons and based on prior IS research on the business value of IT that have

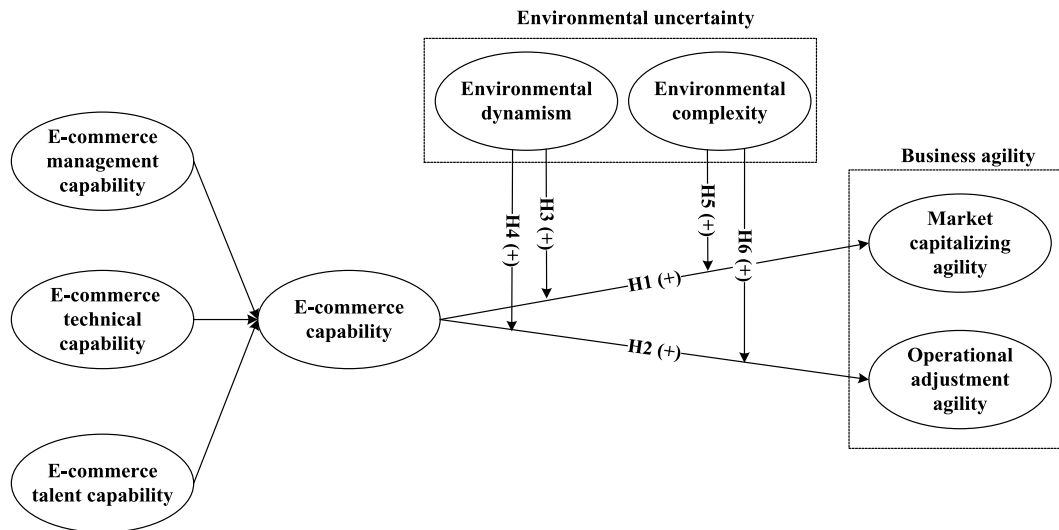


Fig. 1. The proposed research model.

suggested the importance of the contingency conditions (e.g., [61]), we examine the possible moderating role of environmental uncertainty in the impact of e-commerce capability on business agility. Environment uncertainty refers to turbulence or changes “in customer markets, consumer preferences, technologies, or competitive intensity” ([23,60], p. 231). Specifically, we focus on two critical dimensions of environmental uncertainty: environmental dynamism and environmental complexity [19,23,50]. Environmental dynamism is the speed and unpredictability of environmental changes. These changes include technological changes, unpredictable competitors' actions, and changes in customer demand [50]. A business environment is complex when it is heterogeneous and difficult to understand for executives because it includes a high diversity in customer buying habits, competitive nature, and lines of products [23]. Our proposed research model is illustrated in Fig. 1.

### 3. Proposed research model and hypotheses development

#### 3.1. E-commerce capability and business agility

Agricultural firms face a large amount of complex information to conceive, fathom, and respond to business opportunities and challenges [64]. E-commerce capability can help agricultural firms analyze, explain, and predict the potential effect of business opportunities and challenges [22]. E-commerce capability can also help agricultural firms use information communication technologies to exchange information and quickly perceive opportunities and challenges [27]. Further, e-commerce capability helps agricultural firms to use solutions to analyze customers' opinions to effectively predict the changes in market demand [19]. E-commerce management capability can assist agricultural firms in effectively deploying solutions and coordinating business and IT managers to share knowledge [2,13]. E-commerce technical capability can facilitate agricultural firms to integrate e-commerce initiatives efficiently into the existing IT infrastructure to provide a flexible infrastructure for sales transactions [3,7,72]. In essence, e-commerce capability can help agricultural firms organize business processes and quickly sense and seize potential business opportunities to improve market capitalizing agility. Therefore, we hypothesize the following:

**H1.** : There is a positive relationship between e-commerce capability and market capitalizing agility.

We also argue that e-commerce capability can enable the development of operational adjustment agility of agricultural firms. E-commerce capability can help agricultural firms to integrate existing

knowledge and skills with market disruptive factors, drive the modularization and automation of business processes, and then lead to new business processes [23,56,59]. When the market environment changes rapidly, agricultural firms with e-commerce talent capability can use their employee's digital skills to respond quickly and adjust operational processes to cope with the changes in demand [35]. The e-commerce management capability provides agricultural firms with a variety of solutions and adjusts operational activities to cope with changes [8,64]. In summary, the e-commerce firm's proficiency may facilitate agribusiness companies to rapidly adjust their operational processes and activities to adapt to developing environmental changes and develop their operational adjustment agility. Therefore, we formulate the following hypothesis:

**H2.** : There is a positive relationship between e-commerce capability and operational adjustment agility.

#### 3.2. The moderating role of environmental dynamism

In a dynamic environment, e-commerce capability becomes more valuable, enabling organizations to effectively mobilize various e-commerce assets and resources than in a relatively stable environment [38]. Consistent with this argument, prior IS research has found that in a dynamic environment, IT resources are more effective as they enable firms to perceive market changes and find competitive opportunities, thus positively affecting financial performance [40,49]. In agricultural firms, the needs of agricultural products/services are changing quickly, so firms need to reconfigure various e-commerce resources frequently, generate new knowledge, and continuously seek new opportunities to gain and maintain competitive advantage [71]. Companies are forced to quickly capture market information and analyze customer and competitor data to respond to market changes [20]. Therefore, we expect the positive effect of e-commerce capability on the market capitalizing agility to be more influential in a dynamic environment:

**H3.** : Environmental dynamism positively moderates the relationship between e-commerce capability and market capitalizing agility.

