

# Uncertain Supply Chain Management

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## Exploring the role of TQM and supply chain practices for firm supply performance in the presence of information technology capabilities and supply chain technology adoption: A case of textile firms in Pakistan

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### ABSTRACT

The primary objective of this paper is to investigate the relationship between total quality management practices (TQMP), supply chain management practices (SCMP), information technology capabilities, supply chain technology adoption and firm supply performance. In addition, the study also tries to investigate the mediating role of information technology capabilities and supply chain technology adoption in the relationship between TQMP, SCMP, and firm supply performance. The study is carried out on a sample of textile firms of Pakistan. To achieve the research objective, Smart PLS-3 is used for the analysis of the data gathered from the textile firms of Pakistan. The results of the study show a great deal of agreement with the hypothesized results. The information technology capabilities, supply chain technology adoption both appear to play mediators between TQMP, SCMP, and firm supply performance. The results of the study will be useful for policymakers and researchers to understand the emerging role of technology in strategic management and operational management.

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## 1. Introduction

Supply chains management (SCM) has acknowledged a great deal of interest by researchers and practitioners. SCM has become universal way across industries since it addresses seller-buyer partnerships, shared planning, continuing strategic coalition, control of inventory cross-organizational, information sharing and logistics management. Effective SCM provides the necessary level of customer service to a specific segment by reduction of the entire amount of resources and enhancing customer services through improved product availability and reduced order cycle time (Banomyong & Supatn, 2011; Crainic & Laporte, 2016; Stevens & Johnson, 2016; Wang et al., 2016). SCM adopts systems' perspective across firms and functions as an absolute system by processes of coordination. Companies may engage in information exchange and structural collaboration. Information exchange may include the inventory supervision, forecasting techniques and delivery.

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Meanwhile, the structural collaboration may include vendor-controlled inventory, outsourcing, co-locating factories and just-in-time (Co & Barro, 2009).

Given that the goal of a company is to capitalize on profits, the companies must reduce costs and exploit benefits along the supply chain (Chima & Hills, 2007). Physical logistics are more dependent on information technologies, and these technologies enable further cooperative arrangements. Power (2005) states that firms face an inter-dependence and shared fortune when the management extends the enterprise as a network of processes, relationships and technologies creation. Thus, the environment of supply chain management becomes apparent for participating companies with victorious implementation in the dynamic comprehensive environment of the business world, augmenting with enterprise risk management and greatly affecting the processes of the decision-making in business management.

Supply Chain management practices (SCMP) and total quality management practices (TQMP) have become the most important strategies in achieving sustainable competitive advantage. Researchers from across the world with different models explored TQM and SCM as the most important determinants of firm performance. TQM is a set of practices that accentuates continuous improvement, continual measuring of outcomes, fulfilling customer demands, collective problem-solving approach, competitive benchmarking, reducing work schedule, long term planning and strong relationship with suppliers (Soares et al., 2017). Meanwhile in recent decades, SCM has emerged as one of the most important and affective competitive strategies of manufacturing businesses. The key supply chain management principle can be concluded as receiving input from suppliers, adding some values and delivering it to the consumer (Levi et al., 2004).

The diffusion of innovation theory has been extensively applied as a complementary theory in studying supply chain technology adoption (Kausar et al., 2017). In this study, the innovation is referred to the supply chain technology adoption. Besides, researchers have used slightly different IT capability factors, which consists of IT infrastructure, IT personnel, IT knowledge, and IT reconfigurability. These are used to explain the extent of use and usefulness of supply chain technology adoption in an organization (Kausar, et al., 2017) and factors affecting supply chain technology adoption. Keeping in mind of all the facts, the study has the following objectives to be fulfilled within the context of textile sector of Pakistan:

- i. Examining the impact of TQMP and SCMP on firm supply chain performance of textile sector of Pakistan
- ii. Investigating the mediating role of ITC in relationship between TQMP, SCMP and FSP
- iii. Investigating the mediating role of supply chain technology adoption in relationship between TQMP, SCMP and FSP

In authors' knowledge, this study is among the few pioneer studies, if any, to assess the relationship between SCMP, TQMP ITC, FSP and supply chain technology adoption through organizational learning capabilities on Pakistani manufacturing firms in general and textile firms in particular.

