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The Moderating Role of Talent Management Process Between Supply Chain and Competitive Advantage in Jordanian Companies

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ABSTRACT

This paper explores the role of supply chain management in achieving competitive advantage within Jordanian pharmaceutical industrial companies, with a focus on the moderating effect of talent management. The research investigates four key dimensions of SCM: supplier relationships, intermediaries and distributors, customer relationships, and operations. This study relied on the descriptive analytical approach, where the study population consisted of all the Jordanian pharmaceutical industrial companies listed on the Amman Chamber of Industry, which are (72) companies, including (32) For human pharmaceutical industry companies only. Amman Stock Exchange, and the study tool was sent electronically and (176) responses were retrieved, (11) invalid questionnaires were excluded for the purposes of bioanalysis so that we have (165) questionnaires available. To achieve the objectives of the study, arithmetic averages and standard deviations were used in addition to multiple regression analysis and simple regression analysis. Findings reveal that SCM significantly enhances competitive advantage, accounting for 69.6% of its variation, with operations and intermediaries-distributor relationships exerting the strongest influence. Furthermore, the moderating role of TM is confirmed, increasing the explanatory power of SCM from 43.7% to 49.2%. These results underscore the importance of integrating TM practices into SCM strategies to sustain competitive advantage in a dynamic and highly regulated industry. The study provides theoretical contributions to the resource-based view by incorporating TM as a strategic enabler and offers practical insights for optimizing SCM and TM practices. Based on the results of the study, the study recommended several recommendations, the most important of which is the need for a specialized information network to exchange information between the company and suppliers, interest in involving suppliers in organizing And the development of the services provided, because of their experience and knowledge of the necessary materials and the expected costs.

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الملخص

تتناول هذه الدراسة دور إدارة سلسلة التوريد في تحقيق الميزة التنافسية في الشركات الصناعية الدوائية الأردنية، مع التركيز على الدور المعدل لإدارة المواهب، كما تبحث الدراسة في أربعة أبعاد رئيسية لإدارة سلسلة التوريد: العلاقات مع الموردين، العلاقات مع الوسطاء والموزعين، العلاقات مع العملاء، والعمليات. اعتمدت الدراسة على المنهج الوصفي التحليلي، حيث شمل مجتمع الدراسة جميع الشركات الصناعية الدوائية الأردنية المدرجة في غرفة صناعة عمان وعددها (72) شركة، منها (32) شركة لصناعة الأدوية البشرية فقط. تم إرسال أداة الدراسة إلكترونيًا، واستُرجعت (176) استبانة، وتم استبعاد (11) استبانة غير صالحة لأغراض التحليل، ليصبح العدد الإجمالي للاستبانات القابلة للتحليل (165) استبانة. ولتحقيق أهداف الدراسة، تم استخدام المتوسطات الحسابية والانحرافات المعيارية، بالإضافة إلى تحليل الانحدار المتعدد وتحليل الانحدار البسيط. أظهرت النتائج أن إدارة سلسلة التوريد تُحسن بشكل كبير من الميزة التنافسية، حيث تُفسر 69.6% من التباين في الميزة التنافسية، مع بروز العمليات والعلاقات مع الوسطاء والموزعين كأكثر الأبعاد تأثيرًا. علاوة على ذلك، تم تأكيد الدور المعدل لإدارة المواهب، حيث زادت القدرة التفسيرية لإدارة سلسلة التوريد من 43.7% إلى 49.2%. تؤكد هذه النتائج أهمية دمج ممارسات إدارة المواهب في استراتيجيات إدارة سلسلة التوريد لضمان تحقيق ميزة تنافسية مستدامة في صناعة ديناميكية وذات تنظيم عالٍ. تقدم الدراسة إسهامات نظرية لوجهة النظر القائمة على الموارد من خلال إدراج إدارة المواهب كعامل استراتيجي داعم، كما توفر رؤى عملية لتحسين ممارسات إدارة سلسلة التوريد وإدارة المواهب. وبناءً على نتائج الدراسة، أوصت الدراسة بعدة توصيات، من أبرزها ضرورة إنشاء شبكة معلومات متخصصة لتبادل المعلومات بين الشركة والموردين، والاهتمام بإشراك الموردين في تنظيم وتطوير الخدمات المقدمة، نظرًا لخبرتهم ومعرفتهم بالمواد اللازمة والتكاليف المتوقعة.

الكلمات الداله:

إدارة سلسلة التوريد، الميزة التنافسية، إدارة المواهب، صناعة الأدوية، الأردن، عمليات سلسلة التوريد، وجهة النظر القائمة على الموارد.

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1. Introduction

The dynamic nature of global markets and the increasing complexity of supply chains have underscored the importance of developing competitive advantages for businesses. Supply chain management (SCM) has emerged as a critical function in organizations, as it integrates operations from sourcing and procurement to delivery and customer service (Lootah, 2024). In Jordanian companies, which operate in a highly competitive regional and international environment, effective SCM is particularly crucial to enhance operational efficiency, customer satisfaction, and profitability. However, achieving and sustaining competitive advantage is not solely dependent on optimizing supply chain processes. Human capital, often regarded as a strategic resource, plays an integral role in driving innovation, agility, and adaptability in supply chains (Maabreh, 2024). Talent Management Processes (TMP) which include attracting, developing,