In a dynamic environment, firms must continuously reorganize resources, create or acquire new knowledge, to adjust operations to obtain sustainable competitive advantages [68]. E-commerce capability will become more valuable because it enables firms to mobilize all kinds of e-commerce resources than in a more stable environment [23,61]. Previous studies have shown that when the dynamism of the business environment increases, IT-enabled capabilities will become

more critical, which, in turn, can promote the formation of agility to cope with environmental changes [46,65]. In a dynamic environment, e-commerce capability can help agricultural firms quickly analyze market data, adjust the level of products and services, and make appropriate internal adjustments to tackle market fluctuations [61]. All in all, agricultural firms need to quickly make alternative arrangements, adjust operations, and react to environmental changes by using the e-commerce firm's proficiency. Therefore, we formulate the following hypothesis:

**H4. :** *Environmental dynamism positively moderates the relationship between e-commerce capability and operational adjustment agility.*

### 3.3. The moderating role of environmental complexity

The environmental complexity may also have a more substantial influence of e-commerce capability on business agility because complex environments generate more information processing requirements. E-commerce capability can help firms quickly perceive business challenges, collect and process a large amount of data, provide technical support, and process complexity, thus achieving a competitive advantage [24]. Companies with high-level e-commerce capability are more likely to find market opportunities and achieve success, which will be more critical in an environment with high diversity in customer habits, ways of competition, and lines of products [24,50]. It was found that when companies are under high pressure of environmental complexity, senior managers are forced to recognize the importance of IT and incorporate the development of IT capabilities into business planning [23,34,68]. As such, we posit that agricultural firms are more likely to capitalize on e-commerce capability to improve market capitalizing agility in a complex environment. Furthermore, agricultural firms with more reliable e-commerce capability can more effectively respond to market changes. Therefore, we hypothesize the following:

**H5. :** *Environmental complexity positively moderates the relationship between e-commerce capability and market capitalizing agility.*

In a complex environment, companies need to respond to environmental changes and adjust and simplify operational processes through appropriate knowledge to meet the changing needs [4]. Agricultural firms in a complex environment need to deal with unprecedented uncertainties arising from various changes [55] and high diversity in customer habits, competitor actions, and lines of products. Therefore, firms need higher e-commerce capability to help collect, store, process, and coordinate data and information from many and more diverse stakeholders. At the same time, e-commerce capability can help firms adjust operational processes according to the more precise and data-driven market forecasting and demand. Previous IS research shows that firms with high IT capabilities can better collect, analyze, and disseminate market information and apply and improve operational efficiency, thus making it more likely to achieve business process agility [23,61]. Similarly, we believe that agricultural firms are more likely to adjust operational processes and improve products driven by e-commerce initiatives in a complex environment because of the pressure to execute e-commerce initiatives and being agile to adjust the firm's operational processes. Therefore, we hypothesize the following:

**H6. :** *Environmental complexity positively moderates the relationship between e-commerce capability and operational adjustment agility.*

## 4. Research design and execution

### 4.1. Scale development

This study used a questionnaire to collect data and subsequently conducted an empirical study to calibrate and test the model, as measures of the constructs included in the research model are not directly

observable in the market or any available database. The questionnaire included two sections: basic information of the agricultural firms (e.g., firm size, profits, e-commerce experience, type of agribusiness) and the measurements of each variable included in the research model. This study includes seven key variables: e-commerce management capability, e-commerce technical capability, e-commerce talent capability, market capitalizing agility, operational adjustment agility, environmental dynamism, and environmental complexity. To ensure content validity, the measurement items were taken from the existing literature and adapted to e-commerce in agricultural firms (please see Table A1 in the Appendix). To ensure the Chinese scale can accurately reflect the meaning of the items, all of the items were first translated to Chinese by one researcher and then independently translated back to English by another researcher. Two English versions of the scale were then compared, and fine adjustments were made to minimize language discrepancies. In August 2017, 30 managers of the agriculture industry were solicited to complete the pre-test questionnaire. According to their feedback information, the scale was further modified to make the content accurate, smooth, and easy to understand.

### 4.2. Data collection

The target respondents of this study were the senior top or middle executives of agricultural firms because of their relatively comprehensive understanding of their firm's e-commerce initiatives, resource commitment, and strategic business initiatives. With the assistance of the Department of Agriculture and Rural Affairs of Guangdong province in China, we obtained a representative list and the contact information of the target firms. After communicating with the Chief Human Resource Officer of each firm's human resource department, we finally selected the target respondents from 400 agricultural firms in southern China. A senior top or middle executive from each company was selected as a key informant because they have a deep and holistic understanding of their firm's e-commerce initiatives, resource commitment, and strategic business initiatives. We made every possible effort to prevent the appearance of common method variance. First, the identity of the respondents was anonymous, and they were informed that there were no right or wrong answers. Second, we proposed to the respondents to collect precise information from other top IT and business executives in exceptional cases or items where they did not feel competent enough to answer [7]. Third, the items were not assigned to any specific construct, and the items were randomly organized in the questionnaire. We are confident all these preventive actions have minimized the collected data, and the empirical analyses of this study may be affected by common method variance.