## **2. Literature Review**

### *2.1 Firm Supply Performance*

Supply chain management practices (SCMP) circumscribe perspectives and practices that effectively connect all suppliers, manufacturers, distributors and consumers to achieve all long-term performance objectives (Soares et al., 2017). Information sharing serves as a key to supply chain integration (Li & Lin, 2006). Most of the operational research scientists have agreed on some common goals of SCM.

Kaufman (2002) declared removal of communication barriers and eradication of redundancies as ultimate goals of SCM. Later, Choon et al. (2002) defined waste reduction, synchronized operations, delivery performance, quality management, and flexibility in production as SCM goals. Simchi-Levi et al. (2004) also confirmed Serve et al. (2002) and added customer satisfaction, time cost, warehousing and supplier relations as SCM goals in literature. Additionally, supply chain also includes other influencing activities such as audit and leadership activities.

Hence, during the last few decades, SCM has emerged as an integrated approach, which comprises of waste reduction, synchronized operations, delivery performance, quality management, flexibility, customer satisfaction, time, cost, warehousing and long-term supplier relations (Gunasekaran et al., 2004; Tolossa et al., 2013) to achieve competitive advantage and to enhance effectiveness (Janvier-James, 2012). To measure supply chain performance, two measures models have been used predominantly by different models in supply chain literature:

(1) Cost: may include inventory costs and operating costs

(2) The combination of cost and customer responsiveness: including inventory costs and operating costs. Cost, relationship, activity time, customer responsiveness and flexibility have all been used as supply chain performance measures either singly or jointly (Estampe et al., 2013; Gunasekaran et al., 2004). Vanichchinchai et al. (2011) described cost (CT), flexibility (FL), relationship (RL) and responsiveness (RS) as the main dimensions of a success full supply chain.

Cost control is one of the basic measures of firm performance and every firm is striving to provide quality products at the lowest possible cost. Cost efficiency especially inventory cost is one of the most important determinants of supply chain performance. Inventory cost holds a significant portion of the firm's total operational cost. The cost which includes manufacturing cost, outsourcing cost and delivery cost has become one of the major competitive forces in today's competitive market (Tatsis et al., 2006).

The smooth flow of information and materials across the supply chain is a strategic decision and financial performance of any supply chain and it cannot be measured without taking into account the total logistic cost. The decision to a tradeoff between shipping expense and time is of acute importance as the most of the times expensive but speedy shipping saves storage and other inventory costs and reduces the cost to a competitive level (Gunasekaran, 2001). Shipment from longer distances is a continuous threat on cost management decisions, as it makes inventory level volatile; resulting in very high or low level of inventory which ultimately leads us to high administrative and opportunity cost.

Nowadays products and services place great importance on customers', suppliers' and distributors' perception. In case of distributors, distribution channels have the key role to play (Hameed et al., 2017a). To get an optimal yield, understanding and wisely responding to this triangulation is a prerequisite (Gunasekaran & Kobu, 2007). The importance of supplier relations management (SRM) can be explained by the fact that, the poor coordination among suppliers has become one of the major issues in US food industry and is accounted for the waste of almost \$30 billion annually outsourcing constituent 50-60 percent of total product (Sambasivan, 2009).

Vanichchinchai et al. (2014) define partnership as a function of knowledge sharing, working for improvised benefits, developing long term relationship, product development and shared goals among trade partners. In literature about partnership, conflict management and effective communication is discussed (Mohr & Spekman, 1994). However, afterwards, many researchers have explored dimensions of partnership management in supply chain. Nyaga et al. (2010) explained the role of partnership management in SCM and found integrated efforts, information sharing, joint relationship efforts, dedicated investments, and relationship outcomes as attributes of partnership management.

