

Explaining the Supply Chain Practices in Contract Law perspective to determine the Performance of Iraqi Healthcare Sector

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Abstract

Contract law considered as one of important inclusion in conducting business operations among various participants including suppliers, manufacturers and customers. Contract between participants enforce specific requirements in order to conduct business activities. The present study is an effort to explain the supply chain practices in context of contract law to influence performance of Iraqi health care sector. The study entails specific striking supply chain practices including integrated coordination and integrated product innovation to be influential towards performance in presence of highly competitive environment. In present study empirical investigation took place between supply chain practices and performance of Iraqi health sector with moderating effect of highly turbulent environment. The data was collected from health sector professionals of Kurdistan and Baghdad. The collected data was analyzed by using SMART-PLS through measurement model and structural equation modeling. The study found that integrated coordination does not impact the business performance, whereas integrated product innovation significantly positively influence business performance. The moderating effect was observed between integrated communication and business performance but no moderation was observed between integrated product innovation and business performance by environment turbulence. The study suggested that health sector must focus to integrate effective communication and coordination system in highly turbulent environment and product innovation must be incorporated to enhance the business performance.

Introduction and background

The fierce competition has been faced by firms globally and locally in today's world due to extended business activities across the border. Therefore, firms around the world focused on growing phenomenon of global activity and responded by extending their supply chain activities to meet the global competition. Global supply chain management has become one of challenging task for firms in highly competitive environment. Research scholars have given attention to growing need of effective supply chain management by highlighting the role of SCM in management process. Effective supply chain management has become need of today's business world to gain competitive advantage. However, research scholars have empirically investigated the impact of supply chain initiatives on organizational performance. It has been also argued that various features that lead towards performance influenced by SCM are still unexplored and scarce empirically. The studies conducted to determine the causal relationship between SCM and performance of firms showed positively significant results. The studies found to be contributive in terms of identifying components of performance related to supply chain activities. The research scholars focused on various important components of supply chain management that assist firms to gain long term competitive edge. According to Pagell and Wu (2009) sustainable supply chain activities influence economic,

environmental and social sustainability of firms. Literature has highlighted two important critical factors that influence implementation of sustainable supply chain and its positive performance related outcomes. Managerial orientation and nature of institutional context have been highlighted as critical factors towards sustainable performance. Research scholars described managerial orientation as management's style to take decision and importance given to sustainability. Further, Dyck and Silvestre (2018) defined managerial orientation towards sustainability as two types of forms (i) traditional business approaches (ii) progressive business approaches. Traditional approach referred as adoption of sustainability enable to gain financial value; whereas progressive approaches referred as implementation of sustainability for enhancing the socio-ecological value for stakeholders. The first approach is focused for profit maximization and second approach focused for ethical concerns.

Literature explained about nature of institutional context for operational supply chain in developed economies including North America and Europe that face diverse operating challenges. Supply chain management becomes complex task to manage due to specific context of firm that hinder the understanding of dynamic sustainable supply chain activities (Yawar & Seuring, 2017). Literature entails the effect of environment in higher level of complexity of supply chain in absence of law enforcement and less opportunities to learn, innovate and improvement in sustainable firms' performance (Silvestre, 2015). The flow of information, raw material handling to finished goods and functional business processes form supply chain network. Logistical management has been explained in terms of supply chain management for effective outcomes to gain competitive edge. Effective supply chain management incorporate framework of business practices to reduce wastage, reduce cost and improve time and logistics to assist improvements in performance (Jermittiparsert, Namdej, & Somjai, 2019). Research scholars have empirically examined relationship between supply chain practices and sustainable performance with greening aspect and technological effect. The study depicted significantly positive results to determine sustainable performance influenced by supply chain practices (Jermittiparsert et al., 2019).