A web link to the survey questionnaire was sent to the target respondents by email in October 2017. After a month, 315 questionnaires were completed and returned. Excluding 25 questionnaires with missing content, 290 valid questionnaires were collected and used for the empirical analysis. The statistical characteristics of the sample are shown in Table 1. In terms of firm size, more than 500 employees accounted for 74.4%, indicating that the majority were large and medium

**Table 1**  
Descriptive statistics of the sample (N = 290).

Attributes	Value	Frequency	Percentage
Firm size (number of employees)	< 200	32	11.0
	200–500	42	14.5
	500–1000	99	34.1
	> 1000	117	40.3
E-commerce experience	< 1 year	4	1.4
	1–3 years	55	19.0
	3–5 years	129	44.5
	5–10 years	80	27.6
	> 10 years	22	7.6

**Table 2**  
Descriptive statistics of the key respondents.

Attributes	Options	Frequency	Percentage
Gender	Male	165	56.9
	Female	125	43.1
Age	20–29	50	17.2
	30–35	148	51.0
	36–40	69	23.8
	> 40	23	7.9
Education	High school and below	2	0.7
	Junior college	26	9.0
	Bachelor's degree	235	81.0
	Master's degree and above	27	9.3
Job position	CEO	16	5.5
	Department Head	149	51.4
	Department Manager	125	43.1

firms, and 81% engaged in e-commerce for more than three years. Regarding the statistical characteristics of the respondents (see Table 2), 56.9% were men, 43.1% were women, 74.8% were 30–40 years old, 90.3% had undergraduate education, 5.5% were the Chief Executive Officer (CEO), 51.4% were department heads, and 43.1% were department managers, which guaranteed the respondents were well acknowledgeable to answer the questions included in the questionnaire.

## 5. Empirical analysis and results

### 5.1. The estimation strategy

We followed a three-step estimation strategy to test the research model. For the first two steps, we used the partial least squares (PLS) estimator. PLS path modeling is suitable to estimate a composite research model (please, see the next section) that includes a second-order construct as our research model (e-commerce capability) ([11,25]; [70]). First, we connected all the first-order constructs included in the research model to correlate between themselves freely and getting the composite variable scores. Second, we used these composite variables scores to estimate the second-order construct e-commerce capability (e.g., [7,10]). Third, we employed hierarchical regression with ordinary least squares (OLS) to test the hypotheses. In this step, we used the composite variables scores obtained in the second step of the PLS estimation. This third step using OLS should lead to similar results than also using PLS in the third step.

### 5.2. Composite model

There are “two main types of constructs: latent variables and artifacts” ([10], p. 4; [11]). “Latent variables cannot be observed directly but can be inferred from observable variables through a measurement model” ([10], p. 4). They are often conceptualized as behavioral concepts such as individual behavior, attitude, and personality traits [10,11]. “Artifacts or design constructs refer to a combination of ingredients in which the indicators compose the construct (not cause the artifact)” ([10], p. 4; [11]). They are products of theoretical thinking and/or theoretically justified constructions, which do not exist in nature, such as IT capability, IT ambidexterity, etc. Instead, they are created by executives and companies [7,11]. We assume that all the constructs included in the research model are composite at first- and second-order levels [10,11].

### 5.3. Confirmatory composite analysis

“We ran a confirmatory composite analysis to evaluate the goodness of fit of the saturated model (a model that enables free correlation among the measurements) at first- and second-order levels” (Table 3) ([54], p. 1065). “We examined the standardized root mean squared residual (SRMR),

**Table 3**  
Confirmatory composite analysis results.

Discrepancy	First-order level			Second-order level		
	Value	HI <sub>95</sub>	Conclusion	Value	HI <sub>95</sub>	Conclusion
SRMR	0.030	0.041	Supported	0.027	0.036	Supported
d <sub>ULS</sub>	0.080	0.153	Supported	0.032	2.059	Supported
d <sub>G</sub>	0.030	0.056	Supported	0.013	3.024	Supported

unweighted least squares discrepancy ( $d_{ULS}$ ), and geodesic discrepancy ( $d_G$ ) to evaluate the goodness of saturated model fit” ([54], p. 1065; [7,11]). The SRMR should be less than 0.080, and SRMR,  $d_{ULS}$ ,  $d_G$  should less than 95%-quantile of the bootstrap discrepancies [10,11]. The SRMR was 0.031 for first-order constructs and 0.027 for second-order constructs, both lower than the threshold of 0.080. The SRMR,  $d_{ULS}$ , and  $d_G$  were also within the 95%-quantile of the bootstrap discrepancies. Overall, this analysis suggests that with a 5% probability, our measurements are satisfactory to proceed with the empirical analysis.

### 5.4. Evaluation of the measurement model

We tested for multicollinearity, weights, loadings, and the significance level of the composite first- and second-order constructs [7,8,11]. The results show that VIFs values ranged from 1.029 to 1.563 at the first-order level and from 1.795 to 1.942 at the second-order level. All VIF values are well below 10, suggesting that multicollinearity is not a problem in our study [54]. All indicator weights (from 0.185\* to 0.554\*\*\*) and indicator loadings (from 0.507\*\*\* to 0.767\*\*\*) were significant. All dimension weights (from 0.238\* to 0.637\*\*\*) and dimension loadings (from 0.786\*\*\* to 0.943\*\*\*) were also significant, suggesting that our variables possess very good measurement properties [10], and we can proceed with the hypotheses testing.