Sodhi and Son (2009) examined Korean firms with two different perspectives of partnership; namely strategic partner performance and operational partner performance. They found trust, information sharing, joint relationship management and asset specific relationship as important determinants of

supply chain partner management; they further argued strategic partnership as an important determinant of successful partnership. Their findings were also consistent with prior findings of Mentzer et al. (2000). Product variety and innovation have a great impact on supply performance and may greatly influence supply chain strategy selection (Vanichchinchai et al., 2014; Vanichchinchai & Igel, 2011).

A delivery performance which includes delivery channel, warehousing location, distribution mode and vehicle scheduling is an important credential in supply performance. Delivery performance depends on certain factors i.e. delivery channels, location policies and scheduling and can be increased by suitable selection of above mentioned factors (Anand & Grover 2015). Andries (2013) found a positive relationship between delivery performance and supply chain performance and explored delivery to request date, order fills lead time, and delivery to commit date as an important measure of delivery performance which is central to supply chain performance.

Customer satisfaction is at heart of every supply chain strategy, no performance measurement is possible without taking into account the customer satisfaction (Gunasekaran, 2007; Anand & Grover, 2015). Product design, delivery methods and all above feedbacks should be integrated with customer requirements. As with increasing environmental uncertainty and diversity companies are using supply chain as a strategic tool to gain a competitive advantage. Thus, flexibility can be seen as a key dimension of supply chain management (Yusuf & Shehu, 2017). More broadly, flexibility can be seen as firm's ability to adjust or respond to ever-changing environmental factors i.e. market demand and customer needs. The following hypothesis tries to investigate the relationship.

**H1:** A firm's SCM practices have significant positive effect on FSP.

## 2.2 TQMP and FSP

Total quality management practices (TQMP) and supply chain management practices (SCMP) both are management philosophies to achieve customer satisfaction and optimal performance (Gunasekaran et al., 2001; Vanichchinchai, 2014; Vanichchinchai & Igel, 2011). However classical approaches of quality management emphasized on specification based performance and defect free products (Prajogo & Sohal, 2001; Vanichchinchai & Igel, 2011; Imran et al., 2018a; Imran et al., 2018b). Meanwhile the recent goal of SCM is a satisfying customer with timely delivery of quality products (Vanichchinchai & Igel 2011; Vanichchinchai & Igel, 2009). This change in paradigm can be because of the reason that, traditional SCM was only concerned with logistics (Croom et al., 2000). Prior studies of Chini and Valdez (2003) and Kuei et al. (2001) based on abstracted that timing is the center of attention of SCM research. They further argued that low cost and timely delivery is the hallmark of SCM performance.

Samaranayake (2005) found that SCM strategy always aims to achieve customer satisfaction via quick response to their ever-changing needs with minimum cost. Prior researches identified behavioral dimensions of TQM such as Resource focus, leadership, customer focus and human resource focus which are also known as soft concepts of TQM as important determinants of performance (Prajogo & Hong, 2008). Many prior studies by supply chain researchers (Prajogo & Olhage, 2012) concluded SCM as a system through which materials and information flow in the supply chain. Inevitably with greater emphasis on delivery, there are chances that quality will be compromised at the cost of timely delivery. But customer satisfaction can act as a synergic relater and ultimate goal to bring both the objectives align (Vanichchinchai & Igel, 2011). Prior findings (Vanichchinchai & Igel, 2011) also suggest a positive and significant relation between TQM and FSP.

The quantitative results of a study carried out by Vanichchinchai and Igel (2011) suggest that TQM practices can directly facilitate the implementation of SCM and can directly enhance the firm's supply performance. Moreover, TQM practices can indirectly improve firm's supply performance through SCM practices. The primary data of the study, carried by Vanichchinchai and Igel (2011), gathered

from 171 managers of automotive industry of Thailand indicated a significant relationship between SCMP, TQMP and FSP. The following hypothesis tries to investigate the relationship.

