Uncertain Supply Chain Management 11 (2023) 737–742

Contents lists available at GrowingScience

Uncertain Supply Chain Management

homepage: www.GrowingScience.com/uscm

Total quality management and the role in developing supply chain management in Jordan companies

Mufleh Amin AL Jarrah[a*]

[a]*Faculty of Business, Amman Arab University, Amman Jordan*

A B S T R A C T

Total quality management (TQM) stresses strategy development, data collecting, and communication in order to improve the firm's discipline and quality. To be more specific, overall quality management is a management method used to achieve long-term success by focusing on consumers. Therefore, the current study examines the role of total quality management (including design development, continuous improvement, and supplier involvement) in developing supply chain management (SCM) in Jordanian companies. The present research population comprises all Jordanian companies. Using a quantitative research approach, a random sample of 210 workers in Jordanian companies was chosen for the current study. The direct effects results showed that design development, continuous improvement, and supplier involvement had a significant positive effect on supply chain management ($p \leq 0.05$).

Article history:
Received November 21, 2022
Received in revised format December 20, 2022
Accepted January 13 2023
Available online January 13 2023

Keywords:
Total Quality Management (TQM)
Design Development (DD)
Continuous Improvement (CI)
Supplier Involvement (SI)
Supply Chain Management (SCM)
Jordanian Companies

1. Introduction

TQM and SCM have various starting points and key aims, which might make combined implementation more difficult. They have, however, developed in order to achieve the same goal: client happiness. TQM stresses employee engagement, whereas SCM focuses on business (Vanichchinchai, 2009). TQM and SCM have been regarded as the two most significant manufacturing strategies and have become a must for worldwide market success. Also, the TQM and SCM are significant methods for gaining a competitive advantage and enhancing organizational competitiveness (Talib et al., 2011), and the TQM is an organization-wide effort to foster a culture of constant improvement in the delivery of high-quality products and services to consumers (Kaur et al., 2019). Even though SCM principles have received a lot of attention in recent years, their relationship with the TQM approach is frequently restricted and tangential. While the importance of TQM is widely acknowledged, academic researchers require a more concentrated strategy in analyzing quality management concerns in internal and external SCM contexts (Robinson & Malhotra, 2005). Furthermore, by incorporating TQM into the supply chain, businesses may avoid just reacting to the needs of their supply chain consumers and instead aim to satisfy their needs more proactively (Sila et al., 2006). Similarly, TQM and SCM are two methods to improve the effectiveness of an institution's operations function, with the former seeking quality improvements through improvements in display processes and the latest by integrating production processes through the SCM (Kannan & Tan, 2005). TQM and SCM are also claimed to be the most essential techniques for many different firms, and TQM is frequently used for process variation reduction, which is directly related to supplying chain performance indicators such as process time, order completion, and delivery reliability. As a result, including quality efforts in SCM procedures seeks to improve product quality and development (Loke et al., 2012), where SCM in today's corporate climate encompasses a range of independent firms. These supply chains may be controlled with more agility, effectiveness, and efficiency by constructing virtual corporate networks (Jarah et al., 2022).

* Corresponding author
E-mail address mufleh@aau.edu.jo (M. A. A. Jarrah)