retaining, and motivating skilled employees, have been increasingly recognized as essential for bridging the gap between supply chain performance and competitive advantage. The pharmaceutical industry in Jordan operates within a dynamic and competitive business environment, requiring companies to adopt innovative strategies to maintain a competitive edge. Supply chain management (SCM) serves as a critical function, encompassing processes from sourcing raw materials to delivering finished products to end-users. Effective SCM involves creating integrated relationships with suppliers, intermediaries, and customers, fostering an efficient network that supports organizational goals. However, challenges such as global supply chain disruptions, particularly during crises like the COVID-19 pandemic, have exposed vulnerabilities in traditional SCM practices (Saberi et al., 2019; Shin et al., 2019). TM is a pivotal aspect of human resource management, complements SCM by leveraging human capital to meet organizational objectives. In Jordanian pharmaceutical companies, which depend heavily on specialized skills to innovate and maintain operational efficiency, TM is not merely a supportive function but a strategic necessity. The synergy between SCM and TM offers organizations the potential to enhance their competitive advantage by optimizing human and operational resources simultaneously (Järvi & Khoreva, 2020; Yener et al., 2017). While there is significant research on SCM and competitive advantage, limited studies have examined the moderating role of TM in this relationship, particularly in the pharmaceutical sector in Jordan. This gap is critical, given the industry's reliance on highly skilled professionals and efficient supply chain operations to meet market demands. The COVID-19 pandemic highlighted these challenges, revealing the fragility of supply chains and the essential role of talent in maintaining business continuity. For instance, the pandemic demonstrated the importance of resilient SCM supported by robust TM strategies to manage disruptions, meet heightened demand, and sustain organizational performance (Bahramimianrood & Bathaei, 2021; Beamond et al., 2016). From a practical perspective, investigating the moderating role of TM can provide actionable insights for pharmaceutical companies to address supply chain inefficiencies and enhance their competitive advantage. TM processes such as talent acquisition, development, and retention offer the agility and innovation required to navigate market volatility and achieve organizational goals. By aligning SCM and TM, companies can build a sustainable competitive edge, making this research particularly relevant to Jordanian pharmaceutical companies striving to strengthen their market positions (Gligor et al., 2020; Prajogo et al., 2018). The relationship between SCM and competitive advantage has been widely studied in global contexts, yet limited attention has been given to the moderating effects of TMP, especially in Jordanian companies. In Jordan, the business environment is characterized by unique challenges such as limited resources, economic pressures, and the need for skilled workforce retention. These factors make it imperative to explore how talent management can enhance the efficacy of SCM in achieving competitive advantage.

2. Literature Review and Hypothesis Development

The concept of the supply chain, relatively modern in business practices, gained prominence in the 1980s due to its potential to enhance efficiency among members of the chain. This enhancement includes producing goods and delivering services at the right time, in the right manner, and at the lowest cost (Safaa, 2018). Over time, various definitions have emerged, elucidating the meaning and scope of supply chains, emphasizing their role in transportation, customer service, demand stimulation, and organizational forecasting to enhance performance and competitiveness (Al-Jazzar et al., 2019).

Several scholars and researchers have contributed nuanced definitions of the supply chain, highlighting its multifaceted nature:

Integration of Processes: According to Tarafdar and Qrunfleh (2017), a supply chain is a set of methodologies aimed at effectively integrating suppliers, manufacturers, warehouses, and storage facilities. This integration ensures the production and distribution of goods in the correct quantity, at the right location, and at the optimal time.

Flow of Products and Information: Costa (2018) defines the supply chain as the flow of products and associated information exchanged among companies, from suppliers to consumers. This process involves complex interactions and transformations from the origin of the product to its delivery.

Enhancing Supplier Relationships: Masarwa (2019) views the supply chain as a methodology to complement relationships among suppliers, intermediaries, and distributors, enabling efficient production and distribution in the correct quantities.

Comprehensive Activity System: The supply chain has also been described as a set of activities performed by an organization to transfer raw materials from the initial supplier to the end user. This process helps achieve organizational goals, enhances market performance, and ensures product delivery with the right specifications, at the correct location and time, and with minimal cost and effort (Zain Al-Abidin, 2020).

Planning and Execution: Derdaazi and Latrash (2021) provide a comprehensive definition, describing the supply chain as encompassing planning, execution, and control processes. These processes govern the movement of raw materials and finished goods until they reach the final consumer. Achieving these goals requires the collaboration of all stakeholders, including raw material suppliers, manufacturers, distributors, wholesalers, and retailers.

The supply chain is central to modern business operations as it ensures the seamless integration of resources, processes, and stakeholders. It facilitates the timely delivery of quality products and services, minimizes costs, and enhances customer satisfaction. Moreover, a well-managed supply chain contributes to the competitive positioning of organizations by enabling them to respond effectively to market demands and maintain operational efficiency.

Talent Management and Competitive Advantage

Sediq (2021) emphasizes the importance of talent management (TM) in enhancing competitive advantage. TM practices such as talent acquisition, retention, development, and rewards significantly influence workforce efficiency and organizational performance. The study, conducted on garment manufacturing companies in Egypt, demonstrated that retaining top talent was the most impactful TM practice, while workforce efficiency emerged as a critical dimension of competitive advantage. Sediq (2021) also highlights that organizations must adopt actionable TM strategies to maintain their market position. However, the study primarily focuses on workforce aspects without integrating supply chain management (SCM), leaving room for further exploration of the intersection between TM and SCM. Ibrahim et al. (2021) examined the role of SCM integration in enhancing competitive advantage amidst market turbulence in Sudanese industrial companies. The study found that integrated SCM capabilities positively affect flexibility and quality, with market turbulence amplifying this effect. The research provides valuable insights into the resilience-building aspects of SCM. However, it primarily focuses on external disruptions, overlooking the internal capabilities like TM that could further strengthen SCM resilience and support competitive differentiation. Shusha and Rajab (2021) explored the impact of supply chain resilience and agility on competitive advantage in industrial companies in Egypt. Their findings revealed that resilient supply chains positively influence competitive dimensions such as innovation, cost, and delivery efficiency. The study underscores the role of agility as a mediator between supply chain adaptability and competitive advantage. However, it fails to address how human resource capabilities, specifically TM, can enhance supply chain resilience and agility, an area ripe for further exploration.