**H2:** A firm's TQM practices have a significant positive effect on FSP.

### 2.3. ITC, SCMP, and TQMP

IT capability is considered as one of the major factors in SCM and plays a critical factor to improve supply chain performance. IT capability has significant direct relationship with supply chain performance (Zhang et al., 2011). Specifically, several researchers have observed that IT infrastructure was the most significant factor to minimize costs and enhanced operational agility. Besides, IT infrastructure not only positively influences transparency, but also reduces corruption at the same time. In organizational perspective, IT personnel acts as important enabler of key IT products and services for smoothing the business operation flow (Webster et al., 2004). An appropriate technical solution is proposed by the IT personnel to solve business problems related to IT applications (Zhang et al., 2011). Basically, IT personnel has utilized the flexibility of IT infrastructure in suggesting the solution to the management (Byrd & Turner, 2000). Therefore, IT personnel exhibit direct and positive effect on organization's agility performance (Neumann & Fink, 2007).

Furthermore, the use of IT knowledge in managing the supply chain is one of the top three critical success factors. IT knowledge of users is important for fully utilizing the adopted technologies in improving business operation (Ang et al., 2000). Ang et al. (2000) noted that IT knowledge can be acquired through training and courses. In addition, IT re-configurability influenced on supply chain performance, significantly. Particularly, it has the advantages of robustness, flexibility, and agility to business activities. For instance, bundle modular production system (BMPS), the result of reconfiguration of the bundling system and modular production system provide cost effective and time efficient production for manufacturer to quickly respond to volatile and quick-change market.

Technology has become a necessity in human life, while supply chain technology has become a requirement in effective business operations. In addition to the business activities, it is heavily relied on the technological functions to provide the reliable intermediate for high quality information transmission. In textile and apparel industry, supply chain technology will be therefore being even more important than ever before. The findings of Li and Lin (2006) indicated that the levels of information shared between firms have positive and significant effect on supply chain performance and the relationship is mediated by extranet technology applications, namely, EDI, VMI, and POS, respectively. Furthermore, the results of Udomleartprasert and Jungthirapanich (2004), which includes 371 manufacturers in Thailand's estate industrial indicated that the relationship between supportive infrastructure and supply chain performance was mediated by supply chain practices such as SRM and CRM systems. Moreover, IT personnel exhibit direct and indirect effect on firm's agility performance through the mediating effect of supply chain technology (Neumann & Fink, 2007). For instance, the IT knowledge and IT re-configurability obtained from trainings are to provide more comfortable conditions for users to use the systems (Bhatti, 2005).

A number of studies showed that IT capability is one of the important factors in growing the extent of supply chain technology adoption (Tornatzky & Fleischer, 1990). Human IT resources are one of the keys enabler on the adoption processes. IT personnel acts as the important determinant of the right adoption and smooth use of all staff in the respective department (Melville et al., 2004). Moreover, sufficient IT infrastructure in the organization maintained in a good condition is essential to have a smooth adoption process (Agarwal et al., 2007; Bhatti, 2005). The study of Evangelista et al. (2013) revealed that great extent of employees' IT knowledge hints higher level of supply chain technology adoption. While, employees' ability of IT reconfiguration also can provide organization more benefits on the adopted technology (Moin et al., 2013). This revealed that textile and apparel company need

skillful employees to operate the adopted technology in the modern business activities. Hence, it is proposed that higher IT capability lead to the greater levels of supply chain technology adoption. The existing literatures have theorized and demonstrated that organizational culture has been considered as an important factor for supply chain technology adoption (Braunscheidel et al., 2010; Lai & Yusof, 2011; Lin, 2008; Zhang et al., 2011).