doi: 10.5267/j.uscm.2023.1.007

2. Literature Review

TQM is an integrated strategy made up of concepts and activities that aim to continually meet and surpass customers' expectations in the competitive ways possible in order to improve the quality of an institution's goods and services. TQM is concerned with increasing customer satisfaction (Talib et al., 2011). It should be mentioned that overall quality management is a notion that evolves with time (Ramlawati et al., 2022). According to the findings of Ahmed et al., (2022), TQM has little influence on operational performance while simultaneously having a minor and positive effect on company performance. In contrast, SCM has a positive and significant influence on operational and business performance, where SCM has developed as an important organizational strategy for achieving competitive advantage, particularly via networks between suppliers and customers. SCM is a way of regulating the movement of commodities, and services, from their place of origin to their point of consumption (Almatarneh et al., 2022). Furthermore, a company's SCM is a key business function that assures a great customer experience (Al-Zaqeba et al., 2022). SCM is one of the most efficient ways for businesses to enhance their performance. Similarly, TQM emerges as a tool to assist diverse businesses in maintaining quality standards of products and services that please consumers and increase organizational competitiveness (Kaur et al., 2019). TQM denotes the ideas and ideologies that serve as the foundation of a constantly improving company. TQM comprises inventive initiatives, specific technological abilities, and fundamental administrative criteria that comprise an organization's current management indicators and contemporary management philosophy (Zaid & Sleimi, 2021). Terziovski and Hermel (2011) found a set of quality management methods that are similar to the performance of integrated supply chains in their study: The supply chain manager's post has been promoted to senior management. The major imperatives for integrated supply chain performance were recognized as supplier selection and development with a goal of enhancing product quality, rapid deliveries, and responsiveness to customer requests. Furthermore, describes TQM concepts and speculates on whether they apply to SCM. SCM is often associated with materials management, but it has been observed that SCM, in conjunction with other industries such as business resource planning and electronic commerce, has been moving towards completely integrated SCM across administrative value chains, with a border focus on transaction cost decrease (Gunasekaran & McGaughey, 2003). According to the findings of Kahar et al., (2022), complete quality control, which includes worker empowerment, staff training, and collaborative culture, has a substantial influence on enhancing the quality performance of SMEs. Furthermore, Golrizgashti et al., (2022) discovered that whole quality management approaches had the greatest impact on supplier integration and supply chain performance. Organizational culture has the greatest impact on supply chain performance, total quality management has the greatest influence on knowledge management, organizational culture has the greatest effect on total quality management, and knowledge management has the greatest impact on supplier integration on supply chain performance. With increased globalization and competitiveness, many firms are concerned about quality. Manufacturers who compete on a worldwide scale rely on quality to sustain their competitive advantages, and TQM has garnered increased attention in SCM. The term supply chain quality integration (SCQI) refers to how a company collaborates with its suppliers and downstream consumers to improve quality (Huo et al., 2019). Loke et al. (2012) discovered that TQM and knowledge management are both considerably positively associated with supply chain learning. Most businesses across the world employ supply chain management. Furthermore, its interconnection with the TQM approach is currently quite restricted. In this context, the supply chain's quality can give a game-changing answer at many levels of supply chain management (Sharma et al., 2012). According to the findings of the research by Nugroho et al., (2022), there are links between just-in-time, TQM, and SCM at all strategic and functional levels, which are viewed as playing a key influence in the operational course of activities of the organizations. Statistics also show that the aspects of quality and SCM have the greatest influence on performance. Internal activities within a business and external practices that span organizational boundaries and integrate a firm with its consumers and suppliers comprise SCM. TQM approaches such as supplier quality management and customer focus are obviously in the area of SCM (Kaynak & Hartley, 2008). Kannan and Tan (2005) found that there are links to how firms consider just-in-time, TQM, and SCM as part of their processes strategy at both the strategic and functional levels. According to the findings, a dedication to quality and an awareness of supply chain dynamics have the biggest impact on performance. According to Vanichchinchai and Igel (2011), TQM has a large direct beneficial influence on SCM and a company's supply performance, as well as a considerable indirect good impact on a firm's supply performance via SCM. TQM, according to Gunasekaran and McGaughey (2003), challenges culturally diverse workforces to collaborate in related continuous improvement, and while appropriate performance measurements and metrics may aid, companies must accept a balanced approach to goals, grade, and management processes to maximize relationship capital.