### 5.5. Hypotheses testing

Six regression models were estimated with market capitalizing agility and operational adjustment agility as the dependent variables. The results are presented in Table 4. The control variables of firm size and e-commerce experience were entered in models 1 and 4, and e-commerce capability, environmental dynamism, and environmental complexity were added in models 2 and 5. Firm size was operationalized as the number of employees in an agricultural firm [5]. E-commerce experience was assessed as the number of years that agricultural firms have engaged in e-commerce initiatives. The interaction effects of e-commerce capability and environmental dynamism and of e-commerce capability and environmental complexity were entered in models 3 and 6. The results show that firm size has no effect on market capitalizing agility ( $\beta = -0.030$ , n.s.) and operational adjustment agility ( $\beta = -0.016$ , n.s.). E-commerce experience has marginal effect on market capitalizing agility ( $\beta = -0.090$ ,  $p < .10$ ) and operational adjustment agility ( $\beta = -0.079$ ,  $p < .1$ ). E-commerce capability has positive effects on market capitalizing agility ( $\beta = 0.494$ ,  $p < .001$ ) and operational adjustment agility ( $\beta = 0.381$ ,  $p < .001$ ). The interaction effect between e-commerce capability and environmental dynamism does not affect market capitalizing agility ( $\beta = 0.018$ , n.s.) and operational adjustment agility ( $\beta = 0.064$ , n.s.). The interaction effect between e-commerce capability and environmental complexity has a positive effect on both market capitalizing agility ( $\beta = 0.138$ ,  $p < .01$ ) and operational adjustment agility ( $\beta = 0.112$ ,  $p < .01$ ).

### 5.6. Test of robustness

By following an equivalent three-step estimation strategy, we estimated three additional research models to check for the robustness of the proposed research model. Construct specification (as reflective or

**Table 4**  
Hierarchical regression results.

Control and independent variables / Dependent variables	Market capitalizing agility			Operational adjustment agility		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<b>Control variables</b>						
Firm size	-0.163	-0.030	0.035	-0.024	-0.016	-0.033
E-commerce experience	-0.035	-0.090 <sup>†</sup>	-0.097*	-0.058	-0.079 <sup>†</sup>	-0.086*
<b>Independent variables</b>						
E-commerce capability		0.494***	0.478***		0.381***	0.379***
Environmental dynamism		0.177**	0.190**		0.182**	0.211***
Environmental complexity		0.161**	0.129*		0.221**	0.181*
<b>Interaction terms</b>						
E-commerce capability * Environmental dynamism			0.018			0.064
E-commerce capability * Environmental complexity			0.138**			0.112**
R <sup>2</sup>	0.030	0.518	0.527	0.005	0.437	0.445
ΔR <sup>2</sup>	0.024	0.510	0.515	-0.002	0.427	0.431

Note: <sup>†</sup>p < .10, \*p < .05, \*\*p < .01, \*\*\*p < .001 (one-tailed test).

composite) may differ by author teams. We thus estimated a first alternative model on which all the constructs were specified as reflective constructs at both first- and second-order level. Second, as business agility can be operationalized as a second-order construct determined by market capitalizing and operational adjustment agility, we estimated a second alternative model where business agility was estimated as a reflective second-order construct. Finally, we estimated a third alternative model where we incorporated all the changes included in both the alternative model 1 and alternative model 2. The empirical analysis of this test of robustness shows that as the overall estimated model fit of these alternative models was not statistically better than the overall estimated model fit of proposed research model (model 3 and model 6 in the hypotheses testing), none of these alternative models should be preferred to our proposed research model [8]. Table A2 (in the Appendix) provides the details of this robustness test.<sup>4</sup>

## 6. Discussion and core conclusions

### 6.1. Discussion of results

Drawing on the organizational capabilities-based theory and the IT-enabled organizational capabilities perspective [8], this study examines the impact of e-commerce capability on business agility and the possible moderating role of environmental uncertainty (dynamism and complexity) in the underexplored but critical context of agribusinesses. Using survey data from a sample of agricultural firms in China, we find that agriculture firms leverage e-commerce capability by enabling two types of business agility: market capitalizing agility and operational adjustment agility. We also find that while environmental complexity positively moderates the effects of e-commerce capability on the market capitalizing agility and operational adjustment agility, environmental dynamism does not. These results present extraordinarily new evidence on a critical research topic for the IS community, i.e., the impact of IT capabilities on business agility and the discovery of the boundary conditions that affect these relationships.

First, e-commerce capability positively affects market capitalizing

<sup>4</sup> One may discuss that the results of this study can be affected by the type of agribusiness. 104 and 90 agribusinesses of the firms of the sample were only producers and marketers, respectively. 96 agribusinesses performed both types of activities. We control for the type of agribusiness on the market capitalizing agility and operational adjustment agility for all the models included in the hypotheses testing and the test of robustness. The type of agribusiness effect was not significant in any of the models, and the results were almost identical to the results of the hypotheses testing and the test of robustness. We thank to an anonymous reviewer for providing us this interesting insight of additional analyses.

agility and operational adjustment agility in agribusiness companies. In an uncertain environment, e-commerce capability can help agricultural firms gain a competitive advantage by improving market capitalizing agility and operational adjustment agility. This finding indicates that e-commerce capability can help agricultural firms to integrate new technologies and develop new systems, use advanced technology for data management and maintenance, and practice project management. The results also indicate that e-commerce capability also helps agricultural firms to seize business opportunities in a complex market environment, making and implementing appropriate decisions quickly and finding ways to transform and innovate. This study also finds that e-commerce capability has a greater effect on market capitalizing agility than on operational adjustment agility.<sup>5</sup> This result may be rational as a market capitalizing agility has a strategic focus and is related to the agribusiness responsiveness in identifying new food customer's needs and preferences, and making decisions rapidly to satisfy them. Operational adjustment agility has a focus on the operational processes agility. Operational adjustment agility can additionally be enabled by other types of IT capabilities that go beyond the goal of this study and that have not been included in this study (e.g., ERP management capability).