Trebeshe (2020) investigated the effect of SCM on competitive advantage in the Algerian textile sector, revealing that effective supplier and customer relationship management significantly influences cost, quality, flexibility, and delivery. Similarly, Abdeen (2019) studied the relationship between TM and competitive advantage in multinational pharmaceutical companies in Egypt. The research identified deficiencies in TM practices due to inadequate attention from senior management, which adversely affected organizational performance. While these studies provide insights into SCM and TM individually, they do not explore the synergistic effects of integrating both dimensions to achieve sustainable competitive advantage. Dehghanan et al. (2021) presented a model for talent supply chain management in the banking sector, identifying core

elements such as talent acquisition, support, and logistics. This study illustrates the potential for leveraging TM within SCM frameworks to enhance organizational capabilities. Similarly, Birou and Van Hoek (2021) highlighted the critical role of executive involvement in developing supply chain talent, emphasizing that proactive engagement leads to improved SCM competencies and competitive outcomes. While these studies provide valuable insights into TM and SCM, there remains a significant gap in understanding the moderating role of TM within the SCM-competitive advantage relationship, especially in the pharmaceutical sector. Most existing research either examines TM or SCM in isolation, without addressing how their integration can foster resilience and innovation. Moreover, limited attention has been given to the Jordanian industrial context, where pharmaceutical companies face unique challenges such as talent scarcity and supply chain disruptions.

Competitive Advantage

ompetitive advantage refers to a set of distinctive capabilities enabling organizations to deliver products with unique features, lower costs, and innovative designs that differentiate them from competitors. These capabilities allow businesses to operate in ways that are challenging for competitors to replicate, attract more purchase orders for goods and services, and establish partnerships with global and local industrial companies. Such practices enhance consumer trust, improve product quality, and contribute to the sustainability of overall income growth (Kamhoos, 2021). Fengor and Bougseiba (2021) define competitive advantage as a strategic concept reflecting an organization’s competitive positioning compared to its rivals. They describe it as achieving superiority that influences customers' perception of the organization's offerings, prompting them to choose its products over others. This understanding highlights competitive advantage as a driver of customer preference and loyalty. Competitive advantage is characterized by enabling organizations to compete globally without requiring relative advantages, relying instead on production quality, technology, and a deep understanding of consumer preferences. This is achieved by applying skills that add value to production, resulting in profitability and benefits for customers that surpass those offered by competitors (Kamhoos, 2021). Siyaam (2021) further defines competitive advantage as the ability to consistently counter opposing forces in both local and global markets, which may reduce an organization’s market share. The outcome of such competitiveness is achieving a specific competitive position, thereby reinforcing the organization's market presence. In a similar vein, Qahwaji et al. (2021) describe competitive advantage as the capacity to withstand and consistently outperform competitors, aiming to achieve profitability, growth, stability, and ongoing expansion. They emphasize the continuous need for companies to enhance their competitive positions due to the persistent influence of dynamic global and local changes. Achieving and maintaining competitive advantage requires organizations to adapt to market demands, innovate, and leverage their unique capabilities. It involves not only excelling in product quality and cost efficiency but also understanding and responding to consumer needs more effectively than competitors. These attributes empower organizations to navigate competitive markets successfully and establish enduring market leadership. Competitive advantage centers on the value that organizations create and deliver to their customers. This value often manifests as either lower prices for comparable products or services or as unique, high-quality offerings that justify premium pricing. These practices aim to retain customer loyalty, build a strong organizational reputation, and ensure market sustainability (Ghoneim et al., 2021). Competitive advantage also encompasses the organization's ability to attract partnerships and collaborations with global and local companies, leading to enhanced product quality and customer trust. These factors contribute to long-term revenue growth and market positioning. As such, organizations achieve success not only by meeting customer demands but also by crafting distinctive strategies that competitors find difficult to replicate (Ghoneim et al., 2021).

Talent Management

The concept of talent extends beyond individual skill to include innate capabilities, innovation, and adaptability. Talented individuals possess qualities that make them attractive to organizations, allowing companies to leverage these individuals' unique abilities to achieve competitive success (Kamhoos, 2020). Talent management (TM) has become a strategic challenge for organizations as they strive to identify,

attract, and develop individuals who can contribute to critical organizational roles and enhance competitive advantage. TM involves a set of integrated strategies and activities designed to attract, retain, and develop skilled individuals. According to Ridwan (2020), TM aligns with human resource strategies to ensure the organization has the right talent in the right positions to meet current and future business needs. This approach fosters a conducive work environment that motivates employees to achieve organizational goals.

As a Competitive Driver: Beamond et al. (2016) define TM as a structure of processes aimed at creating competitive advantage by developing the capabilities of key organizational roles, enhancing organizational flexibility, and achieving sustainable success.

Ensuring Continuity: Yener and Gurbuz (2017) describe TM as a strategic process ensuring continuity in key roles, encouraging employee growth, and maintaining a workforce aligned with organizational objectives.

Professional System: Abu Ziyada (2019) frames TM as a professional system encompassing integrated practices designed to attract, develop, and retain talent, enabling organizations to achieve excellence and superior performance in a dynamic business environment.

