Effects of Supply Chain Management Practices on Technological Innovation in Restaurant Industry of Pakistan: The Mediating Role of Guanxi

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ABSTRACT

The purpose of this research is to find out that what impacts does the supply chain practices leaves on technological innovation. As we all know that Pakistan is the developing country, and the restaurant industry is emerging for the past few years. This study was conducted by using some supply chain practices including strategic supplier partnerships, customer relationships, information quality, information sharing, and internal operations as independent variables, whereas technological innovation as dependent variables. Guanxi used as a mediator. The sample size was 232. We collected data with the help of questionnaires. The sampling technique was Exponential discriminative snowball. The questionnaire consisted of 43 items. Smart PLS was used to analyze structure equation model. Result concluded that supply chain practices impact positively on product and process innovation. Moreover, Guanxi mediates the relation among Strategic Supplier Partnership and Technological Innovation, Information Sharing and Technological Innovation, Internal Operations and Technological Innovation whereas no mediation exists among Customer Relationship and Technological Innovation, Information Quality and Technological Innovation. Decision makers, restaurant owners and managers can use these findings to formulate their strategies to gain competitive advantage. This study helps managers to improve their practices and move towards innovation. This paper will also help researchers in their ongoing research in which guanxi plays the role of mediator.

Keywords: Supply Chain Practices, Technological Innovation, Guanxi

JEL Classification: O31, J53

INTRODUCTION

Background:

Restaurant industry in Pakistan is emerging as a major part in food service for past two years. With the changing world, people of all ages are now increasingly going towards eating at restaurants (Soriano, Moltó, and Mañes 2000). Arshad & Zahoor stated in their study that because of a busy and hectic schedule, people are preferring dine out or simply order food instead of preparing it themselves and this thing is nowadays becoming a trend (2019a). There are around more than 75,000 restaurants in Pakistan, including small roadside food stalls. Many of the restaurants in Pakistan are based on small & medium area owned by single owners (Akbaba, 2012). Nowadays dine out is more preferable
by people (Arshad and Zahoor 2019a). He also stated that in the very first stage, there should be some innovation in supply chain techniques to walk side by side with the demand. (Arshad and Zahoor 2019b). Supply chain management makes functions become coordinated and business operations can run smoothly without any bottleneck. Some studies identified the role of supply chain practices in generating outcomes related to innovation (Minguela-Rata, Fernández-Menéndez, and Fossas-Olalla 2014; Sundram et al. 2018; Tu, Hwang, and Wong 2014; Wong, Wong, and Boon-it 2013; Xu et al. 2017). In this fast-growing era, supply chain management becomes a crucial element to be considered to gain competitive advantage because it can make overall performance better by implementing technological resources in the firm.

SCM practices are crucial part for any business. Some of its practices include customer relationship, supplier relationship, sharing of information, information quality, lean practices, quality management and internal operations (Chong et al. 2011a; Li et al. 2005a; Perry and Sohal 2000; Sohal, Power, and Terzirovski 2002). It is not necessary that only food safety is sufficient for customer satisfaction (Arshad and Zahoor 2019b). transmitting of information and innovation has gained so much fame in the last few years (Nguyen et al., 2016; Berge-Gil, 2010; Adobor, 2006; Dahlin and Behrens, 2005). Supply Chain coordination has an important place in businesses, it integrates all the partners of value chain which results in the better performance of the firm (Soroor, Tarokh, and Shemshadi 2009). Companies should work with strategic supplier partners and customers for the enhancement and development of new product (Li et al. 2005b).