Effective supply chain management assists firms' business partners such as suppliers, distributors, consumers and manufacturers to achieve common long term objectives and performance. Research scholars have argued that innovation, differentiation, quality standards and hybrid products centrally depends upon effective supply chain practices among participants. Supply chain management focus on continuous improvement for wastage reduction, initiate innovation through technological advancements. Information sharing among participants must remain responsive towards business environment to respond consumer needs (Hadrawi, 2019). Contracts among various participants for business assist firms to integrate activities effectively and to have higher level of control. Contracts enable participants to device responsibilities with possession for various stages of production. In result of contract forming among participants of businesses procedures of production and standard operating procedures must be predetermined for market assurance. The suppliers of commodity contribute largely in production processes and technical support services for information sharing enable firms to perform efficiently. The socioeconomic relationship based on contracts can be formalized for integration among participants for effective performance related outcomes. The growth of business widely depends upon supply chain as it has taken attraction of research scholars to identify context of supply chain under contract forming (Ahmad Shabudin, 2014). The effective supply chain plays important role in reduction of labor cost, utilization of natural resources, risk management and lower expenditure by engaging in contracts among participants (Hadrawi, 2019).

Health care is crucial sector of community due to its importance for general public as it relates to health. So, health care system must be examined in terms of various factors that affect performance health centers through implementation and adoption of health care equipment and trained staff. The Ministry of Health of Iraq reported that adoption and implementation of health care system found to be poor, inefficient and

disappointing (Mohamed, 2017). The innovation in health care system are not enough to support operational performance at Iraqi hospitals according to (Al Hilfi, Lafta, & Burnham, 2013). The studies have been addressed the need to identify reasons behind problems at health care sector of Iraq, the studies have included organizational dimensions, individual dimensions and technological dimensions. The empirical investigation have been conducted on hospitals of Kurdistan due to its higher rate of secure, safe and developed part of region. The study was conducted on healthcare professionals regarding utilization of clinical and admin system at public hospitals (Mohamed, 2017). Iraq is country in south part of Asia with neighboring Turkey in North, Syria and Jordan in west, south side consists of Kingdom of Saudi Arabia and Kuwait and east part covered by Iran that highlights its strategic location. The population of Iraq approximately exceeding 33 million and GDP estimated as \$223 billion according to WorldBank (2016). The government spent approx. 5.2% of GDP on health sector as reported by World Health Organization (WHO, 2017). Digitalization of hospitals are necessary in today's world, therefore, various countries have established their health sector with modern technologies to share information and collaboration between participants. According to the statistics around the developed world United States allocated 20 billion \$s for health sector to emphasize on effective health care system. Denmark invested approximately 45 million €s in their health sector with approximately 10,000 staff members (Bossen, Jensen, & Udsen, 2013). Moreover, Australia invested 466 million dollars for establishment of health care system for their citizens according to the Department of Health Australian Government (2017). Canada also established and initiated various health related initiatives further Asian developing countries also taking initiatives for their health care system (Singh & Lillrank, 2015).

Previously, studies have been conducted on health sector with different perspective around the world that addressed the issues and challenges for modern health system, technological advancement implementation and patient management system. The issue of supply chain management has been overlooked by research scholars and there is lack of empirical studies on health sector performance influenced by supply chain practices. The researcher hasn't come across a single study that addressed issue of supply chain management practices in context of contract law in health care sector. The study fulfills the gap in investigating the supply chain practices in context of contract law by explaining the relationship with performance. The present study entails to determine the hospital performance influenced by supply chain management practices under contract law terms with participants of processes with moderating role of environmental turbulence.

Literature Review

Supply chain management consists of various actions that play important role in improvement of information flow, goods movement and customer integration. The involvement of suppliers, outsourced participants and information flow among them assists in time reduction, continuous technological development and uninterrupted supply of material entails by SCM concept. The studies have explained supply chain practices as managerial task that incorporate effective utilization of time, cost and resources for organizational performance (Sufian & Habibullah, 2010). Research scholars have declared supply chain as strategic integration of participants as it assists business processes in execution of information flow that add values for consumers and stakeholders. According to Choon Tan, Lyman, and Wisner (2002) defined supply chain management as integrated approach to purchase raw material and logistical management. Other research scholars have defined supply chain management as a function to management inventory control, supplier integration and customer integration on strategic grounds. The on time delivery is one of important factor that influence the performance and firms strive to minimize cost and time to satisfy

