

**CITY UNIVERSITY OF HONG KONG**  
香港城市大學

**The Influence of Distributor Digitalization on  
Supplier Communication Strategies and  
Channel Performance**  
經銷商數字化程度對供應商溝通策略與渠道績效  
的影響研究

Submitted to  
College of Business  
商學院  
in Partial Fulfillment of the Requirements  
for the Degree of Doctor of Business Administration  
工商管理博士學位

by

**Liu Hui**  
刘晖

**June 2025**  
二零二五年六月

---

## 摘要

隨著數字化技術的快速發展，越來越多的企業開始將數字化手段應用於渠道管理。數字化技術的應用不僅改變了傳統的溝通模式，更為企業提供了更高效的數據收集、分析和決策支持工具。醫療器械流通領域，數字化系統的廣泛應用正在改變傳統的渠道溝通方式和績效表現。醫療器械流通領域因其高度專業化和嚴格監管的特點，對訊息的準確性、及時性和可追溯性有著極高要求。傳統的溝通方式往往難以滿足這些需求，而數字化技術的引入則實現了企業與供應商、分銷商和客戶之間的即時訊息共享，從而提高供應鏈的透明度和回應速度，還使得企業能夠通過大數據分析和人工智慧技術，優化庫存管理、預測市場需求，並提升客戶服務水準。這些技術應用不僅提高了溝通效率，更為企業創造了新的競爭優勢。同時，在數字經濟背景下，平臺企業作為重要市場主體，為社會創造了巨大的價值，是推動經濟高品質發展的重要力量。平臺生態系統中各參與主體之間在業務流程、訊息、資源等方面相互依賴關係，可以通過協同共生實現價值共創。

然而儘管數字化技術在渠道管理中的應用日益廣泛，目前尚未有研究將溝通作為數字化與績效之間的仲介變量進行系統研究。在市場營銷領域，現有研究主要集中於將溝通視為渠道運作的“膠合劑”，探究其對渠道成員協作與績效的影響。渠道溝通不僅是訊息傳遞的工具，還是建立信任、協調行動和解決衝突的關鍵機制。儘管如此，但學術界尚未就“渠道溝通如何影響渠道績效”這一問題達成共識。另一方面，數字化技術雖能顯著改善溝通效率，但其對渠道績效的影響機制仍不明確。例如，數字化技術是否通過提高溝通頻

---

率、改善溝通品質或改變溝通形態來影響績效？數字化技術的應用程度是否對溝通和績效產生不同的影響？這些問題尚未得到充分解答。

本研究開發的模型得到了實證支持，能夠為管理決策提供有用的見解，可為不同數字化程度下的管理者應採用何種溝通策略以獲得更好的結果提出規範性建議。管理者還可以利用該模型來理解數字化程度是如何通過溝通策略與渠道狀況相聯繫的，以及借助該模型來瞭解如何改善渠道結果。通過描述數字化程度與溝通策略相匹配對結果的影響，該模型有助於提升管理決策水準，並為醫療器械流通領域的發展提供新的治理思路。

本研究圍繞三個核心問題展開：

1. 數字化程度如何影響渠道溝通的頻率、方向、形態？
2. 渠道溝通在數字化程度與渠道績效之間是否起到仲介作用？
3. 醫療器械流通領域中，數字化管理手段如何通過優化渠道溝通來提升渠道績效？

本研究採用定量與定性相結合的混合研究方法，系統探究數字化程度、渠道溝通與渠道績效之間的關係。具體研究方法包括問卷調查、數據分析和實例剖析三個部分，旨在通過多角度的數據收集與分析，驗證理論模型並提煉實踐啟示。

問卷調查是本研究定量研究的核心部分，旨在收集醫療器械經銷商在數字化程度、渠道溝通和渠道績效方面的數據。問卷設計基於文獻綜述和理論框架，涵蓋以下主要變量：數字化程度、渠道溝通和渠道績效。本研究以醫療器械流通領域的經銷商為研究對象，通過分層隨機抽樣方法選取 319 傢俱有代表性的企業作為樣本。問卷通過線上平臺發放，並輔以電話和郵件跟進，