Another thing is customer relationship, which is equally and may be more important than other factors in the betterment of supply chain practices; these days customers desires for new and advance product for themselves, this is the reason that Arshad and Zahoor in their study clearly said that focusing only on food quality is not enough but making your customer happy and satisfied in more important (2019a). For defining customer relationship, the term Guanxi is used. It is a Chinese term which means strengthening interpersonal relationships which are important for Small and medium Enterprises (Cui, Wen, & Qin, 2013; Sheng, Zhou, & Li, 2011; Gu, Hung, Tse , 2008; Park & Luo, 2011; Lovett, Simmons, & Kali, 1999). It means to gather data and knowledge from outside links (Fu, Diez, & Schiller, 2013). Guanxi (connections) has a vital role in linking different parties in supply chain management. If Guanxi is adopted in the right way, it can result in the development of supply chain partnership, effective and efficient management of operations and coping with challenges (Wong et al. 1999). Guanxi is the most important element to flourish trade relations and in negotiation (Leung, Wong, and Wong 1996). In Chinese firms, managers regard guanxi as an important factor, according to them strong connections and relations with the other party flourish trust and give a successful business (2006). Guanxi and supply chain shares a strong connection (Lee and Humphreys 2007). Therefore, based on above discussion we can hypothesized that Guanxi can bring perfection in buying and selling and can lower the cost (Lovett et al., 1999).
We can say innovation as Novelty in processes, structure, management, services, and product (López-Nicolás & Merino-Cerdán, 2011). According to Freeman (1982), Innovation is the introduction of new better product and bringing new ideas in the business operations. Making new products known to the customers is called innovation. (Bessant & Tidd, 2007). Manufacturing firms can increase the product differentiation by bringing innovation, making the process better and technological and making short production cycle with the help of innovation (Zhang & Lu, 2015). In research, supply chains must adopt product development (Bechtel & Jayaram, 1997). By process innovation, we simply want to say new production methods that can bring profits to the firm (Zhang & Lu, 2015). For product innovation, all the sources are needed whether they are social or related to technology (Zhang, Zhao, & Lyles, 2018; Nonaka, 1994). By technological innovation, firms can gain competitive advantage (Zhang & Lu, 2015). Due to fast paced world, firms have a pressure to perform better and better than before. If we talk about Pakistan’s market, there should be proper guidance and training regarding adoption of technological innovation in their supply chain practices. According to some previous researches, firms can bring some improvement in their operations by total quality management but these studies talk very little or no about the technological innovation in SCM.

If information quality is used properly with information, it can result in a profitable business. According to a researcher, there are five dimensions of information quality which are access, available, relevant, on time, accurate (Lee and Strong 2003). In the past few decades, the methods of firm to get in touch with stakeholders and the way of management has been changed and for this supply chain practices technological innovation used as an important factor. Supply chain practices impact in a positive way on innovation with other operational performance of the organization (Khalil, Khalil and Khan., 2018). Internal operations, postponement, strategic supplier partnership, and guanxi have significant associations through technological innovation (Lee et al., 2018). Many previous research scholars have used supply chain practices for organizational performance (Azmi et al., 2018; Janaki et al., 2018; Chavez et al., 2013; Liu et al., 2013; Gimenz et al., 2012; Ramanathan, 2012; Sukati et al., 2012). With addition to this, limited empirical evidence has confirmed in how many ways supply chain practices together do not affect technological innovation, nor any previous researchers take any interest in working on the linking technological innovation and SCM practices with the help of guanxi in Pakistan’s restaurant industry.

Besides some importance of SCM practices on performance of any firm, only a few previous studies added up practices of SCM and TI in different areas. This research will explore SCM practices, which will be linked with the technological innovation of the restaurant industry of Pakistan along with guanxi.

**Problem Statement:**

Strategic supplier partnership, customer relationship, information sharing, information quality, internal operations are some of the components of the firm’s supply chain management. Over the past few decades, the ways a firm interacts and manages its partners is changing, in this evaluation of supply chain practices technological innovation used as a key component.
These SCM practices influence significantly on innovation along with the operational performance of the firm (Khalil, Khalil and Khan., 2018). Internal operations, postponement, strategic supplier partnership, and guanxi have significant associations through technological innovation (Lee et al., 2018). Many previous research scholars have used supply chain practices for organizational performance (Azmi et al., 2018; Janaki et al., 2018; Chavez et al., 2013; Liu et al., 2013; Gimenz et al., 2012; Ramanathan, 2012; Sukati et al., 2012). Moreover, limited empirical evidence has confirmed in how many ways supply chain practices together do not affect technological innovation, nor any previous researchers take any interest in working on the relationship of SCM practices with TI in the restaurant industry of Pakistan that too with the guanxi as mediator.

Besides significance of SCM practices on organizational performance, only a few previous studies compressed practices of supply chain management and technological innovation in different sectors. Headed forward to lean the difference in the literature, this research will explore SCM practices, which will be linked with the technological innovation of the restaurant industry of Pakistan along with guanxi.