customers (Anand & Grover, 2015). The positive relationship have been reported between delivery performance and supply chain effectiveness that influenced by less time and cost and considered as central to supply chain performance (Botha, Grobler, & Yadavalli, 2017). Supply chain management practices focus on customer satisfaction aspect as performance of business cannot be determined without level of customer satisfaction (Anand & Grover, 2015). The method to deliver required equipment or material and design of product must be integrated with need of customers that determines the supply chain performance. It has been widely observed and reported by various scholars that market demand always changes based on the need of customers, therefore firms has to response accordingly and that is possible in presence of flexible supply chain (Vanichchinchai, 2014). The environmental uncertainty also influence the supply chain practices therefore firms considered flexibility as important aspect in SCM to gain competitive advantages.

The present study claims to be unique in explaining supply chain practices under contract law context among Iraqi health sector. The study considered internal coordination integration and product innovation integration to determine the performance of health sector. Moreover, the study claims to be unique in explaining both supply chain practices under contract law context. The moderating role of environmental turbulence has considered as moderating variable due to its importance in organizing supply chain and performance. The research scholars have defined contract law as long-term association development that creates effectiveness in governance. The exchange of terms between parties under specific amendable rules and regulations to establish long term relationship to gain common goals (Gundlach & Achrol, 1993). The literature has addressed the role of contract law among industrial participants that consider network of various parties to conduct business activities. The long term relationship between parties has gained attention of scholars due to its need in response of rapidly changing environment. The network of related firms effectively influence the supply chain performance and sustainability (Harrison, 2004).

Integrated Coordination (communication) under Contract Law and Performance

The combination of internal units including raw material procurement, material handling, manufacturing, research and development, marketing and selling expresses as business processes. The integration of various participants to achieve common goals internal coordination plays important role in information sharing on time among cross functional teams that involve employees and stakeholders, empowerment of teams and timely information sharing at different stages must be incorporated throughout processes. The research scholars have defined internal coordination as level of communication and information sharing between various participants of supply chain when needed. The internal coordination enables firms to share necessary information at different stages from raw material procurement to sales and marketing. The role of internal communication and coordination influence the inventory management throughout developmental processes (Griffin, 2002). Supply chain strategy includes two or more businesses that establish relation according to contract for gaining mutual interest and commitment. The implementation of supply chain acts among participants carried out under specific terms to gain long term benefits. The mutual benefits may include growth and financial gains by long term commitment. The information sharing among participants for effective logistics management for responding demand and appropriate control must be integrated in supply chain system under contract. Previously, studies have stressed upon information sharing and coordination to effective supply chain, but present study explains the role of contract between parties for information sharing on time when needed. The technological advancements can be adopted and implemented for integration of coordination that assist firms to incorporate effective control over communication and coordination. The strategic management focuses on supply chain management for

logistical integration among participants for achievement of common goals under terms (Arifin, Ibrahim, & Nur, 2019).

The challenge of incorporating contract for information sharing among participants influences effectiveness and value addition for firms to manage business activities. Research scholars have defined that integration of various participants contributes for knowledge and add value to existing processes (Yumurtacı Hüseyinoğlu, Kotzab, & Teller, 2019). Various supply chain management strategic frameworks have been introduced and investigated for identification of their role in corporate planning (Frohlich & Westbrook, 2001). The formal supply chain argued as influential and crucially important for firms by various research scholars and suggested to investigate the supply chain phenomenon's impact on effectiveness and performance. Research scholars have clearly defined the supply chain management activities and their impact on various aspects including corporate strategies, planning, operational aspect and performance (Yumurtacı Hüseyinoğlu et al., 2019). The coordination among participants without any contract called as spot market or open transaction, in today's business world that is not suggested due to uncertain environment. The absence of oral or written contract between participants of businesses for buying or selling any commodity may lead towards complex outcomes between suppliers, manufacturers and customers. The contract enable firms to makes sure their required supply on decided time and cost in appropriate time with pre-decided quality to avoid any uncertain situation caused by turbulent environment. The formation of contract has been suggested for establishment of strong, long-term and effective relationship to improve the performance of firms. Previously, studies have explained the influence of supply chain practices on performance of firms by including different activities in different context. The concept of contract has been overlooked by previous research scholars. The present study entails the empirical investigation of supply chain activities under contract formation as one of pioneer study.

