



# Inter-firm dependence, inter-firm trust, and operational performance: The mediating effect of e-business integration



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## ARTICLE INFO

### Article history:

Received 6 June 2014

Received in revised form 11 June 2015

Accepted 22 June 2015

Available online 30 June 2015

### Keywords:

E-business integration

Inter-firm dependence

Inter-firm trust

Relational governance

Operational performance

## ABSTRACT

The objective of this paper is to examine the relationships of relational governance, e-business integration, and operational performance in a supply chain context. We operationalize relational governance with inter-firm dependence and inter-firm trust to build a structural model. The empirical analysis of our survey data collected from manufacturing firms reveals that e-business integration significantly mediates the effects of inter-firm dependence and inter-firm trust on operational performance. The present work justifies the mediating mechanism of e-business integration and advances the understanding of the impact of relational governance on operational performance. The findings contribute to research and practice in e-business and supply chain management.

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## 1. Introduction

E-business plays an increasingly important role in facilitating the timely flow of information, materials, and goods throughout supply chains. In the context of supply chains, e-business integration refers to the assimilation and adaptation of Internet-based e-business operations, which enables firms to exchange information, share resources, and undertake continuous and collaborative activities. It is not uncommon for firms to develop inter-firm alliances to reduce costs, access complementary resources and capacities, and cope with market competition [14,57]. As a dominant aspect of inter-firm alliances, e-business integration not only reflects the state of interconnecting operational processes and business transactions but also materializes synergetic advantages of inter-firm alliances [11,52,53]. In this respect, efficient information exchange is of importance for exploring value-added opportunities and capitalizing on inter-firm resources and capabilities [38,56,68].

The existing works examining business-to-business supply chains and the relationship between e-business and firm performance suggest that e-business may help streamline information flow, improve customer service, and contribute to operational efficiency [34,39,63]. Recently, some studies have drawn attention to exploring firm performance from the perspective of relational

governance because relational governance can help firms to achieve collaborative advantages and address operational uncertainties and contingent risks [24,55,56,69,70]. Firms may implement relational governance in routine business operations by integrating e-business processes to enhance relationships and strengthen collaborations [1]. However, there is a research gap with regard to relational governance in association with e-business operations in the supply chain context. Therefore, more studies are needed to unveil the effect of relational governance on e-business integration, as firms are tightly coupling business processes with supply chain partners to leverage resources and capacities. It is particularly necessary to empirically examine antecedent relational factors and the causality of e-business integration to reveal the extent to which e-business integration mediates the relationship between relational governance and operational performance.

The above observations motivate us to conduct this empirical study. The objective of the present work is to articulate the relationships of relational governance, e-business integration, and operational performance in the supply chain context. Drawing on the theoretical underpinnings of relational governance, we design a structural model that includes such antecedent factors as inter-firm dependence and inter-firm trust. In particular, relational governance is operationalized as inter-firm dependence and inter-firm trust because both are the key facets of relational governance. The model is aimed at revealing the effects of inter-firm dependence and inter-firm trust on the formation of e-business integration and exploring the mediating effect of e-business

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integration on the relationship between relational governance and operational performance.

This study makes important contributions to research and practice. We systematically test our model and hypotheses using the survey data collected from manufacturing firms. The empirical results presented in the following section validate our theoretical model by revealing that e-business integration considerably mediates the effects of inter-firm dependence and inter-firm trust on operational performance. The analysis shows that the deployment of the relationship approach in e-business integration effectively enhances operational performance. Thus, the present work not only advances the theoretical understanding of the relationships between relational governance, e-business integration, and operational performance but also extends the notion of relational governance in the supply chain context by providing insights for managing e-business and supply chain operations.

This paper is structured as follows. The next section describes the theoretical foundation of our conceptual model and proposes five hypotheses. It then describes research methods and presents empirical results. Moreover, it discusses the research findings, theoretical and managerial implications, and limitations. Finally, it summarizes the empirical findings and highlights directions for future research.