Unified Strategy: Kamhoos (2020) highlights TM as a unified strategy that aligns organizational activities to attract and develop talented individuals, ensuring long-term success and market differentiation.

Holistic Approach: Sediq (2021) defines TM as a comprehensive approach that integrates practices to attract, develop, and retain talented individuals in roles aligned with their capabilities. This includes consistent motivation, development opportunities, and incentives to maximize organizational impact.

Strategic Integration: Qadri (2021) emphasizes TM as an interconnected set of activities focused on attracting, developing, and retaining talent to meet organizational goals and enhance competitive positioning.

Capability Enhancement: Tantawi et al. (2021) view TM as a framework for harnessing individual capabilities such as skills, knowledge, and growth potential. This framework enables organizations to cultivate a skilled workforce capable of navigating complex challenges.

In recent years, talent management (TM) has played an increasingly vital role in the organizational and professional landscape. This growing emphasis on TM has been driven by advancements in knowledge and technological revolutions, marking the current era as one of intellectual and technological innovation. These developments have positioned talented individuals as key assets within human resources frameworks, as organizations and nations recognize the importance of human capital in driving progress (Kamhoos, 2020). The significance of TM lies in its ability to link the development of human resources to broader goals of scientific production and technological advancement. Nations' progress is closely tied to the efficiency and innovation of their human resources, which serve as the cornerstone of economic and technological growth. TM not only identifies and nurtures talent but also strategically aligns it with organizational and national development objectives. As Kamhoos (2020) highlights, this alignment underscores the critical relationship between TM, scientific output, and technological evolution, making it a central element of modern organizational success. Talent management enables organizations to adapt to market changes and sustain their competitive advantage. By aligning talent strategies with business objectives, organizations can create a workforce that not only meets current demands but also anticipates future challenges. TM practices, such as creating a conducive environment for innovation and ensuring employee engagement, serve as critical components in fostering organizational resilience and differentiation in competitive markets (Abu Ziyada & Jadallah, 2021; Sediq, 2021).

3. Hypothesis Development

The supply chain has emerged as a strategic component in achieving competitive advantage, encompassing various elements such as supplier relationships, intermediary and distributor networks, customer engagement, and operational efficiency. Supply chain management (SCM) plays a critical role in aligning organizational processes to deliver value to customers while maintaining cost efficiency (Tarafdar

& Qrunfleh, 2017). Effective SCM integrates suppliers, manufacturers, and customers, ensuring seamless operations that enhance product quality, delivery time, and cost management, all of which are essential dimensions of competitive advantage (Costa, 2018). Supplier relationships are foundational to SCM and significantly impact competitive advantage. Strong collaborations with suppliers enable organizations to ensure consistent raw material quality, negotiate favorable pricing, and foster innovation. Studies suggest that organizations that develop strategic partnerships with suppliers can enhance their operational agility and market responsiveness, thereby gaining a competitive edge (Amoako-Gyampah et al., 2019). Intermediaries and distributors play a vital role in bridging the gap between manufacturers and customers. Efficient distributor networks ensure that products reach markets promptly and cost-effectively, enhancing customer satisfaction and market share. Effective communication and collaboration with distributors have been shown to improve organizational performance and competitive positioning (Vargas et al., 2018).

Customer-centric supply chain practices focus on understanding and meeting consumer needs, a critical factor in achieving competitive advantage. By incorporating customer feedback into production and distribution strategies, organizations can align their offerings with market demands. This proactive approach fosters customer loyalty and differentiates organizations in competitive markets (Shin et al., 2019).

Operational efficiency is another critical aspect of SCM, encompassing the processes that transform raw materials into finished products and deliver them to customers. Streamlined operations reduce waste, optimize resource utilization, and improve delivery timelines, all of which contribute to enhancing competitive advantage (Gligor et al., 2020).

Talent Management as a Moderator

Talent management acts as a moderating variable that strengthens the relationship between SCM and competitive advantage. Effective TM ensures that skilled and innovative employees are in place to optimize supply chain processes. Organizations that prioritize TM practices, such as employee development and retention, create a workforce capable of adapting to dynamic market conditions and driving operational excellence. Research indicates that integrating TM into SCM strategies enhances innovation, agility, and customer satisfaction, which are critical for achieving competitive advantage (Birou & Van Hoek, 2021; Yener & Gurbuz, 2017).

The development of the hypotheses is grounded in the relationship between supply chain management (SCM) and competitive advantage, further enriched by the moderating influence of talent management (TM). Supply chain activities, including supplier relationships, intermediaries and distributors, customer engagement, and operations, are recognized as key drivers for achieving competitive advantage. Research indicates that organizations that effectively integrate their SCM components are better positioned to deliver value, improve efficiency, and sustain market competitivenessact on competitive advantage is multifaceted. Relationships with suppliers ensure resource availability and cost control, while intermediaries and distributors enable effective market access. Similarly, customer-centric supply chains foster loyalty and differentiation. Operational excellence complements these aspects by ensuring timely delivery and high-quality production. Together, these elements create a cohesive system that enhances organizational performance in competitive markets. Talent relationship by optimizing human resources to align with supply chain goals. TM strategies, such as attracting and retaining skilled professionals, enhance the flexibility and adaptability of supply chain operations, which are critical for responding to market changes. Empirical studies suggest that integrating TM into SCM frameworks strengthens organizational resilience and sustains competitive advantages in dynamic environments.

Main Hypothesis 1 (H1): The supply chain (relationship with suppliers, relationship with intermediaries and distributors, relationship with customers, and operations) has a positive and statistically significant impact at a significance level of $\alpha \leq 0.05$ on achieving competitive advantage in Jordanian pharmaceutical industrial companies.