**H3:** A firm's ITC have a significant positive effect on FSP through ITC.

**H4:** A firm's TQM practices have a significant positive effect on FSP through ITC.

**H5:** A firm's SCM practices have a significant positive effect on FSP through ITC.

### *2.3 TQM, SCM, FSP and Technology Adoption Relationship*

In general, the adoption of technology innovation is affected by three broad factors, which are organizational, technological, and external environmental contexts (Power & Simon, 2004). Technology is a main binding force that often holds trading partner relationships together. The effective and efficient communication between supplier and organization is achieved through adoption of adequate technologies. There is not only relational capability, but IT capability and organizational culture capability also considered as significant adoption components. Several researchers have demonstrated that supplier partnership (Wang et al., 2016), customer relationship (Gertler, 1995), information sharing and information quality (Hendarty et al., 2014) are important factors in influencing the adoption of supply chain technology. Therefore, Kumar et al. (2013) noted that the extent of information sharing has to be examined prudently before the supply chain technology is adopted. Meanwhile, the adoption decision must be based on the types of information shared, since the quality of information is recognized by user's needs (Cao et al., 2013). Furthermore, the study of Gertler (1995) on Ontario's advanced manufacturing technologies adoption revealed that the closeness of customer relationship and great supplier partnership are keys for successful adoption. This implies that supply chain technology adoption is related with higher levels of relational capability. In the technological context, there are two types of technology, which is explicitness and accumulation of technology (Power, 2005) that significantly impact to the adoption of supply chain technology.

Several studies shown that organizational culture has significant relationship with the adoption of advanced manufacturing technology adoptions (Gertler, 1995), common technology adoption, cellular manufacturing practices, real time manufacturing practices. Haines and Lafleur (2008) indicated that user involvement is led to greater technology adoption. Conversely, lack of user involvement is one of the supply chain technology adoption critical failure factors. Therefore, all operations must proceed consistently with the used of supply chain technology to avoid errors in business activities (Imran et al., 2019). In addition, cultural adaptabilities between two parties are required to achieve successful adoption of supply chain technology (Wang et al., 2013). Agarwal et al. (2007) and Ghobakhloo and Hong Tang (2013) highlighted the need of personal innovativeness in the technological domain is necessary to contribute to the adoption process. Hence, organizational culture capability not only offers the use of supply chain technology, but also helps in realizing the usefulness of the adopted supply chain technology. From this viewpoint, organizational culture capability has the ability to influence the adoption of supply chain technology.

The nature of textile and apparel fashion trend challenge the industry to fulfill the unpredictable demand in short time period (Hilletofth & Hilmola, 2008). The technology adoption may become a real contribution to SCM (Iyer, 2011; Wang et al., 2016), if the organization able to understand the technology functions and complete processes flow (Miertschin et al., 2006; Kamaruddin & Udin, 2009). This can be empirically supported by the study of Li and Lin (2006) with the significant mediating effect of supply chain technology adoption. Li and Lin (2006) stressed that the adoption of supply chain technology is significantly influenced by environmental, technological, and organizational characteristics and the adoption have further improved firm's supply chain performance. As a summary for above arguments, supply chain technology adoption is potentials to

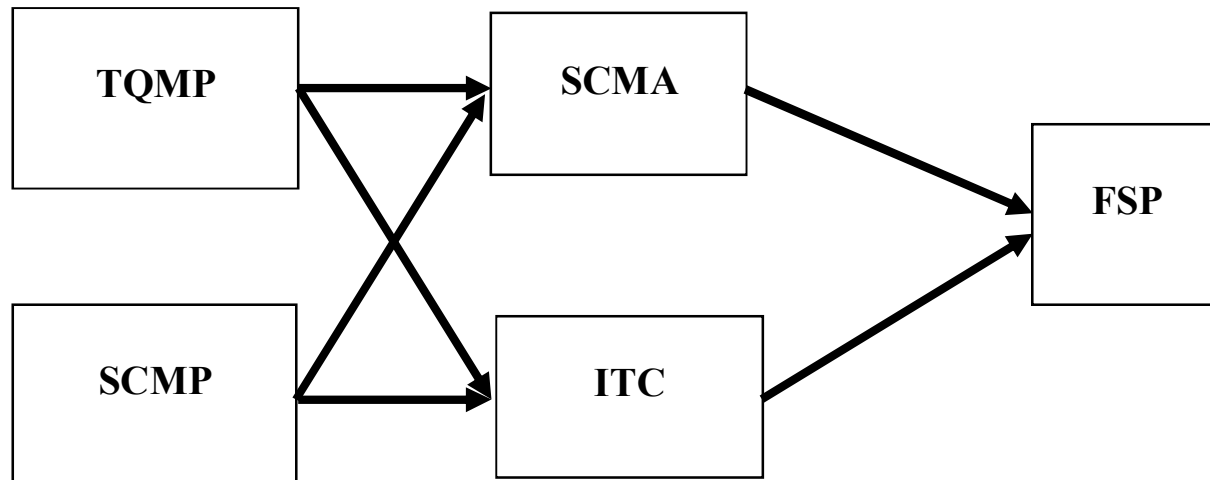
be a mediator in the relationship between supply chain capabilities and supply chain operational performance.