---

確保數據的有效性和可靠性。最終回收有效問卷 311 份，有效回收率為 97.49%，滿足統計分析的要求。

數據分析採用結構方程模型（SEM）和仲介效應分析方法，驗證數字化程度、渠道溝通與渠道績效之間的關係。SEM 能夠同時處理多個自變量和因變量，並檢驗變量之間的複雜關係，適合本研究的理論模型驗證。具體分析步驟包括信度與效度檢驗、模型擬合與路徑分析以及仲介效應檢驗。數據分析主要使用 SPSS 和 SmartPLS 軟件。SPSS 用於數據清洗、描述性統計和信效度檢驗，SmartPLS 用於結構方程模型的構建與檢驗。

實例剖析是本研究定性研究的重要組成部分，旨在通過典型案例分析深入探討數字化系統在渠道溝通和績效提升中的具體應用。選取 2 至 3 傢俱有代表性的醫療器械經銷商作為案例研究對象，這些企業在數字化技術應用和渠道管理方面表現突出，能夠為本研究提供豐富的實踐啟示。案例研究的來源包括深度訪談、文檔分析和觀察法。採用案例內分析和跨案例分析相結合的方法，首先對每個案例進行深入分析，提煉數字化技術應用的關鍵成功因素；然後通過跨案例比較，總結共性規律及差異性特徵，為理論模型提供實踐支持。

本研究的理論意義在於通過引入溝通作為仲介變量，豐富了渠道溝通理論的研究視角，並為理解數字化時代渠道管理的內在機制提供了新的理論框架。此外，本研究彌補了現有文獻在數字化與渠道績效關係研究不足，為後續研究提供新的方向。實踐意義在於本研究為醫療器械流通企業提供了數字化管理的具體路徑，說明其通過優化渠道溝通提升績效，同時為經銷商企業在數字化投入、系統選擇和應用場景上提供了實踐指導，助力其在數字化浪

---

潮中實現高效運營。企業需系統規劃數字化戰略與配套溝通策略，促進二者協同。優化後的溝通策略能顯著提升渠道績效，為企業數字化轉型提供可操作路徑。此外，渠道商評價體系也將實現革新，引入雙重評價機制，既保留傳統績效指標，又新增數字化發展維度，為行業提供更全面、科學的決策依據。這些理論貢獻和實踐建議不僅對醫療器械流通領域具有重要價值，還可能對其他高度專業化和監管嚴格的行業（如醫藥、食品和化工）產生廣泛影響。

本研究不僅豐富了數字化與渠道管理領域的理論文獻，還為企業在數字化背景下優化溝通策略、提升渠道績效提供了實踐指導。然而，研究仍存在一些局限性，如樣本的行業覆蓋範圍有限，與醫療器械行業國家集采的大環境綁定也不夠深入，國產替代進入深水區以及國產創新醫療器械的發展對於渠道運營的影響，以及骨科、心血管、醫療美容等不同領域的差異化尚未進行細分研究。此外，研究主要關注了數字化對企業間溝通和渠道短期績效的影響，但對於長期績效的評估不夠充分。醫療器械經銷商的數字化轉型是長期過程，其長期效益和潛在風險需要更深入的探討。

未來研究可以進一步拓展樣本的多樣性和深度。通過該研究，可以深化對數字化時代渠道管理的理解，為醫療器械企業提供更精准的管理建議。

**關鍵字：**數字化；溝通策略；渠道績效；醫療器械

---

## ABSTRACT

With the rapid development of digital technology, an increasing number of enterprises have begun to apply digital tools to channel management. The application of digital technology has not only transformed traditional communication methods but also provided businesses with more efficient tools for data collection, analysis, and decision-making support. Particularly in the medical device distribution sector, the widespread adoption of digital systems is reshaping traditional channel communication methods and performance outcomes. The medical device distribution field is characterized by high specialization and stringent regulatory requirements, demanding exceptional accuracy, timeliness, and traceability of information. Traditional communication methods often struggle to meet these demands. The introduction of digital technologies, such as Electronic Data Interchange (EDI) systems, Enterprise Resource Planning (ERP) systems, and Customer Relationship Management (CRM) systems, enables enterprises to achieve real-time information sharing with suppliers, distributors, and customers, thereby enhancing supply chain transparency and responsiveness. Additionally, digital technologies allow enterprises to optimize inventory management, predict market demand, and improve customer service levels through big data analytics and artificial intelligence. These technological applications not only improve communication efficiency but also create new competitive advantages for businesses.