Sub-Hypotheses under Main Hypothesis 1:

H1.1: The relationship with suppliers has a positive and statistically significant impact at a significance level of α≤0.05 on achieving competitive advantage in Jordanian pharmaceutical industrial companies.

H1.2: The relationship with intermediaries and distributors has a positive and statistically significant impact at a significance level of α≤0.05on achieving competitive advantage in Jordanian pharmaceutical industrial companies.

H1.3: The relationship with customers has a positive and statistically significant impact at a significance level of α≤0.05 on achieving competitive advantage in Jordanian pharmaceutical industrial companies.

H1.4: Operations have a positive and statistically significant impact at a significance level of α≤0.05 on achieving competitive advantage in Jordanian pharmaceutical industrial companies.

Main Hypothesis 2 (H2): There is a positive and statistically significant relationship at a significance level of α≤0.05 between supply chain management and competitive advantage, with the moderating role of talent management in Jordanian pharmaceutical industrial companies.

4. Methodology

The research employs a descriptive analytical methodology to achieve its objectives, focusing on describing phenomena and identifying problems. This approach is particularly suited for studies in social and human sciences, offering a structured framework to analyze data systematically. Additionally, the study integrates statistical methods to test the research questions and hypotheses, ensuring robust and data-driven insights. The combination of descriptive analysis with statistical techniques underscores the methodological rigor aimed at uncovering nuanced relationships between variables.

The study targets employees in the Jordanian pharmaceutical industrial sector, specifically companies listed under the Amman Chamber of Industry. These include 72 companies, with 32 specializing in human medicine production (Amman Chamber of Industry, 2022). A random sample of 200 employees from senior management was selected, and the study instrument was distributed electronically. A total of 176 responses were received, of which 11 were excluded for being invalid, leaving 165 valid responses. This represents a response rate of 82.5%, which is robust and reflective of the study population.

The questionnaire was developed with input from subject matter experts and underwent multiple revisions for clarity and relevance. It consisted of two main sections:

1. Demographic Information: This section aimed to gather data on respondents' characteristics, including gender, age, job title, educational attainment, and years of experience.
2. Study Variables: This section focused on the study's independent, dependent, and moderating variables, with each variable broken down into measurable dimensions:
   Independent Variable: Supply chain management (20 items across four dimensions: supplier relationships, intermediaries and distributors, customer relationships, and operations).
   Dependent Variable: Competitive advantage (10 items).
   Moderating Variable: Talent management (10 items).

A five-point Likert scale was used, ranging from "strongly disagree" (1) to "strongly agree" (5). This scale is widely recognized in administrative and social research for its effectiveness in quantifying subjective opinions. However, the questionnaire was reviewed by a panel of academic experts from universities across Jordan. Feedback was solicited on linguistic accuracy, clarity, and relevance to the study's objectives. Revisions were made based on their recommendations to ensure the instrument's final version was precise and comprehensive. In addition, the study ensured reliability by using statistical methods to confirm the consistency of the instrument across different contexts, enhancing the robustness of the data collected. To ensure the reliability of the study instrument, its internal consistency and the coherence of its items in measuring the intended variables were tested using the Cronbach's Alpha coefficient. An instrument is considered reliable when the Cronbach's Alpha value is at least 0.70, with higher values indicating greater

reliability and consistency (Sekaran & Bougie, 2016). The results of the reliability test for the study dimensions are shown in Table 1.

Table 1. Cronbach's Alpha Values for Internal Consistency

No.	Dimension	Alpha Value
1	Relationship with Suppliers	0.894
2	Relationship with Intermediaries and Distributors	0.847
3	Relationship with Customers	0.917
4	Operations	0.934
	Supply Chain Overall	**0.946**
	Talent Management	0.921
	Competitive Advantage	0.924

The Cronbach's Alpha values for the study dimensions ranged between 0.847 and 0.934, all exceeding the threshold of 0.70. This indicates a high level of internal consistency among the questionnaire items. The overall reliability for the supply chain dimension was 0.946, reflecting the robustness of the instrument in measuring this variable. Similarly, the reliability scores for talent management (0.921) and competitive advantage (0.924) further confirm the dependability of the instrument. In addition, Pearson correlation matrix was used to assess whether the data exhibit multicollinearity, which occurs when the correlation between the independent variables is excessively high. Multicollinearity is typically indicated if Pearson's correlation coefficient values exceed 0.80 between the dimensions of the independent variable and the moderating variable. If the values are below 0.80, it suggests the absence of multicollinearity, allowing for reliable statistical analysis.

Table 2. Pearson's Correlation Matrix for Independent and Moderating Variables

Variable	Relationship with Suppliers	Relationship with Intermediaries and Distributors	Relationship with Customers	Operations	Talent Management
Relationship with Suppliers	1.000				
Relationship with Intermediaries and Distributors	0.647	1.000			
Relationship with Customers	0.573	0.443	1.000		
Operations	0.680	0.734	0.547	1.000	
Talent Management	0.633	0.621	0.562	0.711	1.000

The correlation coefficients among the dimensions of the independent variable (supply chain dimensions) and the moderating variable (talent management) ranged between 0.443 and 0.734, all of which are below the threshold of 0.80. These values confirm the absence of high multicollinearity between the variables. As a result, the relationships among the variables are statistically valid for further analysis. The independence of the variables allows for unbiased interpretation of their effects in the study's statistical models.