Second, environmental complexity has a positive moderating effect on the relationship between e-commerce capability and market capitalizing agility, and between e-commerce capability and operational adjustment agility. In contrast, environmental dynamism has no significant moderating effect between e-commerce capability and the two types of business agility explored in this study. This finding extends Chen et al. [23]'s research, which considers the moderating effect of environmental dynamism and environmental complexity on the relationship between IT capabilities and business process agility but ignores market capitalizing agility. The results of this study imply that environmental complexity can provide better conditions for agricultural firms to actively develop e-commerce capability to achieve market capitalizing agility and operational adjustment agility than environmental dynamism. In a complex environment, agribusiness companies need to develop and utilize e-commerce capability to quickly perceive market changes and make corresponding adjustments to the internal operations for adapting to market demands because of the high diversity in customer habits, competitor's actions, and lines of products. To further explore the effect of environmental complexity on the relationship between e-commerce capability and business agility, we created a moderating effect diagram of environmental complexity. The specific moderating role is illustrated in Figs. 2 and 3.

<sup>5</sup> The size of the effects ( $f^2$ ) of e-commerce capability on market capitalizing agility and operational adjustment agility are 0.253 and 0.134, respectively.



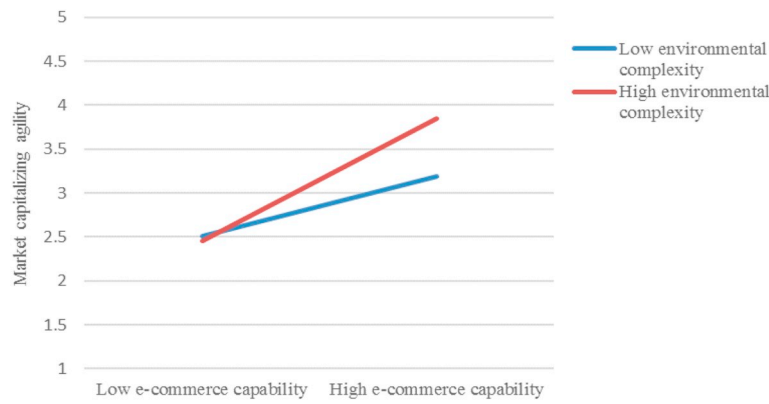


Fig. 2. Moderating effect of environmental complexity on the market capitalizing agility.

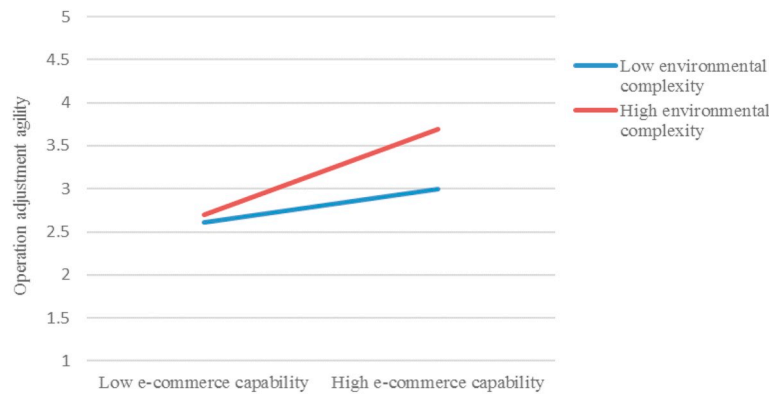


Fig. 3. Moderating effect of environmental complexity on operational adjustment agility.

As shown in Fig. 2, compared with those in the low complex environment, e-commerce capability in the highly complex environment has a stronger effect on market capitalizing agility. The complex market environment presents certain characteristics that pose a challenge to the survival and development of agricultural firms. These characteristics are the diversification of customer habits, which makes it difficult to grasp customer demand, the diversification of the lines of product that provides customers with a large number of alternative products, and the diversification of competitive nature that makes the industry competition more intense. In a complex environment, a high level of e-commerce capability helps companies to obtain information from consumers, competitors, and supply chain members and to quickly respond to changes in product and service requirements, thus gaining a competitive advantage. Therefore, in a highly complex environment, agricultural firms need to improve their e-commerce capability to achieve a rapid market response in capturing customer knowledge and selling online.

As shown in Fig. 3, a high-complexity environment is more likely to facilitate operational adjustment agility than a low-complexity environment. In a highly complex environment, predicting the changes in customer demands and the heterogeneity of market competition is difficult. A high level of e-commerce capability can help agricultural firms to optimize their business processes and reduce operating costs using e-commerce management capability, e-commerce technical capability, or e-commerce talent capability. For example, agricultural firms can leverage talent in e-commerce to exploit web analytics to determine whether they need to expand or reduce the level of products/services. These companies can also leverage management in e-commerce initiatives to adjust and substitute arrangements according to market

changes. Therefore, environmental complexity positively moderates the relationship between e-commerce capability and operational adjustment agility, that is, e-commerce is even a more valuable IT capability to develop operational adjustment agility when agricultural firms compete in complex environments. All in all, these moderating effect diagrams confirm the results of the empirical analysis (the support for both H5 and H6), which suggests that e-commerce capability helps agricultural firms to thrive through complexity by providing business agility.