However, despite the increasing prevalence of digital technology in channel management, there has been limited research exploring communication as a mediating variable between digitalization and performance. In the field of marketing, most studies have focused on communication as the "glue" of channel operations, examining its impact on collaboration and performance among channel members. Channel communication is not only a tool for information transmission but also a critical mechanism for building trust, coordinating actions, and resolving conflicts. Nevertheless, the academic community has yet to reach a consensus on

---

how channel communication influences channel performance. On the other hand, while digital technology can significantly improve communication efficiency, its impact mechanism on channel performance remains unclear. For example, does digitalization affect performance by increasing communication frequency, improving communication quality, or altering communication patterns? Does the extent of digital technology adoption have varying effects on communication and performance? These questions remain inadequately addressed.

The model developed in this study provides valuable insights for managerial decision-making and has been empirically supported, offering normative recommendations for managers at different levels of digitalization on which communication strategies to adopt for better outcomes. Managers can also use this model to understand how digitalization links communication strategies with channel conditions. They can leverage the model to identify ways to improve channel outcomes. By illustrating the impact of aligning digitalization levels with communication strategies on results, the model enhances decision-making capabilities and provides new governance insights for the development of the medical device distribution sector.

This study revolves around the following core questions:

1. How does the level of digitalization affect the frequency, direction and form of channel communication?
2. Does channel communication play a mediating role between digitalization and channel performance?
3. In the medical device distribution sector, how do digital management tools optimize channel communication to enhance channel performance?

This research employs a mixed-methods approach combining quantitative and qualitative methods to comprehensively and deeply explore the relationships between digitalization, channel communication, and channel performance. Specific research methods include questionnaire surveys, data analysis, and case studies, aiming to validate the theoretical model and extract practical insights through multi-faceted data collection and analysis.

---

The questionnaire survey is the core component of the quantitative research in this study, aiming to collect data on digitalization levels, channel communication, and channel performance from medical device distributors. The questionnaire design is based on a literature review and theoretical framework, covering the following key variables: digitalization level, channel communication, and channel performance. This study focuses on distributors in the medical device distribution sector, using stratified random sampling to select 319 representative enterprises as the sample. The questionnaire was distributed through an online platform, supplemented by phone and email follow-ups to ensure data validity and reliability. Ultimately, 311 valid questionnaires were collected, with a valid response rate of 97.49%, meeting the requirements for statistical analysis.

Data analysis employs Structural Equation Modeling (SEM) and mediation effect analysis to validate the relationships between digitalization, channel communication, and channel performance. SEM can simultaneously handle multiple independent and dependent variables and test complex relationships between variables, making it suitable for validating the theoretical model of this study. Specific analysis steps include reliability and validity tests, model fitting and path analysis, and mediation effect testing. Data analysis primarily uses SPSS and SmartPLS software. SPSS is used for data cleaning, descriptive statistics, and reliability and validity tests, while SmartPLS is used for constructing and testing the structural equation model.

Case studies are an essential component of the qualitative research in this study, aiming to delve into the specific applications of digital systems in optimizing channel communication and enhancing performance through typical case analyses. Two to three representative medical device distributors were selected as case study subjects. These enterprises excel in digital technology application and channel management, providing rich practical insights for this research. Data sources for the case studies include in-depth interviews, document analysis, and observational methods. The analysis adopts a combination of within-case and cross-case analysis methods. First, each case is analyzed in depth to extract key success factors in

---

digital technology application. Then, cross-case comparisons are conducted to summarize common patterns and distinctive features, providing practical support for the theoretical model.