5. Findings

The study analyzed 165 valid questionnaires out of 200 distributed, providing a comprehensive overview of the demographic and professional characteristics of participants, including gender, age, job title, educational attainment, and years of experience. Below are the key findings. The results show a gender imbalance among

participants, with 69% being male and only 31% female. This indicates a predominance of male employees in senior management positions, reflecting limited female participation at higher organizational levels. Such findings align with broader trends in the pharmaceutical industry, where gender disparities in leadership roles are common. The age distribution reveals that the majority of respondents fall within the 30-40 years age group, accounting for 32.1% of the sample. This group is followed by those aged 41-50 years (25.5%) and those over 50 years (23.6%). The smallest representation is from individuals under 30 years, at 18.8%. This distribution suggests a preference for mid-career professionals in senior management, who possess both experience and adaptability, while highlighting the need to attract younger talent to inject innovation and energy into the workforce. A significant proportion of respondents (47.3%) hold administrative positions, followed by department heads (24.2%) and executive managers (20.6%). General managers constitute the smallest group, at 7.9%. This indicates that most employees are in operational roles, with fewer occupying strategic decision-making positions. Such a distribution reflects a hierarchy that may require rebalancing to empower mid-level leadership. The majority of participants (59.4%) hold a bachelor's degree, while 26.1% have pursued postgraduate studies, and 14.5% possess an intermediate diploma or lower. The high percentage of bachelor's degree holders aligns with Jordan's educational trends, where undergraduate education is widely accessible. However, the relatively low percentage of postgraduate qualifications suggests an opportunity to encourage further education and specialized training among employees to enhance organizational expertise. In terms of professional experience, the largest group (32.1%) has 10-15 years of experience, followed by 5-10 years (28.5%), and those with over 15 years (23.6%). The smallest group is composed of individuals with less than five years of experience, at 15.8%. This distribution suggests a stable workforce with limited job turnover, which could support organizational continuity but may also indicate challenges in attracting new talent to refresh the workforce with innovative ideas.

The demographic and professional characteristics provide valuable insights into the composition of employees in Jordanian pharmaceutical companies. The gender disparity highlights a need for policies promoting diversity and inclusion, particularly in senior management roles. The age and experience profiles suggest a reliance on mid-career professionals, but the underrepresentation of younger employees and those with less experience points to potential gaps in succession planning and workforce rejuvenation. The educational attainment distribution indicates a well-educated workforce, dominated by bachelor's degree holders. However, the relatively low percentage of employees with postgraduate qualifications highlights opportunities for professional development programs to build specialized skills and knowledge, particularly in leadership and innovation. Finally, the stability in years of experience reflects a dedicated workforce, yet it may also signal limited mobility and the need for strategies to integrate new perspectives. Addressing these dynamics will be essential for fostering a competitive and adaptive workforce in the pharmaceutical sector.

5.1 Hypothesis Testing

The study investigates the relationship between supply chain dimensions and competitive advantage, with a focus on Jordanian pharmaceutical industrial companies. The findings, derived from regression analysis, provide robust evidence of the positive and statistically significant impact of supply chain management on competitive advantage. Each dimension of the supply chain, relationship with suppliers, intermediaries and distributors, customers, and operations, contributes uniquely to enhancing competitive positioning. The analysis reveals that all dimensions of the supply chain have a significant positive effect on competitive advantage. Supplier relationships contribute to ensuring quality inputs and fostering cost efficiency, as demonstrated by their significant correlation ($R=0.510$, $R = 0.510$). Similarly, relationships with intermediaries and distributors play a pivotal role in timely product delivery and market expansion ($R=0.696, \beta=0.696$). Customer engagement emerges as a key driver of loyalty and differentiation in the market, with a strong positive effect ($R=0.607, \beta=0.607$). Operations, encompassing efficiency in production and distribution processes, show the highest impact ($R=0.699, \beta=0.699$), highlighting the importance of streamlined internal processes in sustaining competitive advantage. The combined analysis of supply chain dimensions underscores their collective impact on competitive advantage. With an overall

correlation of R=0.835, and R^2=0.697, the model explains 69.7% of the variation in competitive advantage. This high explanatory power emphasizes the strategic importance of supply chain management in the pharmaceutical sector.

Table 3. Regression Analysis Results for Hypotheses Testing

Hypothesis	Dependent Variable	R	R^2	Adjusted R^2	F-value	Sig. F	B	Beta	t-value	Sig. t
H1.1**: Relationship with Suppliers**	Competitive Advantage	0.510	0.260	0.257	80.625	0.000	0.480	0.510	8.979	0.000
H1.2**: Relationship with Intermediaries and Distributors**	Competitive Advantage	0.696	0.484	0.482	215.013	0.000	0.698	0.696	14.663	0.000
H1.3**: Relationship with Customers**	Competitive Advantage	0.607	0.369	0.366	133.761	0.000	0.523	0.607	11.566	0.000
H1.4**: Operations**	Competitive Advantage	0.699	0.488	0.486	218.246	0.000	0.708	0.699	14.773	0.000

The findings provide critical insights into the pivotal role of supply chain dimensions in fostering competitive advantage. Each dimension contributes uniquely to organizational success, emphasizing the necessity of a well-integrated supply chain strategy.

Supplier Relationships (H1.1):

A correlation of R=0.510, R = 0.510 and β=0.510 confirms the positive and statistically significant impact of supplier relationships on competitive advantage. This result highlights the importance of nurturing robust partnerships with suppliers, which ensures the consistent quality of inputs and enhances cost efficiency. By collaborating effectively with suppliers, companies can secure their supply chains and mitigate risks, thereby strengthening their market positioning.