### 6.2. Key contributions to IS research

This study has two key contributions to IS research on the business value of IT. First, prior IS research on the business value of IT capabilities has largely focused on non-agricultural industries (e.g., [15,22,58]). For example, some IS scholars have found that e-commerce capability can positively affect firm performance in the traditional manufacturing industry [72]. Compared with traditional forms of e-commerce, agricultural e-commerce is more complex and riskier for specific reasons. The low degree of standardization of agricultural products brings significant challenges for deploying e-commerce initiatives. The perishability and vulnerability of agricultural products impose higher requirements for logistics management. The long chain of agricultural products is difficult to manage, and firms need better control of the supply chain. The first key contribution of this paper is that it explains theoretically and test empirically how e-commerce capability affects business agility under environmental uncertainty conditions in a unique and novel context: agricultural firms in China. In this sense, this paper expands the scope of the construct e-commerce

capability in IS research on business agility and business value of IT to the specificities of the agribusiness industry.

Second, prior studies have focused on the relationship between IT capabilities and internal variables, such as business agility and firm performance [19], and only a few IS scholars have considered the effect of external contingency factors, such as the business environment. The external environment can affect a firm's IT operations [23,61], and the application of e-commerce in agricultural firms is still in the exploratory stage. The development of e-commerce initiatives in agricultural firms is greatly influenced by environmental factors. This study also builds IS theory on how environmental uncertainty (i.e., environmental dynamism and environmental complexity) affects the impact of e-commerce capability on business agility, finding that while environmental complexity makes stronger the impact of e-commerce capability on business agility, environmental dynamism does not, in the specific context of agricultural firms. This is the second contribution of this paper to IS research.

### 6.3. Implications for IT and business executives

This study also offers several lessons learned for both IT and business executives. First, we found e-commerce capability has a positive effect on business agility. This result implies that agribusiness companies can achieve business agility by capitalizing on their e-commerce capability. This research also finds that e-commerce talent and management capabilities are more relevant than e-commerce technical capability.<sup>6</sup> Therefore, if agricultural firms want to improve their e-commerce capability effectively in a short time, they are recommended to focus their investment in e-commerce talent and management capabilities. They are two key ingredients in the recipe for e-commerce capability. For example, by strengthening the training of employees' e-commerce technology and organizing e-commerce communication meetings to provide platforms and opportunities for employees, agricultural firms can improve e-commerce talent capability. IT and business executives of agribusiness can also develop an e-commerce management capability by deploying resources for the planning of e-commerce initiatives, e-commerce project management practices, e-commerce standard compliance, and e-commerce policies for disaster recovery and e-commerce crash points (e.g., the e-commerce crash during the COVID-19 crisis).

Second, the empirical results indicate that environmental factors play an important role in shaping the business agility of agricultural firms through e-commerce capability. Specifically, under a highly complex environment, agricultural firms should increase the input of human resources, management resources, and technical resources to improve e-commerce capability and achieve business agility. Although agricultural firms cannot control or change the business environment, they can monitor the environment to understand environmental complexity and help managers make decisions. This study shows IT and business executives of agribusiness how they can explore e-commerce initiatives to thrive through complexity to develop the e-commerce firm's capability to enable market capitalizing agility (strategic focus) and operational adjustment agility (operational focus).

### 6.4. Limitations and future IS research avenues

The findings of this study present both limitations and promising future opportunities for IS research. First, this study is conducted in a Chinese cultural context in which the results may be affected by Chinese cultural settings and agricultural conditions. Therefore, future IS research can enrich our understanding by collecting data from multiple countries and conducting cross-cultural analysis to make the

<sup>6</sup> This statement bases on the larger weights of e-commerce talent (0.637<sup>\*\*\*</sup>) and management capabilities (0.265<sup>\*\*</sup>). Please, see Table A1 for more details.

results universal. For example, Spain and France with different customer habits to fresh food and the usage of e-commerce to buy farm products can be an excellent context to develop a future study. Second, this study uses static cross-sectional data, and the effect of e-commerce capability on business agility may have a certain time lag (e.g., [9]). Therefore, future IS research can conduct a staged survey and collect longitudinal data to validate the research model further. We recognize, however, that this will become challenging as panel survey data are very difficult to obtain. Third, this study considers environmental dynamism and environmental complexity as the key moderating variables related to environmental uncertainty of the business environment. However, the development of agricultural firms may also be affected by other environmental factors, such as institutional pressure and government support (e.g., [22]). Future IS research could study how governmental support may facilitate the IT-enabled business agility to compete better and faster and create business value from IT initiatives.