**H6:** A firm's supply chain technology adoption have a significant positive effect on FSP.

**H7:** A firm's TQM practices have a significant positive effect on FSP through supply chain technology adoption.

**H8:** A firm's SCM practices have a significant positive effect on FSP through supply chain technology adoption.

In line with all the hypotheses presented earlier, this research proposes a conceptual model (Fig. 1) that investigates the structural relation among these four variables namely FSP, total quality management practices, supply chain management practices and organizational learning capabilities.



**Fig. 1.** Conceptual framework

### 3. Methodology

The research method is the most crucial part of the research. The choice of a suitable technique for the analysis should be in accordance with the type of problem. The current study is based on a quantitative research approach. However, according to the nature of the study, a cross-sectional design was selected. A survey was conducted to collect the data from an e-logistic customer in Pakistan. The 5-point Likert scale was used to collect the data. An e-mail survey was preferred, and questionnaires were distributed by using simple random sampling technique. However, the sample size was selected based on Comrey and Lee (1992) series for inferential statistics. According to this series, "sample having less than 50 participants will observe to be a weaker sample; a sample of 100 sizes will be weak; 200 will be adequate; a sample of 300 will be considered as good; 500 very good whereas 1000 will be excellent." Thus, three hundred sample size was elected in this study. Firstly, the e-mail IDs were collected by various e-logistic customers. After that, the e-mail was generated along with the questionnaire, the purpose of the study and instructions to fill out the questionnaire. The 212 questionnaires are received from the respondents and the response rate is 64. Moreover, SmartPLS 3 (SEM) is used to analyze the collected data.

### 4. Data analysis, results and discussion

Analysis of the study is divided into two major parts. Part one is based on outer model assessment in which reliability and validity are examined. Second part is based on inner model assessment in which hypotheses are tested (Hameed et al., 2017). First part is the mandatory to proceed for inner model assessment. In first part, convergent validity and discriminant validity are examined. Convergent validity is examined through composite reliability, factor loadings and average variance extracted (AVE). According to the literature the value of factor loading for each item should be more than 0.4

(Hair et al., 2010), composite reliability should be more than 0.7 and average variance extracted (AVE) should not be less than 0.5. Results of the inner model assessment are shown in Fig. 2 and Table 1. According to these results, factor loading is above 0.4 for all items, average variance extracted (AVE) is more than 0.5 and composite reliability is also more than 0.7. To achieve the satisfactory level of validity, few items with factor loading below than 0.4 were deleted.