The theoretical significance of this study lies in introducing communication as a mediating variable, enriching the research perspective of channel communication theory and providing a new theoretical framework for understanding the intrinsic mechanisms of channel management in the digital era. At the same time, this study addresses gaps in the existing literature on the relationship between digitalization and channel performance, offering new directions for future research. In terms of practical significance, this study provides specific pathways for digital management in medical device distribution enterprises, helping them optimize channel communication to enhance performance. It also offers practical guidance for distributor enterprises in digital investment, system selection, and application scenarios, assisting them in achieving efficient operations amid the digital wave. These theoretical contributions and practical recommendations are not only valuable for the medical device distribution sector but may also have broad implications for other highly specialized and regulated industries, such as pharmaceuticals, food, and chemicals.

This study not only enriches the theoretical literature in the field of digitalization and channel management but also provides practical guidance for enterprises to optimize communication strategies and enhance channel performance in the digital context. However, the research has some limitations, such as the limited industry coverage of the sample and insufficient depth in addressing the national centralized procurement environment in the medical device industry. Future research could further expand the diversity and depth of the sample. Through this study, a deeper understanding of channel management in the digital era can be achieved, offering more precise management recommendations for medical device enterprises.

**Keywords:** Digitalization; Communication Strategies; Channel Performance;

---

## Medical Devices

---

**CITY UNIVERSITY OF HONG KONG**  
**Qualifying Panel and Examination Panel**

Surname: LIU  
First Name: Hui  
Degree: Doctor of Business Administration  
College/Department: College of Business

The Qualifying Panel of the above student is composed of:

*Supervisor(s)*

Prof. YANG Zhilin      Department of Marketing  
City University of Hong Kong

Prof. JIANG Qingyun    Department of Marketing  
Fudan University

*Qualifying Panel Member(s)*

Prof. ZHAO Huazhong    Department of Marketing  
City University of Hong Kong

Prof. JIN Liyin          Department of Marketing  
Fudan University

This thesis has been examined and approved by the following examiners:

Prof. ZHENG Xu          Department of Marketing  
City University of Hong Kong

Prof. YANG Zhilin      Department of Marketing  
City University of Hong Kong

Prof. FAN Xiucheng      Department of Marketing  
Fudan University

Prof. JIANG Qingyun    Department of Marketing  
Fudan University

Prof. ZHU Zhen          International Engagement  
Suffolk University

---

## 致 謝

時光荏苒，轉眼間我博士生涯即將畫上圓滿的句號。回首這段求學之路，感慨萬千。作為一名在商界打拼二十余載的創業者，我親歷了中國改革開放的輝煌時期，見證了市場的風雲變幻。成功與挫折交織，榮耀與責任並存，但始終不變的是對人性良知、社會責任與擔當的堅守。選擇企業社會責任作為研究課題，既是我個人經歷的延伸，也是對社會責任的深刻理解與實踐。

在攻讀博士學位的四年間，我全身心投入了這段充滿挑戰與收穫的旅程。從本科、讀碩到攻讀博士，這段時光不僅是學術上的提升，更是人生理想的追求。在這條漫長的道路上，我得到了無數人的支持與幫助，感激之情難以言表。

首先，我要特別感謝我的香港城市大學導師楊志林教授。在論文的選題、研究、撰寫與定稿過程中，楊教授傾注了大量的心血和智慧，他獨到的見解與建設性意見為我的研究奠定了厚實基礎，幫助我克服了許多困難。在此，我向楊教授致以最深的敬意與最誠摯的感謝！此外，我還要感謝助研同學在量表設計、數據收集與整理方面的幫助，他們睿智的思維與縝密的支持使我的研究得以順利進行。

同時，我要衷心感謝復旦大學導師蔣青雲教授及助研同學在我的課題研究計畫、實施過程、文獻查閱中提供了許多寶貴的建議與指導。我還要向商學院各位老師表達最誠摯的謝意。在我博士期間的學習、研究與生活中，他們給予了我無私的支持與幫助。我們共同度過的時光，不僅讓我收穫了學術進步，也讓我收穫了珍貴友誼。