On the base of above explanation following hypothesis is derived:

H1: *Internal Communication under Contract law positively significantly influence the Business performance in health care sector of Iraq*

Integrated Product Innovation under Contract Law and Business Performance

Product innovation has been defined by various scholars in literature so far there is not any single definition of innovativeness. The technological aspect influences any industry that considered as one of important factor for innovation (Calantone, Chan, & Cui, 2006). Previous studies have already highlighted the importance of technology and marketing for introducing innovation. Further, the scholars have proposed method of innovative initiatives to practitioners with common understanding to identify innovation type. The process of innovation also identified in proposed method of operational product innovation, whereas novelty in process or product also discussed for understanding of firms. The process of innovation must be addressed to suppliers, manufacturer and related industries in order to maintain product innovation to meet the demand. The product innovation has become one of impactful construct in organizational performance. The novelty in product creates benefits for firms as it found to be an advantageous factor to gain competitive edge (Szymanski, Kroff, & Troy, 2007). The new products require business to incorporate related technologies, required marketing techniques and experience to be successful. On the other hand, if customer has little know-how or experience about product then it is considered as product is new to consumer and market (Garcia & Calantone, 2002). The firms have introduced the idea of product innovation to improve the performance of firm. The level of product innovation influence the performance level, if high innovation level initiated then level of performance will remain higher and vice versa (Danneels & Kleinschmidt, 2001). The higher level of innovation for products require commitment for utilization of resources and efforts as integral part of business as it considered as influential for performance and assist in gaining

competitive advantages. Similarly, it has been observed that less innovative products requires less resources and efforts with less impact. The experience of firm, competency and resources utilization found to be influential towards better performance. Previous studies have argued that product innovation influence the performance and examined the relationship empirically and found significant results (Arifin et al., 2019).

In nutshell, previous studies highlighted the three facets for product innovation while industry specific context, product specific and business performance specific. There is still unanswered question that small businesses with lower level of innovation are more successful or with higher level of innovation as debate still going on as literature as embarked on issues (Arifin et al., 2019; Fritz & Schiefer, 2008). Literature has reported that quick response to market changes, quick and easy acceptance and change adoption contribute for innovation more quickly as compare to large organizations. Research scholars have suggested to categorized innovative behavior of small business (Hadjimanolis & Dickson, 2000). The research scholars have identified two different strategies for innovation; proactive innovations and non-innovators such as reactive innovations. The literature has reported insufficient evidence that product innovation influence the business performance, therefore, research questions has risen to conduct empirical evidence to determine the performance influenced by product innovation. Moreover, the contract to initiate research and development for innovation must be incorporated to determine performance.

The present study intends to define integrated product innovation in accordance with contract law to influence the business performance. Therefore, following hypothesis is derived for investigation of relationship.

H2: *Integrated Product Innovation under Contract law influence the Business Performance at Iraqi health sector*