This study explores the effect of e-commerce capability on firm agility under environmental uncertainty at the organizational level. Future IS research can examine how e-commerce capability affects business agility in other more complex organizational forms such as farm cooperatives and family farms. As the adoption of e-commerce initiatives in this type of organizational form is rather complex, this appears to be a very fruitful research topic to explore from the lens of IS research. Finally, the scope of this paper does not cover the impact of e-commerce-enabled business agility on firm performance in agribusinesses. Future IS research can develop the results of this study by examining how e-commerce capability generates positive returns on investments through the development of business agility. As the COVID-19 pandemic has proven, agribusinesses are crucial for the well-being, survival, and wealth of individuals and organizations. We encourage IS scholars to build, develop, and test IS theories in the strategic context of agribusiness.

### 6.5. Core conclusions

Motivated by the critical role of agriculture segment in China (and in the globe, as illustrated during the COVID-19 crisis) and the emerging trend of companies in investing in e-commerce and omnichannel initiatives, we examine the impact of e-commerce capability on the development of business agility under different conditions of the business environment. We use a unique survey dataset of agribusinesses in China. We found that e-commerce capability enables the development of both market capitalizing agility (strategic and corporate focus) and operational adjustment agility (operational focus), which makes agribusiness ambidextrous in business agility. This enabling role of e-commerce capability is stronger and more valuable under the complex conditions of the business environment, that is, under the conditions of the diversity of customer habits, competitor actions, and types of products. In this sense, as investments in e-commerce initiatives enable the agribusiness to be more agile strategically and operationally, this study demonstrates how these investments create business value in this unexplored yet paramount industry. "In this sense, IT does matter because it creates business value" ([14], p. 12) by providing business agility to agribusinesses. Quo Vadis? Who wishes to take the relay?

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**Credit author statement**

Jiabao Lin and Lei Li performed and contributed to the design and execution of this research project from the beginning, under the supervision of Robert Luo. They participated in all the stages of the research project. Jose Benitez was invited to join the project when it was already designed, and data were collected. With the support of the other members of the team, Jose led the writing of the initial submission. Similarly, Jose and Robert have led the revision of the paper, with the help of Jiabao and Lei.

**Appendix A. Appendix**

Table A1  
Detail of the measurement scales of the key constructs of this research.

Code	Construct/Indicator	VIF	Weight	Loading	Source
E-commerce management capability (ECMC)		1.795	0.265**	0.786***	Chen et al. [21]
ECMC1	Effectiveness of e-commerce planning in our firm is better than that of other firms in our industry	1.347	0.266*	0.685***	
ECMC2	E-commerce project management practices in our firm are better than those in other firms in our industry	1.545	0.305**	0.752***	
ECMC3	Planning for security control, standard compliance, and disaster recovery in our firm is better than that in other firms in our industry	1.277	0.252**	0.642***	
ECMC4	System development practices in our firm are better than those in other firms in our industry	1.326	0.185*	0.618***	
ECMC5	Consistency of e-commerce policies throughout the enterprise in our firm is better than that in other firms in our industry	1.255	0.252**	0.626***	
ECMC6	E-commerce evaluation and control systems in our firm are better than those in other firms in our industry	1.563	0.218*	0.707***	
E-commerce technical capability (ECTC)		1.942	0.238*	0.801***	Garrison et al. [28]
ECTC1	We have a process for e-commerce standardization	1.151	0.510***	0.759***	
ECTC2	We can quickly integrate new e-commerce into our existing IT infrastructure	1.089	0.517***	0.721***	
ECTC3	The complexity of our current systems does not restrict our ability to implement new technology	1.100	0.387***	0.620**	
E-commerce talent capability (ECTC)		1.861	0.637***	0.943***	Kim et al. [35], and Akter et al. [3]
ECTC1	Our e-commerce personnel are very capable in the areas of data and network management and maintenance	1.173	0.395***	0.661***	
ECTC2	Our e-commerce personnel are very knowledgeable about the critical factors for the success of our organization	1.087	0.554***	0.745***	
ECTC3	Our e-commerce personnel are very knowledgeable about the business environment	1.128	0.301***	0.578***	
ECTC4	Our e-commerce personnel work closely with customers and maintain productive user-client relationships	1.157	0.265**	0.575***	
Market capitalizing agility (MCA)					Lu and Ramamurthy [45]
MCA1	We are quick to make and implement appropriate decisions in the face of market-customer changes	1.142	0.536***	0.767***	
MCA2	We treat market-related changes and apparent chaos as opportunities to capitalize quickly	1.029	0.361***	0.507***	
MCA3	We constantly look for ways to reinvent/reengineer our organization to serve our marketplace better	1.141	0.532***	0.764***	
Operational adjustment agility (OAA)					
OAA1	Whenever a disruption in supply from our suppliers occurs, we can quickly make necessary alternative arrangements and internal adjustments	1.178	0.432***	0.723***	
OAA2	We can quickly scale up or down our production/service levels to support fluctuations in demand from the market	1.102	0.437***	0.666***	
OAA3	We fulfill demands for rapid-response and special requests of our customers whenever such demands arise	1.134	0.525***	0.754***	

(continued on next page)

Table A1 (continued)

Code	Construct/Indicator	VIF	Weight	Loading	Source
Environmental dynamism (ED)					Newkirk and Lederer [50], and Chen et al. [23]
ED1	The product/services technologies in our industry change very quickly	1.234	0.416***	0.721***	
ED2	Products and services in our industry become obsolete very quickly	1.217	0.426***	0.711***	
ED3	We can predict what our competitors will do next	1.173	0.298***	0.575***	
ED4	We can predict when our products/services will demand changes	1.190	0.355***	0.636***	
Environmental complexity (EC)					
EC1	In our industry, there is considerable diversity in customer buying habits	1.113	0.539***	0.758***	
EC2	In our industry, there is considerable diversity in the nature of competition	1.098	0.512***	0.725***	
EC3	In our industry, there is considerable diversity in product lines	1.063	0.376***	0.581***	

Note: The range for measures was from 1 to 5 (1 = Very much disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Very much agree). First-order constructs were estimated with mode A and the second-order construct was estimated with mode B.