This has necessitated a thorough re-examination of all aspects of their supply chain, from establishing what customers want and whether they are reacting to it, to maximizing their own and their suppliers' capabilities to satisfy customer obligations. Quality, customer focus, outsourcing, and value-added have all become synonymous with businesses' efforts to adapt to increased competition and how they are doing so through their supply chains (Kannan & Tan, 2007). Talib et al. (2011) discovered that management support and commitment, customer focus, and supplier collaboration are the most commonly cited strategies in both TQM and SCM literature and have the highest effect on enterprise TQM and SCM integration. TQM practices, according to Forker et al. (1997), are linked to performance. According to Flynn and Flynn (2005), there is a connection between quality management and supply chain management. The practical implications and managerial recommendations center on how to use this connection as a competitive weapon in an increasingly complex global economy.

TQM is a game-changing approach to management. TQM research sprang from the practical demands of businesses that adopted this attitude (Ahire et al., 1995). As a result, SCM, TQM, and information technology in manufacturing firms are still in the early phases of increasing operational performance and firm performance (Ahmed et al., 2022). In a competitive, fast-moving consumer products industry, supply chains encounter several obstacles, including integration and coordination among partners, particularly suppliers. The suggested conceptual casual model highlights customer-supplier interactions as a fundamental feature of implementing overall quality management principles and their influence on supply chain performance (Golrizgashti et al., 2022). Additional TQM indicators were identified in the study by Farooqui and Ahmed (2009), including top management commitment, personnel empowerment and engagement, supplier-customer cooperation, and process improvement and management. Burati et al. (1991) performed research to identify features of effective quality-management systems in the construction industry. The data suggest that using TQM in the structure industry may result in considerable improvements in meeting quality standards. Methods and features of effective quality-management system deployment were categorized and established. TQM has a good effect on green SCM practices and corporate sustainability, according to the findings of Zaid and Sleimi (2021). Green SCM strategies also operate as a bridge between TQM and corporate sustainability.

According to Kiombile and Ndume (2018), the most important success elements in the adoption of TQM in the building process are SCM, customer focus, process management, and continuous improvement. According to Kaur et al. (2019), the most prevalent behaviours seen in both TQM and SCM practices are administrative support and commitment, client focus, information, and supplier cooperation. TQM and SCM integration throughout the supply chain has the greatest influence on administrative performance. Jarrah et al., (2022) discovered that integrating project management procedures with project risk management might improve project managers' odds of successful project execution. According to the findings of Huo et al. (2019), quality-related performance differs according to different notions of supply chain quality integration patterns. Surprisingly, product quality is not differentiated across the supply chain grade integration patterns notion.

Kannan and Tan (2007) found that not only do both internally and externally focused TQM approaches affect performance, but externally focused initiatives have a bigger impact on performance and are viewed as more important by managers. The addition of customer focus and supplier quality management in the TQM model by Kaynak and Hartley (2008) underscores the necessity of internal and external integration for quality performance. Tamer's (2022) research found a link between TQM and SCM. According to the findings of Zeng et al. (2013), the dominating role of TQM has a beneficial influence on the SCM. Downstream QM has been found to moderate the link between internal TQM and client satisfaction, but upstream TQM has no direct influence on either kind of quality performance. Soares et al., (2017) affirm the performance impact of SCM practices on quality at an aggregate level, whereas Kuo & Kuo, (2010) sought to evaluate the relationship between corporate culture, TQM, and project performance. The results show that corporate culture and TQM both have a direct and positive influence on project performance. TQM deployment, in particular, increases the influence of company culture on performance; Al-Jarrah et al., (2023) discovered a link between TQM and client interactions. Zand & Dehyouri (2022) findings revealed a substantial positive link between SCM and TQM. Saeed (2012) performed an experimental study to evaluate the link between TQM and project performance, as well as the influence of TQM. A thorough literature analysis was employed to develop a TQM framework in the aforementioned study, and the framework of the study highlighted the relationship between TQM and construction project performance. Based on the foregoing, the researcher proposed the following hypotheses:

H_1: *Design Development has a positive significant role in SCM.*
H_2: *Continued Improvement has a positive significant role in SCM.*
H_3: *Supplier Involvement has a positive significant role in SCM.*