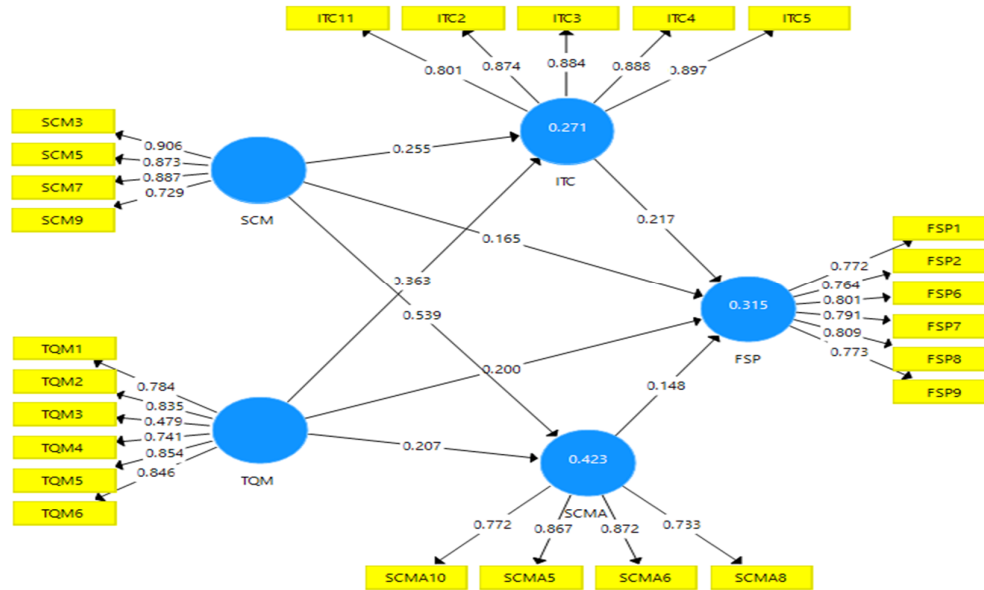


Fig. 2. Outer model assessment

Table 1

Outer model results

Construct	Indicators	Loadings	Cronbach's alpha	Composite Reliability	AVE
Supply chain management (SCM)	SCM3	.906	.802	.807	.610
	SCM5	.873			
	SCM7	.887			
	SCM9	.729			
Total quality management (TQM)	TQM1	.784	.799	.801	.588
	TQM2	.835			
	TQM3	.479			
	TQM4	.741			
	TQM5	.854			
	TQM6	.846			
IT capability (ITC)	ITC2	.874	.903	.926	.629
	ITC3	.884			
	ITC4	.888			
	ITC5	.897			
	ITC11	.801			
Supply chain management Technology adoption (SCMA)	SCMA5	.867	.715	.707	.564
	SCMA6	.872			
	SCMA8	.733			
	SCMA10	.772			
Firm Supply performance (FSP)	FSP1	.772	.725	.788	.580
	FSP2	.764			
	FSP6	.801			
	FSP7	.791			
	FSP8	.809			
	FSP9	.773			

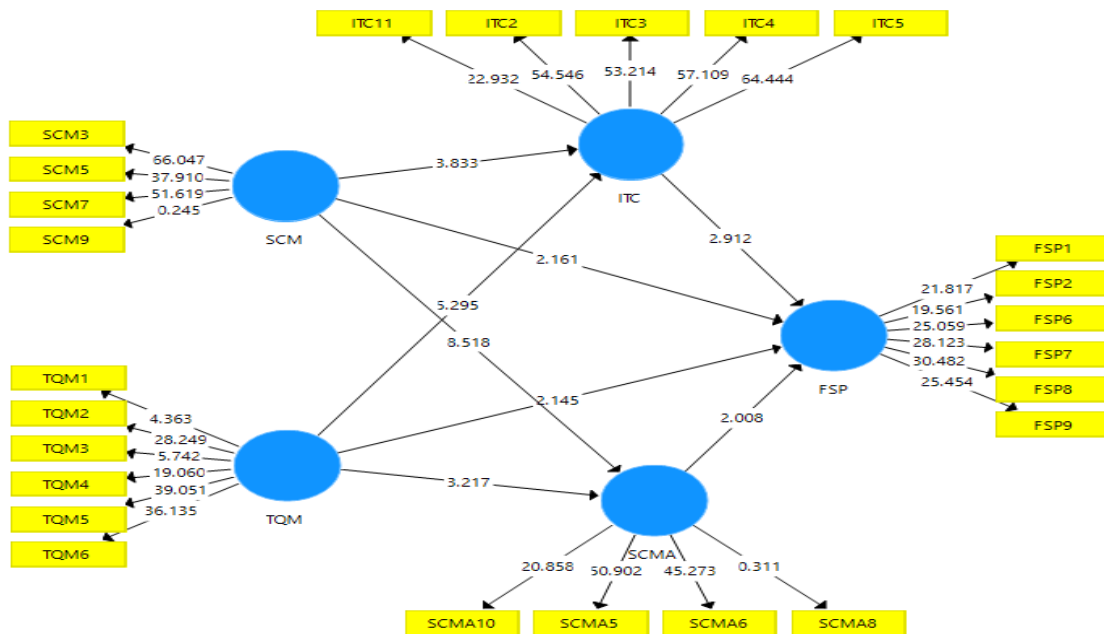


Discriminant validity is shown in Table 2. It was examined by the square root of average variance extracted (AVE). Measurement of discriminant validity through average variance extracted (AVE) was suggested by Fornell-Larcker (Samander et al., 2017).