Intermediaries and Distributors (H1.2):

The results (R=0.696, β=0.696) underscore the critical role played by intermediaries and distributors. Efficient distribution networks enable companies to reach their markets promptly and expand their customer base effectively. This dimension is essential for maintaining a steady flow of products, reducing delivery lead times, and ensuring customer satisfaction, which collectively contribute to sustaining a competitive edge.

Customer Relationships (H1.3):

A strong positive correlation (R=0.607, β=0.607) highlights the impact of customer-centric practices on competitive advantage. Engaging with customers and incorporating their feedback fosters loyalty and enhances brand differentiation. This alignment with customer needs positions organizations favorably in competitive markets, enabling them to respond dynamically to market changes.

Operations (H1.4):

Operations demonstrate the strongest relationship with competitive advantage (R=0.699, β=0.699), emphasizing operational efficiency as a cornerstone of success. Streamlined production and distribution processes minimize costs and improve productivity, ensuring that companies can deliver high-quality products promptly. This efficiency not only supports internal performance but also enhances external market competitiveness.

The comprehensive model (R=0.835, R^2=0.697) highlights that supply chain management collectively explains 69.7% of the variation in competitive advantage. This substantial explanatory power underscores the strategic importance of integrating supply chain dimensions. For pharmaceutical companies, effective supply chain management is not merely a support function but a critical driver of sustainable competitive advantage in a dynamic industry landscape. These results collectively emphasize that each dimension of the supply chain plays a vital role, with operations and intermediary relationships emerging as the most impactful. The findings advocate for a strategic focus on supply chain optimization to achieve long-term organizational success.

The relationship between supply chain management (SCM) and competitive advantage, moderated by talent management (TM), was tested using hierarchical regression analysis. This analysis allowed for an examination of the direct effect of SCM on competitive advantage and the additional contribution of TM as

a moderating variable. The results demonstrate that both SCM and its interaction with TM significantly enhance competitive advantage, highlighting the strategic importance of integrating talent management practices into supply chain strategies. The following table (4) presents the hierarchical regression analysis results for testing the moderating effect of talent management on the relationship between supply chain management and competitive advantage.

Table 4. Hierarchical Regression Analysis Results for Testing Main Hypothesis 2

Dependent Variable	Independent Variables	Model 1			Model 2		
		β	T	Sig*	β	T	Sig*
Competitive Advantage	Supply Chain	0.641	12.715	0.000		-	
	Supply Chain × Talent Management		-		0.374	4.717	0.000
	R		0.661			0.701	
	R^2		0.437			0.492	
	ΔR^2		0.435			0.487	
	ΔF		161.683			100.228	
	Sig. ΔF		0.000			0.000	

Note: The effect is statistically significant at $\alpha \leq 0.05$.

The first model examines the direct impact of SCM on competitive advantage. The regression coefficient B=0.641, with T=12.715 ($p<0.05$), indicates a strong and statistically significant positive effect. The R^2=0.437 reveals that SCM alone explains 43.7% of the variation in competitive advantage. This finding underscore that robust supply chain practices, including efficient operations, supplier relationships, and customer engagement, are critical drivers of competitive performance.

The second model incorporates the interaction term (SCM × TM) to assess the moderating effect of talent management. The regression coefficient for the interaction term B=0.374, with T=4.717 ($p<0.05$), confirms that TM significantly moderates the relationship between SCM and competitive advantage. The ΔR^2=0.487 indicates that the addition of the moderating variable increases the explanatory power of the model by 4.9%, resulting in an overall R^2=0.492. This demonstrates that TM enhances the effectiveness of SCM in achieving competitive advantage.

Strategic Role of SCM: The significant direct effect of SCM highlights its foundational role in enhancing competitive advantage. By streamlining supply chain processes, pharmaceutical companies can achieve operational efficiency, reduce costs, and improve customer satisfaction.

Amplifying Impact of TM: The moderating role of TM suggests that organizations that integrate talent management practices, such as developing and retaining skilled employees, can amplify the benefits of SCM. TM ensures that supply chain processes are executed by a competent workforce, leading to innovation and responsiveness in dynamic market environments.

Overall Model Strength: The increase in R^2 and significant ΔF values confirm the robustness of the moderating effect, emphasizing that SCM and TM together form a synergistic framework for achieving competitive advantage. The findings confirm that all dimensions of the supply chain positively and significantly contribute to competitive advantage. Operations and relationships with intermediaries and distributors emerge as the most impactful factors. These results suggest that pharmaceutical companies should focus on optimizing their supply chain practices to sustain a competitive edge in the dynamic market environment. The results validate the hypothesis that supply chain management positively and significantly

influences competitive advantage and that this relationship is further strengthened by talent management. Pharmaceutical companies should prioritize the integration of talent management into their supply chain strategies to sustain competitiveness and adapt to evolving market demands.