3. Methodology

The current study investigates the role of overall TQM (including design development, continuous improvement, and supplier involvement) in Jordanian enterprises implementing SCM. The current research population includes all Jordanian businesses. The researchers devised a standardized table to determine the study sample size. A random sample of 210 Jordanian workers was recruited for the current study using a quantitative research technique. Figure 1 depicts the research framework, which depicts the construct linkages of the proposed hypothesized study. It is considered that the independent construct of TQM has a significant impact on the dependent variable SCM. As a regularly used strategy for data collecting in the survey study, a questionnaire was used as the survey instrument.

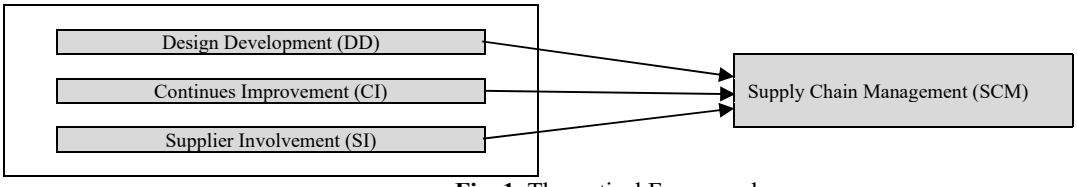

Fig. 1. Theoretical Framework

4. Results

The study was carried out in two stages: the measurement model was used in first to evaluate the reliability and validity of the generated variable, and the structural model was used to investigate the hypothesis. The outcomes of the measuring model are listed in Table 1.

Table 1
Measurement Model Assessment Results

Variables	Items	Mean	SD	FL	Cronbach's α	CR	AVE
Design Development (DD)	DD 1	4.10	.926	0.606	0.857	0.770	0.782
	DD 2	3.72	.746	0.508			
	DD 3	3.78	.735	0.566			
	DD 4	3.90	.812	0.714			
	DD 5	4.09	.955	0.808			
	DD 6	3.84	.809	0.944			
Continues Improvement (CI)	CI 1	4.06	.953	0.892	0.812	0.840	0.664
	CI 2	3.80	.823	0.854			
	CI 3	3.90	.984	0.913			
	CI 4	3.74	.776	0.587			
	CI 5	3.83	.784	0.746			
	CI 6	3.95	.970	0.952			
Supplier Involvement (SI)	SI 1	3.79	.813	0.986	0.902	0.904	0.509
	SI 2	3.88	.969	0.892			
	SI 3	3.89	.857	0.757			
	SI 4	3.81	.926	0.785			
	SI 5	3.78	.760	0.758			
	SI 6	3.69	.959	0.882			
Supply Chain Management (SCM)	SCM 1	4.04	.876	0.956	0.884	0.911	0.615
	SCM 2	4.07	.974	0.747			
	SCM 3	3.83	. 518	0.671			
	SCM 4	4.01	.805	0.745			
	SCM 5	4.01	.980	0.931			
	SCM 6	3.86	.893	0.650			
	SCM 7	4.12	.886	0.962			
	SCM 8	3.89	.953	0.802			
	SCM 9	3.84	.725	0.773			

Six indicators were used to gauge Design Development, and the mean values varied from 3.72 to 4.10. The six indicators used to measure Continues Improvement were also used, and the resulting mean values varied from 3.74 to 4.06. Supplier Involvement, meanwhile, was assessed using six variables, with mean values ranging from 3.69 to 3.89. Nine indicators were used to assess the dependent variable, and their mean values ranged from 3.83 to 4.12.

Several standard tests that are often used and published in the research were used in this study. The factor loadings for the items are shown first in this study to illustrate their validity. To achieve good indication validity, the factor loading values should be greater than 0.7, but the lowest acceptable value was (0.4), and any indicators with a factor loading less than 0.4 should be deleted. The values for DD6 varied from 0.508 to 0.986 for SI6. Composite Reliability CR, Average Variance Extracted AVE, and Cronbach's Alpha were the additional indicators of reliability and validity. Table 1 shows the findings of this study, which were good and exceeded the low cut-offs (AVE>0.50), CR >0.70, and Cronbach's >0.7). The results of the measuring model verified all presumptions and validated the validity and reliability of the constructs (Afthanorhan et al., 2020; Shmueli et al., 2019).