Table A2

Test of robustness.

Beta coefficient	Baseline model	Alternative 1	Alternative 2	Alternative 3				
E-commerce capability→ Market capitalizing agility (H1)	0.685*** (19.450) [0.587, 0.773]	0.676*** (19.295) [0.576, 0.761]						
E-commerce capability→ Operational adjustment agility (H2)	0.606*** (13.410) [0.482, 0.718]	0.597*** (13.049) [0.471, 0.709]						
E-commerce capability→ Business agility			0.732*** (23.979) [0.647, 0.807]	0.735*** (24.286) [0.651, 0.808]				
R <sup>2</sup>	R <sup>2</sup>	Adjusted R <sup>2</sup>	R <sup>2</sup>	Adjusted R <sup>2</sup>	R <sup>2</sup>	Adjusted R <sup>2</sup>	R <sup>2</sup>	Adjusted R <sup>2</sup>
Market capitalizing agility	0.470	0.478	0.458	0.456				
Operational adjustment agility	0.367	0.365	0.357	0.355				
Business agility					0.536	0.535	0.540	0.538
Overall model fit of the estimated model	Value	HI <sub>95</sub>	Value	HI <sub>95</sub>	Value	HI <sub>95</sub>	Value	HI <sub>95</sub>
SRMR	0.027	0.036	0.102	0.079	0.058	0.038	0.003	0.017
d <sub>ULS</sub>	0.032	0.059	0.468	0.280	0.050	0.022	0.000	0.004
d <sub>G</sub>	0.013	0.024	0.163	0.125	0.052	0.050	0.000	0.004

Note: Reflective constructs and dimensions were estimated using mode A consistent (i.e., consistent PLS).

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**Jiabao Lin** is a Professor at the College of Economics and Management, South China Agricultural University, Guangzhou, China. His research focuses on social commerce, e-commerce, and IT adoption and diffusion. He has published in *Information & Management*, *International Journal of Information Management*, *Electronic Commerce Research and Applications*, *Internet Research*, *Journal of Electronic Commerce Research*, *Information Technology & Management*, *International Journal of Mobile Communications*, and *Chinese Management Studies*.

**Lei Li** is a Doctoral Student at the College of Economics and Management, South China Agricultural University. She is interested in social commerce, e-commerce, and IT adoption in contemporary firms. Her research has been published in IS journals, such as in *Information & Management* and *Internet Research*.

**Xin (Robert) Luo** is an Endowed Regent's Professor and a Full Professor of MIS and Information Assurance in the Anderson School of Management at the University of New Mexico, Albuquerque, USA. He received his Ph.D. in MIS from Mississippi State University. He has published research papers in leading journals, including *Decision Sciences*, *Decision Support Systems*, *European Journal of Information Systems*, *Journal of the Association for Information Systems*, *Journal of Strategic Information Systems*, *Information & Management*, and *Information Systems Journal*. He is currently serving as an ad hoc Associate Editor for *MIS Quarterly* and an Associate Editor for *Decision Sciences*, *European Journal of Information Systems*, *Information & Management*, *Electronic Commerce Research*, and *Journal of Electronic Commerce Research*. He currently also sits on the Editorial Board of *Journal of the Association for Information Systems*. His research interests center around information assurance, innovative technologies for strategic decision-making, and global IT management. He is the Co-Editor-in-Chief for the *International Journal of Accounting and Information Management*.

**Jose Benitez** is a Professor of IS at Rennes School of Business, Rennes, France. Jose also holds the COVIRAN-Prodware Endowed Chaired Professorship of Digital Human Resource Strategy at the University of Granada, Granada, Spain. His research interests

cover the study of how firms design and execute IT-driven business transformation initiatives to improve firm performance and the development of PLS path modeling in the field of IS. His research has been published in top IS journals such as *MIS Quarterly*, *European Journal of Information Systems*, *Decision Sciences*, *Journal of Information Technology*, *Decision Support Systems*, *Information & Management*, and *Journal of Business Research*. He currently serves as Senior Editor of *Decision Support Systems*, Associate Editor for *European Journal of Information Systems*, and *Information & Management*, a member of the Editorial Review Board of the *Journal of the Association for Information Systems*, and as Guest Editor of *Decision Sciences*. Jose got a Ph.D. in Business Administration (with a concentration in IS) from the University of Granada, Spain. His teaching interests and instructional expertise cover managing digital business transformation, digital innovation, IT management, IT strategy, IT and environmental sustainability, and quantitative research methods at Ph.D., Executive MBA, International MBA, MIM, and BBA level. Jose is also an Instructor of PLS-Path Modeling at the PLS School and has provided consulting services and worked on digital transformation projects with a large number of leading worldwide companies (e.g., UFN, USA; COVIRAN, Spain; Prodware Group, France, Biomerieux, France). Jose can be contacted at [jose.benitez@rennes-sb.com](mailto:jose.benitez@rennes-sb.com) and [joseba@ugr.es](mailto:joseba@ugr.es).