6. Discussion

The results of the study provide compelling evidence of the positive and statistically significant impact of supply chain management (SCM) on achieving competitive advantage in Jordanian pharmaceutical industrial companies. Each dimension of the supply chain, relationships with suppliers, intermediaries and distributors, customers, and operations was found to contribute uniquely to organizational success, confirming the validity of the sub-hypotheses (H1.1 to H1.4). These findings align with prior research that highlights the strategic importance of SCM in enhancing organizational performance (Tarafdar & Qrunfleh, 2017; Gligor et al., 2020). The strong and statistically significant relationship between supplier collaboration and competitive advantage underscores the importance of maintaining reliable supplier networks. the results suggest that fostering partnerships with suppliers ensures consistent quality, timely deliveries, and cost efficiency, enabling pharmaceutical companies to meet market demands effectively. These findings echo the conclusions of Amoako-Gyampah et al. (2019), who emphasized that strategic supplier relationships enhance operational agility and product innovation. The impact of intermediaries and distributors (R=0.696, β=0.696R) highlights their role in facilitating efficient market access and timely delivery of products. These networks bridge the gap between manufacturers and customers, ensuring that products reach the market quickly and cost-effectively. Vargas et al. (2018) similarly found that robust intermediary networks are critical for maintaining a competitive edge, particularly in industries with complex supply chains. Customer-centric supply chain practices showed a significant positive effect (R=0.607, β=0.607) on competitive advantage. By incorporating customer feedback and aligning supply chain operations with consumer preferences, pharmaceutical companies can foster loyalty and build brand differentiation. Shin et al. (2019) similarly highlighted that customer-focused supply chain strategies lead to enhanced market responsiveness and satisfaction, driving long-term organizational success. Among the dimensions, operations demonstrated the strongest relationship (R=0.699, β=0.699) with competitive advantage. This finding reinforces the critical role of operational efficiency in ensuring high-quality production, cost optimization, and timely product delivery. Gligor et al. (2020) also noted that streamlined operations are central to achieving and sustaining competitive advantage, especially in dynamic and highly regulated industries like pharmaceuticals. The findings for H2 reveal that talent management (TM) significantly moderates the relationship between SCM and competitive advantage ($\beta=0.374$, $T=4.717$, $p<0.05$). The results indicate that organizations with effective TM practices can amplify the benefits of SCM by leveraging a skilled and motivated workforce. This finding supports the view that TM enhances the strategic execution of supply chain processes, enabling organizations to adapt to market changes and maintain a competitive edge (Birou & Van Hoek, 2021; Yener & Gurbuz, 2017). The interaction between SCM and TM explains additional variance in competitive advantage highlighting the synergistic effect of integrating TM into supply chain strategies. By attracting, developing, and retaining top talent, pharmaceutical companies can ensure that their supply chain operations are not only efficient but also innovative and responsive. Beamond et al. (2016) similarly emphasized that TM enhances organizational flexibility and resilience, particularly in industries characterized by rapid technological advancements and shifting consumer demands.

The study's findings have several implications for pharmaceutical companies seeking to enhance their competitive positioning:

- Integrate SCM Dimensions: Companies must adopt a holistic approach to SCM by simultaneously strengthening supplier, distributor, customer, and operational relationships.
- Leverage TM as a Strategic Enabler: By embedding TM into supply chain processes, organizations can optimize workforce capabilities, drive innovation, and enhance adaptability.
- Focus on Operational Excellence: Operational efficiency should remain a key priority, given its strong impact on competitive advantage.

The results validate the hypotheses that SCM significantly influences competitive advantage and that TM plays a critical moderating role. These findings underscore the importance of adopting integrated supply chain and talent management strategies to achieve and sustain competitive advantage in the dynamic pharmaceutical industry. Future research could further explore the interplay between these variables across different sectors and geographies.

7. Implication

The findings of this study have significant theoretical and practical implications for supply chain management (SCM), talent management (TM), and competitive advantage in the context of Jordanian pharmaceutical industrial companies. This study contributes to the growing body of literature on the strategic role of SCM by confirming its multifaceted impact on competitive advantage. Each dimension of the supply chain, supplier relationships, intermediaries and distributors, customer relationships, and operations, was found to significantly enhance competitive positioning, providing empirical support to existing frameworks such as resource-based theory (Vargas et al., 2018). The research also extends the theoretical understanding of TM as a moderating factor, illustrating how aligning human resource strategies with supply chain goals can amplify competitive outcomes. This dual focus offers an integrated perspective that enriches current models of SCM and competitive advantage. From a managerial standpoint, the study emphasizes the need for pharmaceutical companies to adopt a holistic approach to SCM. Decision-makers should prioritize strong supplier collaborations to ensure quality and cost efficiency (Amoako-Gyampah et al., 2019). Enhancing relationships with intermediaries and distributors is equally critical for achieving efficient market reach and delivery, while customer-focused practices drive loyalty and differentiation (Ibrahim et al., 2021). Furthermore, the findings underscore the pivotal role of operational efficiency in sustaining competitive advantage, particularly in highly regulated and competitive sectors such as pharmaceuticals (Gligor et al., 2020). The moderating role of TM presents a call to action for companies to invest in talent acquisition, development, and retention strategies. By aligning workforce capabilities with supply chain objectives, organizations can build resilience and foster innovation, enabling them to navigate dynamic market conditions effectively (Sadiq, 2021).

8. Conclusion

This study validates the central role of SCM in driving competitive advantage and highlights the amplifying effect of TM as a moderating variable. By analyzing the individual and collective impacts of SCM dimensions, supplier relationships, intermediaries and distributors, customer relationships, and operations, the research demonstrates that SCM is a critical enabler of organizational success. Each dimension contributes uniquely, with operations and intermediaries-distributor relationships showing the strongest impacts. The study also confirms the significant moderating influence of TM, revealing that integrating talent management strategies into supply chain practices enhances competitive advantage. This finding reinforces the need for organizations to adopt an integrated approach that combines operational excellence with human capital development. Theoretical contributions of this study lie in extending the resource-based view by incorporating TM as a strategic resource that strengthens supply chain performance. Practical contributions include actionable insights for managers to optimize supply chain operations and talent strategies, ensuring long-term competitiveness in the pharmaceutical sector. Future research should explore the generalizability of these findings across other industries and regions. Additionally, investigating the role of emerging technologies, such as artificial intelligence and blockchain, in SCM and TM could offer deeper insights into enhancing competitive advantage in a rapidly evolving business landscape.

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