Table 2
Hypotheses Testing

	Path Hypotheses	Path Coefficient	T	P	Decision
H1	Design Development → Supply Chain Management	0.508	6.420	0.000	Accepted
H2	Continuous Improvement → Supply Chain Management	0.403	5.031	0.000	Accepted
H3	Supplier Involvement → Supply Chain Management	0.328	4.407	0.000	Accepted

The bootstrapping technique was used to examine the relationship between TQM and SCM. The most common results in the structural model are the path coefficients, T-value, and p-value to understand the significance levels (Hair et al., 2017). The direct effects results presented in Table 2 shows that design development, continuous improvement, and supplier involvement had a significant positive effect on SCM ($p \leq 0.05$). To examine the coefficient of determination R^2 and the effect size f^2. The values of the f^2 guidelines were $f^2 \geq 0.02$, $f^2 \geq 0.15$, and $f^2 \geq 0.35$, representing small, medium, and large effect sizes, respectively (Hair et al., 2019). The continuous improvement had the highest impact on the variable with the largest prediction

of SCM, with an f^2 value of 0.413. TQM accounts for 83.1% of the variation in SCM, according to the R^2 value of 0.831. The predictive relevance Q^2, which determines whether a model is predictively relevant or not (> 0 is excellent), is then determined using blinding procedures. Q2 further establishes the endogenous components' predictive value. The Q^2 score in this investigation was 0.407 (greater than zero), indicating that the model has predictive value.

Table 3
Coefficient of Determination R^2, Effect Size f^2, and the Predictive Relevance Q^2

Variables	F^2
Design Development	0.210
Continuous Improvement	0.413
Continuous Improvement	0.130
R^2 for Supply Chain Management	0.831
Q^2 for Supply Chain Management	0.407

5. Discussion

Total quality management, according to Ramlawati et al., (2022), maximizes company performance via competitive benefit by strengthening firm elements linked to quality monitoring and competitiveness. Better SCM improves business performance by providing a competitive edge. Zand and Dehyouri (2022) findings revealed a substantial positive link between SCM and TQM. Tamer's (2022) research found a link between TQM and SCM. TQM has a good effect on green supply chain management practices and corporate sustainability, according to the findings of Zaid and Sleimi (2021). Kaur et al. (2019) discovered that integrating TQM and SCM everywhere in the supply chain had the greatest influence on organizational performance. According to the findings of Huo et al. (2019), quality-related performance differs according to different notions of supply chain quality integration patterns. The addition of client focus and supplier quality management in the TQM model by Kaynak and Hartley (2008) underscores the necessity of internal and external integration for quality performance. According to the findings of Zeng et al. (2013), the dominating role of TQM has a beneficial influence on the SCM. The findings of the study by Soares et al., (2017) validate the performance impact of SCM practices on quality at an aggregate level. The findings of the study by Kuo & Kuo, (2010) reveal that corporate culture and TQM both have a direct and beneficial impact on performance. The framework of research done by Saeed (2012) highlighted the link between TQM and construction performance; the findings of Al-Jarrah et al., (2023) show that there is an association between TQM and customer connections.

6. Conclusions

The goal of this study examines and determines the role of total quality management (including design development, continuous improvement, and supplier involvement) in developing supply chain management in Jordanian companies. For the current study, a random sample of 210 working in Jordanian companies was selected using the quantitative research technique. The direct effects results showed that design development, continuous improvement, and supplier involvement had a significant positive effect on supply chain management ($p \leq 0.05$).