最後，我要特別感謝我的家人與合作夥伴，讓我能夠專注於學業和事業。

---

我的家人給予全心全意的理解，我的合作夥伴是堅強的後盾。沒有他們的支持，我不可能順利完成這段學術旅程。在此，我向家人與合作夥伴致以最深切的感謝！

在真摯的情感面前，語言有時顯得蒼白無力。最後，我要感謝所有在我求學路上給予關心和幫助的老師、同學、同事與朋友們。你們的支持、鼓勵及陪伴，讓我在這條道路上走得更加堅定。我也祝願商業夥伴們，我們將繼續踐行企業社會責任，將其成為企業和家庭的永恆延續。

願所有同仁在未來道路上一切順遂，前程似錦！

謹以此致謝，獻給所有陪伴我走過這段旅程的人。

劉暉

2025年2月

---

# 目 錄

摘 要.....	i
ABSTRACT .....	v
<b>Qualifying Panel and Examination Panel.....</b>	<b>x</b>
致 謝.....	xi
第一章 緒論.....	1
1.1 研究背景.....	1
1.2 研究問題.....	2
1.3 研究意義.....	5
1.4 研究方法.....	8
1.5 研究內容.....	11
1.5.1 研究框架.....	11
1.5.2 論文結構.....	12
第二章 文獻綜述.....	14
2.1 渠道溝通.....	14
2.2 企業數字化.....	22
2.3 訊息共亨.....	32
2.4 渠道績效.....	34
2.5 本章小結.....	42
第三章 研究假設與理論模型.....	44
3.1 變量的定義.....	44
3.2 研究假設的提出.....	47
3.3 理論模型的構建.....	61
3.4 本章小結.....	62
第四章 實證研究設計與內容.....	63
4.1 實證研究的行業和對象.....	63
4.2 實證研究的方法.....	65
4.3 變量的測量.....	67
4.4 實證研究的內容.....	75
4.4.1 調查問卷的設計.....	75
4.4.2 調查問卷的發放與回收.....	76
4.4.3 問卷樣本簡要分析.....	79
4.5 本章小結.....	89
第五章 實證研究分析及結果.....	91
5.1 信度和效度分析.....	91
5.1.1 信度分析.....	91
5.1.2 效度分析.....	95
5.2 量表的統計性描述.....	106
5.3 假設檢驗結果.....	111
5.4 實證分析總結.....	120
第六章 研究總結.....	123
6.1 研究內容與結論.....	123
6.2 研究啟示.....	125

---

6.3 研究不足及未來展望 .....	127
參考文獻 .....	130
附錄 .....	145
附錄一：其他檢驗結果表格 .....	145
附錄二：調查問卷 .....	150

---

## 相關圖表

圖 3-1 本文理論模型 .....	62
表 4-1 數字化程度的量表.....	68
表 4-2 溝通策略的量表.....	71
表 4-3 定性績效的量表.....	72
表 4-4 定量績效的量表.....	74
表 4-5 經銷商成立時長情況.....	79
表 4-6 經銷商員工人數情況.....	80
表 4-7 經銷商與總代的合作時長情況.....	80
表 4-8 經銷商客戶覆蓋的科室數情況.....	81
表 4-9 經銷商產品年銷量情況.....	81
表 4-10 經銷商產品覆蓋醫院數情況.....	84
表 4-11 經銷商業務覆蓋省份數情況.....	85
表 4-12 經銷商數字化平臺採用意願及需求功能情況.....	86
表 4-13 經銷商願意共用的訊息類型統計.....	86
表 4-14 經銷商願意的共用訊息頻率統計.....	88
表 5-1 初步處理後的量表信度分析.....	92
表 5-2 刪除部分題項後的量表信度分析.....	94
表 5-3 探索性因數分析結果.....	97
表 5-4 變量的 Cronbach's Alpha、CR 和 AVE 值.....	100
表 5-5: 變量間相關係數矩陣(對角線為 AVE 平方根).....	101
表 5-6 測量項之間的 VIF 值.....	103
表 5-7 最終量表及關鍵指標.....	104
表 5-8 各測量項的描述性統計分析.....	106
表 5-9 相關係數表.....	108
表 5-10 PLS-SEM 假設檢驗結果(含仲介檢驗結果).....	111
表 5-11 新模型 PLS-SEM 檢驗結果(含仲介檢驗結果).....	114
表 5-12 假設檢驗結果匯總.....	121
圖 5-1 本研究最終理論模型與實證結果.....	122