**Table 2**  
Square root of AVE

	FSP	ITC	SCM	SCMA	TQM
FSP	0.785				
ITC	0.440	0.869			
SCM	0.424	0.401	0.770		
SCMA	0.429	0.430	0.622	0.726	
TQM	0.430	0.466	0.403	0.424	0.715

After assessment of outer model, inner model was examined to check the relationship between dependent and independent variables. This is the second part of analysis. In this part both direct as well as indirect hypotheses with mediating variable were examined. To test the direct hypothesis t-value was used. The 1.96 level of t-value was considered as the minimum level to accept the hypothesis. Fig. 3 shows the inner model assessment and Table 3 shows the direct effect. According to the results, all the direct hypotheses have t-value more than 1.96 which is the evidence to accept all the direct hypotheses. These results show that supply chain management, total quality management, supply chain management adoption and IT capability had significant positive relationship with firm supply performance. Increase or decreases in supply chain management, total quality management, supply chain management adoption and IT capability had significant influence on company supply chain performance.



**Fig. 3.** Inner model assessment

**Table 3**

Direct effect results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
ITC → FSP	0.217	0.211	0.075	2.912	0.004
SCM → FSP	0.165	0.168	0.076	2.161	0.031
SCM → ITC	0.255	0.260	0.066	3.833	0.000
SCM → SCMA	0.539	0.538	0.063	8.518	0.000
SCMA → FSP	0.148	0.147	0.074	2.008	0.045
TQM → FSP	0.200	0.206	0.093	2.145	0.032
TQM → ITC	0.363	0.362	0.069	5.295	0.000
TQM → SCMA	0.207	0.211	0.064	3.217	0.001

Indirect effects are shown in Table 4. According to the indirect effects, mediation effect of IT capability between supply chain management and firm supply performance is significant. Moreover, the mediation effect of supply chain management adoption between total quality management and firm supply performance is also significant. This shows that IT capability enhances the positive effect of supply chain management on firm supply performance. Moreover, supply chain management adoption as a mediating variable enhances the effect of total quality management on firm supply chain performance. In line with current study, Hameed et al. (2018a) also proved that IT is meditating variable in supply chain. However, another study conducted by Hameed et al. (2018b), found that IT capability is one of the moderating variable in supply chain manage which has significant positive influence in supply chain.

**Table 4**

Indirect effect

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
SCM → ITC → FSP	0.135	0.133	0.046	2.908	0.004
TQM → SCMA → FSP	0.110	0.108	0.041	2.690	0.007

Additionally, the Table 5 shows the variance explained. It shows that supply chain management, total quality management, supply chain management adoption and IT capability are collectively explained 31.5% variance in firm supply chain performance.

**Table 5**

Variance explained

	Variance explained
Firm supply performance	0.315

## 5. Conclusion

The primary objective of this paper was to investigate the relationship between total quality management practices (TQMP), supply chain management practices (SCMP), information technology capabilities, supply chain technology adoption and firm supply performance. In addition, the study has also tried to investigate the mediating role of information technology capabilities and supply chain technology adoption in the relationship between TQMP, SCMP, and firm supply performance. The study was carried out on the sample of textile firms of Pakistan. To achieve the research objective, Smart PLS-3 for the analysis of data gathered from the textile firms of Pakistan was implemented. The results of the study have shown a great deal of agreement among the hypothesized results. The information technology capabilities, supply chain technology adoption both have appeared to play

mediators between TQMP, SCMP, and firm supply performance. Technology has become a necessity in human life, while supply chain technology has become a requirement in effective business operations. In addition to the business activities, it is heavily relied on the technological functions to provide the reliable intermediate for high quality information transmission. In textile and apparel industry, supply chain technology will be therefore being even more important than ever before.

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