## 2. Theoretical foundation and hypotheses

A critical issue on strategic alliances and supply chain management is how to effectively govern inter-firm relational resources to optimize operational performance [25]. The relational exchange norms [32,46,48], the relational view [16], the network resources [15,24], and the resource-based view [43] collectively emphasize relational governance as an important relational resource for enhancing alliance relationships and operational performance [1,54,62,65]. The existing literatures indicate that inter-firm dependence and inter-firm trust are fundamental facets of relational governance with regard to establishing and sustaining inter-firm relationships [24,25,29,41,45,51,69]. First, inter-firm dependence signifies the essential element of inter-firm relationships and specifies the necessity of mutual reliance and connectedness, through which firms carry out business-to-business operations and commercial exchanges [6,24,29,41,62,67]. Second, inter-firm trust reflects a firm's confidence in its exchange partners in terms of reliability and integrity [51,55,69]. Inter-firm dependence and inter-firm trust have been applied to examine inter-firm alliances and supply chains, suggesting that relational governance serves as

the theoretical underpinning for managing relationships between exchange parties and developing long-term collaborations and sustainable partnerships [23,45,47,48,69].

In this study, we extend relational governance as an overarching theoretical foundation for inter-firm alliances to articulate the extent to which relational governance affects e-business integration and the extent to which e-business integration mediates the effect of relational governance on operational performance in the context of supply chains. In particular, we consider inter-firm dependence and inter-firm trust to be precursors to e-business integration and attempt to advance the understanding of the role of e-business integration in the relationship between relational governance and operational performance. As depicted in Fig. 1, we create a conceptual research model that consists of four constructs, including inter-firm dependence, inter-firm trust, e-business integration, and operational performance, in which e-business integration is assumed to play a mediating role in conveying the impact of relational governance on operational performance. In the following subsections, five hypotheses are proposed to examine the effects of inter-firm dependence and inter-firm trust and the mediating effect of e-business integration.

### 2.1. Inter-firm dependence

In this study, inter-firm dependence refers to the extent to which a firm perceives its reliance on partners in supply chain operations. Previous works explore inter-dependence and suggest that it is commonly accepted that firms are unable to be autonomous and self-sufficient with respect to internal resources, capabilities, and strengths to meet the challenges of environmental change, market fluctuation, and competition [17,22,29,33,41]. Firms depend on business partners to expand their capabilities with inter-firm resources embedded in supply chains [33,43]. Further, we emphasize that inter-firm dependence is the mutual dependence between business partners with the practical goal of win-win solutions. Firms may appreciate the value of business partners' complimentary resources and capabilities and rely on the partners to strive for common interests [22,24,45,67].

In particular, inter-firm dependence is vital to the governance of the supply chain relationship [16]. First, it is an exchange tie developed from positive exchange experience that bonds partners together and forms supply chain relationships [49]. Hence, supply chain partners can access idiosyncratic or relation-specific assets including the exchange of proprietary information, knowledge,

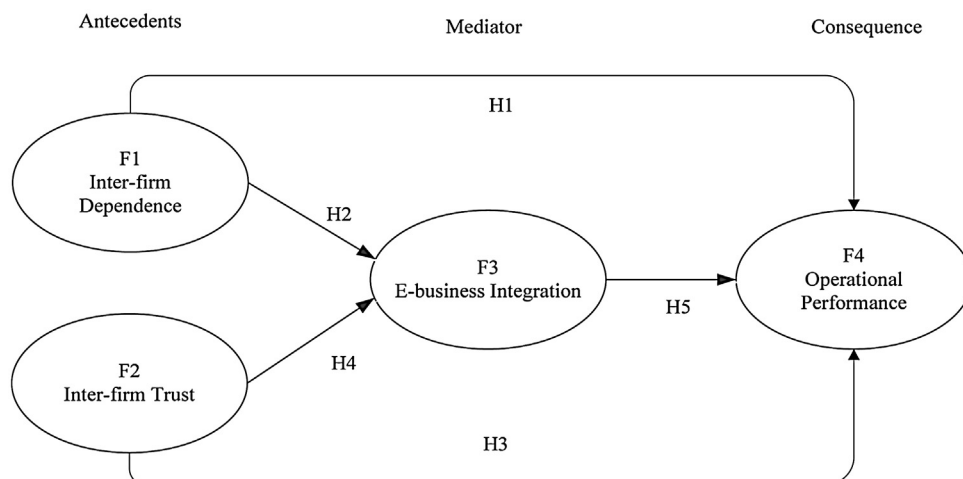


Fig. 1. Conceptual model.

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