Moderating Role of Environmental Turbulence

Literature has reported the environmental changes influence the business strategies as higher level of complexity leads towards turbulent environment for businesses. It has been reported that lack of rules and regulations and law enforcement found to be hurdles and create difficulties for firms to execute supply chain management effectively. It found to be difficult for supply chains to adopt new changes based on innovative initiatives, learning capability and sustainable performance (Silvestre, 2015). The highly turbulent environment affect the supply chain management reported in previous studies related to corruption which creates uncertain working environment. The tendency towards unfair financial gains leads towards societal issues instigated by corruption and further leads to turbulent and uncertain environment which found to be damaging for business world. The turbulent environment of firms becomes more complex, spread throughout firms due to insufficient law implementation (Silvestre, 2015). The turbulent environment also affects the innovation capability of firms and reduces the level of learning and research scholars have considered environment as one of key aspect in determining the performance (Silvestre, Monteiro, Viana, & de Sousa-Filho, 2018). Previous, studies have identified that lack of law enforcement among participants of business causes environmental turbulence and damages emerging innovative opportunities. The collaboration also gets affected due to turbulent environment as it harms performance of firms. Firms must develop some contract to be followed in information sharing and collaboration for avoiding uncertain situations. Previous studies overlooked contract law implementation in their business activities such as in managing supply chain and to avoid uncertain situation as turbulent environment leads towards corruption and poor performance (Silvestre et al., 2018). Further, turbulent environment negatively impact the sustainability of supply chain and reduce the performance. The research scholars have identified that established and strong firms avoid turbulent environment due to their effective control. Therefore, the present study suggests examining the moderating role of turbulent environment in context of contract law

between SCM practices and business performance. On the base of previous studies and intention of present study following moderating hypotheses are proposed.

H3: *Turbulent Environment moderate the relationship between integrated collaboration under contract law and business performance among Iraqi health care sector*

H4: *Turbulent Environment moderate the relationship between integrated product innovation under contract law and business performance among Iraqi health care sector*

Research Framework

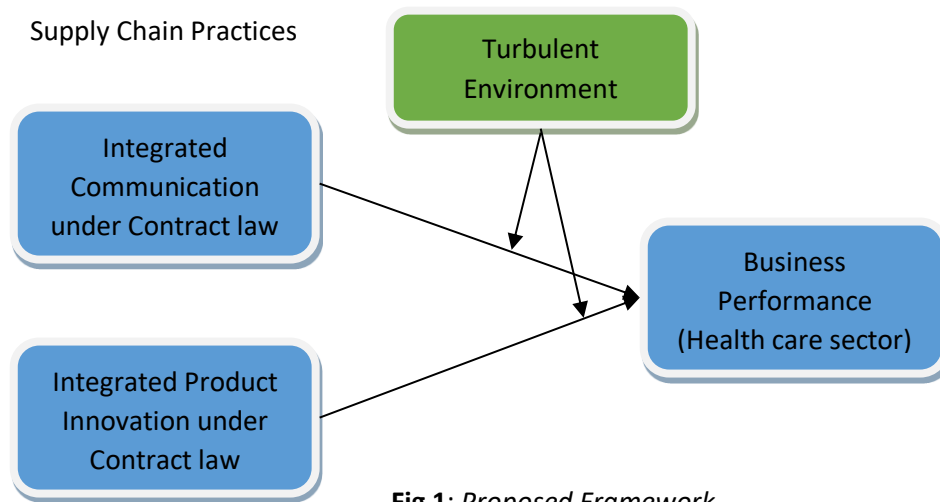


Fig 1: Proposed Framework

Research Methodology

The selection of appropriate research method is significant for any study as it influence the results. The present study is quantitative and cross sectional. SMART-PLS was used for data analysis to investigate the hypotheses. The present study was conducted on hospitals of Iraq to determine their supply chain under contract law to influence the performance. The data was collected from two different places from large sized hospitals located in Kurdistan and Baghdad. The health care professionals were approached for data collection through questionnaire. According to Ministry of Health Iraq reported that there are 28,000 healthcare professionals (Mohamed, 2017), present study distributed 500 questionnaires and got useable responses from 309 participants. The study adopted systematic sampling technique as every Nth member from population randomly between 1 and N (Sekaran & Bougie, 2016).

Instrument

The study adapted measurement scale from previous studies; the measurement scales for integrated communication and integrated product innovation were adopted from the study of Arifin et al. (2019) and were changed in perspective of contract law, therefore these scales are considered as adapted. To measure the business performance scale was adopted from the study of (Arifin et al., 2019); and measurement scale of environmental turbulence was adopted from the study of (Silvestre et al., 2018).