References

Afthanorhan, A., Awang, Z., & Aimran, N. (2020). An extensive comparison of CB-SEM and PLS-SEM for reliability and validity. *International Journal of Data and Network Science, 4*(4), 357-364. doi: 10.5267/j.ijdns.2020.9.003.

Ahire, S. L., Landeros, R., & Golhar, D. Y. (1995). Total quality management: a literature review and an agenda for future research. *Production and Operations Management, 4*(3), 277-306.

Ahmed, N. M., Thapit, A. A., Talib, S. G., Alghazali, T., AL-khayyat, H. I. H., Hafedh, A. A., & Sabit, S. H. (2022). Mediating Role of Operational Performance in the Relationship of Total Quality Management, Green Information Technology, Supply Chain Management and Firm Performance. *International Journal of Operations and Quantitative Management, 28*(1), 335-353.

Al-Jarrah, M., Hailat, K., & Jarah, B. (2023). Total quality management and its role in improving customer relations in Jordanian Islamic banks. *Uncertain Supply Chain Management, 11*(1), 119-126.

Almatarneh, Z., Ineizeh, N., Jarah, B., & Al-Zaqeba, M. (2022). The relationship between corporate social responsibility accounting and supply chain management. *Uncertain Supply Chain Management, 10*(4), 1421-1426.

Al-Zaqeba, M., Ineizeh, N., Jarah, B., Hamour, H., & Zeyad, Z. (2022). Intelligent matching: Supply chain management and financial accounting technology. *Uncertain Supply Chain Management, 10*(4), 1405-1412.

Burati Jr, J. L., Matthews, M. F., &Kalidindi, S. N. (1991). Quality management in construction industry. *Journal of construction Engineering and Management, 117*(2), 341-359.

Farooqui, R. U., & Ahmed, S. M. (2009, June). ISO 9000: A Stepping Stone to Total Quality Management for Construction Companies?. In Proceedings of the Seventh Latin American and Caribbean Conference for Engineering and Technology (pp. 1-9).

Flynn, B. B., & Flynn, E. J. (2005). Synergies between supply chain management and quality management: emerging implications. *International Journal of Production Research, 43*(16), 3421-3436.

Forker, L. B., Mendez, D., & Hershauer, J. C. (1997). Total quality management in the supply chain: what is its impact on performance?. *International Journal of Production Research, 35*(6), 1681-1702.

Golrizgashti, S., Bidhandi, H. M., Safari, M., & Hodaei, H. (2022). A causal structure between total quality management, organisational culture, knowledge management, supplier integration and supply chain performance-an FMCG case study. International *Journal of Integrated Supply Management, 15*(2), 206-231.

Gunasekaran, A., & McGaughey, R. E. (2003). TQM is supply chain management. *The TQM magazine. 15*(6), 361-363.

Hair Jr, J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis, 1*(2), 107-123.

Huo, B., Ye, Y., Zhao, X., & Zhu, K. (2019). Supply chain quality integration: A taxonomy perspective. *International Journal of Production Economics, 207,* 236-246.

Jarah, B., Jarrah, M., & Al-Zaqeba, M. (2022). The role of internal audit in improving supply chain management in shipping companies. *Uncertain Supply Chain Management, 10*(3), 1023-1028.

Kahar, A., Tampang, T., Masdar, R., & Masrudin, M. (2022). Value chain analysis of total quality control, quality performance and competitive advantage of agricultural SMEs. *Uncertain Supply Chain Management, 10*(2), 551-558.

Kannan, V. R., & Tan, K. C. (2005). Just in time, total quality management, and supply chain management: understanding their linkages and impact on business performance*. Omega, 33*(2), 153-162.

Kannan, V. R., & Tan, K. C. (2007). The impact of operational quality: a supply chain view. *Supply Chain Management: An International Journal, 12*(1).

Kaur, M., Singh, K., & Singh, D. (2019). Synergetic success factors of total quality management (TQM) and supply chain management (SCM): A literature review. *International Journal of Quality & Reliability Management, 36*(6), 842-863.