Analysis and Findings

The analysis of collected data was conducted by using SMART-PLS through Measurement Model and Structural Equation Modeling. PLS algorithm and bootstrapping methods were used to analyze the collected data. The present section of study demonstrates the results of analysis, the first section presents the measurement model and second consists of structural equation modeling.

Measurement model

Cronbach alpha α , composite reliability and average variance extract are demonstrated in present section to determine the validity and reliability of collected data. According to Fornell and Larcker (1981) the value for alpha must remain higher than 0.7 for each construct, CR must remain higher than 0.6 and AVE must be higher than 0.5 in order to be acceptable. Table 1 below demonstrates the statistical analysis of measurement model.

Table 1: Results of measurement model

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
BP	0.792	0.856	0.565
IC	0.888	0.913	0.600
PI	0.936	0.959	0.886
env turb	0.947	0.959	0.824

The above table 1 demonstrated the values for measurement model including Cronbach alpha, composite reliability and average variance extracted. The values found to be higher than their cutoff points, as Cronbach alpha reported higher than 0.7 which shows its higher validity and reliability.

Discriminant validity

Table 2: Discriminant validity

	BP	IC	PI	env turb
BP	0.751			
IC	0.336	0.775		
PI	0.494	0.332	0.941	
env turb	0.513	0.399	0.705	0.908

The table 2 above presented the correlation values; the correlation values must remain higher than remaining values of same column. The above table diagonal values fulfill the requirement of discriminant validity.

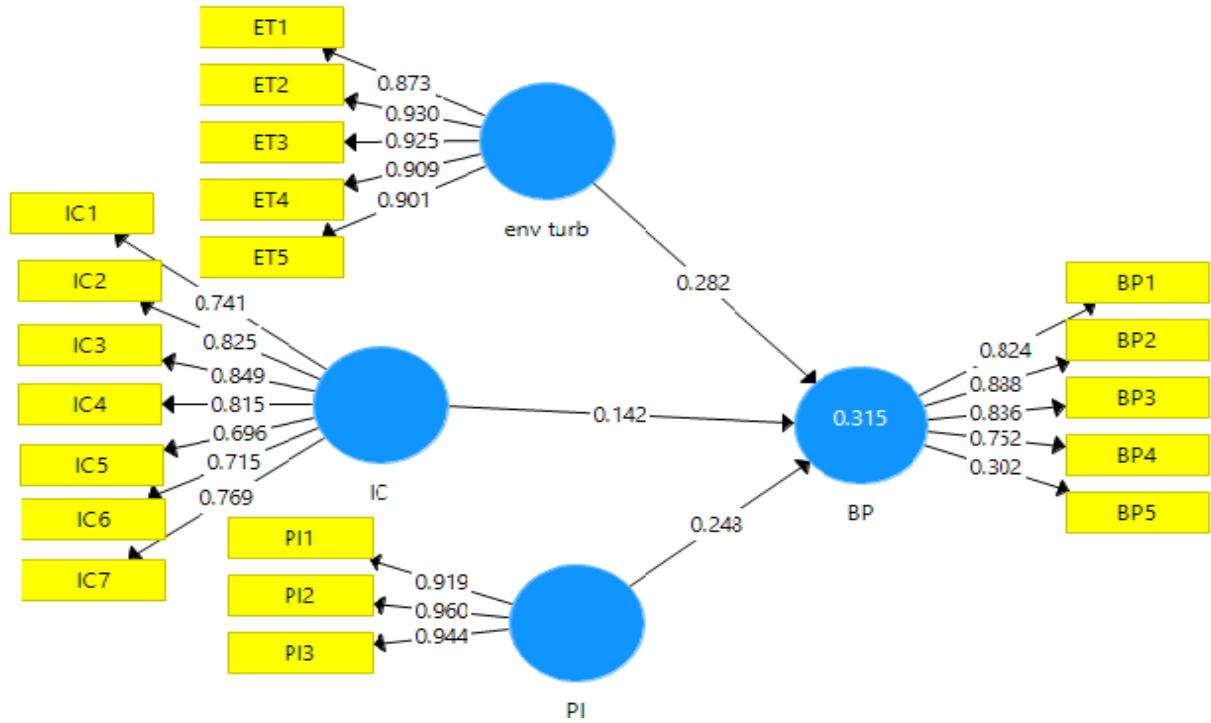


Fig 3: Measurement model (PLS)

Structural Equation Modeling

The relationships of hypotheses were examined in PLS through bootstrapping method, the first section demonstrates the direct relationship and second section presents the moderating effect of proposed framework.

Direct hypothesis

Table 3: Direct relationships

	Original Sample (O)	T Statistics (O/STDEV)	P Values
IC -> BP	0.142	1.636	0.103
PI -> BP	0.248	2.458	0.014
env turb -> BP	0.282	2.805	0.005

Direct relationships between constructs are presented in table 3 above. The first hypothesis investigated the relationship between integrated communication and business performance under contract law. The result of the first hypotheses shows that β is reported positive as 0.142 and t-value 1.636; which is not significant at 5%. Therefore, first hypothesis H1 was rejected on statistical grounds. The second hypothesis H2 determined the relationship between integrated product innovation and business performance with contract law context and reported β value as 0.248 with t-value as 2.458; therefore, H2 found to be positively significant and accepted on statistical grounds.

Moderating effect

Table 4: Moderating relationships (IC*ET→BP)

	Original Sample (O)	T Statistics (O/STDEV)	P Values
IC -> BP	0.145	1.775	0.077
Moderating Eff...	-0.156	2.680	0.008
PI -> BP	0.250	2.542	0.011
env turb -> BP	0.277	2.727	0.007

Hypothesis H3 investigated the moderating relationship of environment turbulence between integrated communication and business performance; the statistical values demonstrated that β value found to be negative 0.156, with t value as 2.680; that shows environment turbulence moderate the relationship between constructs of first hypothesis; therefore hypothesis H3 accepted on statistical grounds.

Table 5: Moderating relationship (PI*ET→BP)

	Original Sample (O)	T Statistics (O/STDEV)	P Values
IC -> BP	0.137	1.680	0.094
Moderating Eff...	0.020	0.261	0.794
PI -> BP	0.256	2.563	0.011
env turb -> BP	0.287	3.011	0.003

The above table 5 presents the moderating examination of hypothesis H4 that investigated the moderating effect of environment turbulence between product innovation and business performance. The results shows that moderating effect found to be positive β value with lower level at 0.020 and t-value as 0.261 that shows there is no moderation reported between the constructs of hypothesis H4. On statistical grounds H4 rejected.

Conclusion

The present research contributes to body of knowledge in translating supply chain practice under contract law to determine the performance of Iraqi health care sector. The study primarily identified unique supply chain practices including integrated communication and coordination between participants of business processes. The study entails integrated communication under contract law that communication takes place under specific term and conditions to be effective that play positive role in enhancing business performance. The integrated coordination under specific laws influence the performance according to proposed hypothesis, surprisingly the results demonstrated that integrated communication doesn't impact business performance. The data was collected from health professionals of Iraq, and found that there is no significant relationship between integrated coordination and business performance. Therefore, H1 was rejected on statistical grounds. The direct influence was investigated between integrated product innovation and business performance. The results demonstrated that there is positive significant relationship between the proposed constructs. Therefore, H2 was accepted on statistical grounds. The second section of analysis investigated the moderating effect of environment turbulence between independent and dependent variables. The moderating effect of environment turbulence was observed between integrated coordination and business performance therefore, H3 was accepted on statistical grounds. The fourth hypothesis H4 investigated the moderating effect of environment turbulence between product innovation and business performance, surprisingly the results shows that there is no moderation observed between proposed

constructs of the study. Therefore, H4 was rejected on statistical grounds. The findings of the study includes that effective communication in turbulence environment gains much importance to influence business performance. Similarly, integrated product innovation gains importance in order to gain higher level of performance. The study suggested to health care professionals to implement effective communication and control system among participants of supply chain in highly competitive environment and turbulence environment.

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