Kaynak, H., & Hartley, J. L. (2008). A replication and extension of quality management into the supply chain. *Journal of operations management, 26*(4), 468-489.

Kuo, T. H., & Kuo, Y. L. (2010). The effect of corporate culture and total quality management on construction project performance in Taiwan. *Total Quality Management, 21*(6), 617-632.

Loke, S. P., Downe, A. G., Sambasivan, M., & Khalid, K. (2012). A structural approach to integrating total quality management and knowledge management with supply chain learning. *Journal of Business Economics and Management, 13*(4), 776-800.

Nugroho, A., Christiananta, B., Wulani, F., & Pratama, I. (2022). Exploring the Association Among Just in Time, Total Quality and Supply Chain Management Influence on Firm Performance: Evidence from Indonesia.

Ramlawati, R., Murniati, S., Haditomo, A. H. C., Mambuhu, N., Indriakati, A. J., & Fitriana, F. (2022). Analyzing mediation effect of competitive advantage on firm performance as measured by total quality management and supply chain management. *Jurnal Aplikasi Manajemen, 20*(1).

Robinson, C. J., & Malhotra, M. K. (2005). Defining the concept of supply chain quality management and its relevance to academic and industrial practice. *International journal of production economics, 96*(3), 315-337.

Saeed, N. M. N. (2012). THE EFFECT OF TOTAL QUALITY MANAGEMENT ON CONSTRUCTION FIRMS PERFORMANCE CASE STUDY: CONSTRUCTION FIRMS IN YEMEN (Doctoral dissertation, Sudan University of Science and Technology).

Sharma, A., Garg, D., & Agarwal, A. (2012). Quality management in supply chains: The literature review. *International Journal for Quality Research, 6*(3), 193-206.

Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J. H., Ting, H., Vaithilingam, S., & Ringle, C. M. (2019). Predictive model assessment in PLS-SEM: guidelines for using PLSpredict. *European journal of marketing, 53*(11), 2322-2347. doi.org/10.1108/EJM-02-2019-0189.

Sila, I., Ebrahimpour, M., & Birkholz, C. (2006). Quality in supply chains: an empirical analysis. *Supply Chain Management: An International Journal, 11*(6), 491-502.

Soares, A., Soltani, E., & Liao, Y. Y. (2017). The influence of supply chain quality management practices on quality performance: an empirical investigation. *Supply Chain Management: An International Journal, 22*(2), 122-144.

Talib, F., Rahman, Z., & Qureshi, M. N. (2011). A study of total quality management and supply chain management practices. *International Journal of Productivity and Performance Management, 60*(3).

Tamer, G. (2022). The Effect of Total Quality Management on Supply Chain Management in the Digital World: Case of Healthcare Services. In Handbook of Research on Cyber Approaches to Public Administration and Social Policy (pp. 298-320). IGI Global.

Terziovski, M., & Hermel, P. (2011). The role of quality management practice in the performance of integrated supply chains: a multiple cross-case analysis. *Quality Management Journal, 18*(2), 10-25.

Vanichchinchai, A., & Igel, B. (2009). Total quality management and supply chain management: similarities and differences. *The TQM Journal, 21*(3).

Vanichchinchai, A., & Igel, B. (2011). The impact of total quality management on supply chain management and firm's supply performance. *International Journal of Production Research, 49*(11), 3405-3424.

Zaid, A. A., & Sleimi, M. (2021). Effect of total quality management on business sustainability: the mediating role of green supply chain management practices. *Journal of Environmental Planning and Management, 66*(3).

Zand, A., & Dehyouri, S. (2022). Path Analysis of the Effect of Supply Chain Management and Total Quality Management on Improving Employees Services Quality. *Journal of Agricultural Science and Technology*, To Appear.

Zeng, J., Phan, C. A., & Matsui, Y. (2013). Supply chain quality management practices and performance: An empirical study. *Operations management research, 6*(1), 19-31.