**Objective Of Study:**

The aim of this research is to determine the effect of SCM practices encompassing of strategic supplier partnership, customer relationship, information sharing, information quality, postponement, internal operations on technological innovation of restaurant industry of Karachi, Pakistan; along with the mediating role of guanxi.

**Research Questions:**

- How is the strategic supplier partnership affecting on technological innovation?
- How is the customer relationship affecting technological innovation?
- How is the information sharing affecting on technology innovation?
- How is the information quality affecting on technological innovation?
- How are the internal operations affecting on technological innovation?
- What is the mediating role of guanxi among strategic supplier partnerships, customer relationships, information sharing, information quality, postponement, internal operations on technological innovation?

**Limitations:**

- Researchers will be able to improve their understanding after getting the results of this study. Hence, the limitations must be recognized.
- The main restriction is that this research has taken just a few types of supply chain practices as its dependent variables therefore future researchers can focus on other practices of supply chain management.
Furthermore, one more thing limits this study that we have collected the data only from one city of Pakistan; Karachi. Future researchers can collect data from all over Pakistan and other countries.

**Significance of the Study**

This study contributes to the restaurant industry and food service sector, it reveals how much supply chain management practices are significant for the development of new products and for bringing innovation in the existing process. Secondly, it will be significant for the suppliers, customers and for the internal operations of the firms.

**Structure of the Study**

Further paper consists of four sessions. The literature review comprises of theoretical background, empirical review, and conceptual model. The next section consists of methodological details of the study. After methodology, statistical analysis and their outcomes are discussed. At the end, there is conclusion, discussion, and future recommendations.

**LITERATURE REVIEW**

**Theoretical Background**

**Supply Chain Practices**

Supply chain management practices are explained in many ways. Li et al. defined SCM practices as a collection of activities that are efficiently performed by any organization. (Li et al. 2005b). Nowadays, almost every organization regard SCM as a vital part to build a sustainable competitive edge for their products or services in an increasingly competitive marketplace.

**Strategic Supplier Partnership**

Strong supplier partnership makes an easy supplier integration (Pakurár et al. 2019). When partners and suppliers of the organization works collectively as a team to achieve goals in long run is called strategic supplier partnership (Soroor et al. 2009). According to Luo, there are two groups for joint ventures i.e. before forming the joint venture, it is according to the selection criteria of partners and the other one is criteria related to cooperation. (Luo 1997b). A strong relationship with supplier and customer is the first step on the road to success of supply chain that is more quick and agile to changing demands. If collaboration with supply chain members is strong, firm can easily catch market opportunities with a quick speed. It can also solve many unsolved problems and new products can be brought to the market with a faster speed.

**Customer Relationship**

A firm’s customer is the most precious and crucial part for any business. Their role in service and benefits realization cannot be ignored (Vargo and Lusch 2004). When relationship with customer improves, it also helps in improving the monetary outcomes of the firm (Battor and Battour 2013). According to Adrian Payne & Pennie Frow, Customer relationship is this much important for any business that if businesses invest on customer relationship once, in return they give them back 10 times
(Payne and Frow 2005). Nowadays, in this competitive business world, it has become very difficult to hold a customer because these days buyers have more knowledge, are more experienced and unforeseeable (Buttle, Buttle, and Ryde n.d.; Noble and Phillips 2004). Because of this, building and strengthening relationship is now required more philosophy (Noble and Phillips 2004). In addition, there are some technological developments which came from progression in technology. If you look for more determination in enhancement in the value of customer relationship comes about from process innovation such as making supply chain more responsive and agile (Farrington-Flint et al. 2008; Paton and McLaughlin 2008).

**Information Sharing**

It is the getting, processing, and translating the useful information with the stakeholders of the firm. There is a very crucial role of information sharing in businesses. Information sharing means sharing of all the relevant and important information, proficiency and recommendations with each other in the organization (Bartol and Srivastava 2002). In Andrew Brod and Ram Shivakumar’s study, it was said that information should have to be given in a combination process with cuts the risk (1997). The best and most important information sharing information within the organization (Li and Lin 2006). The process of decision making also becomes because of IS (Ramon Gil-Garcia, Chengalur-Smith, and Duchessi 2007). Sharon S. Dawes (1996) said that according to a study related to inter-organization information sharing, any firm should know that if any unfavorable circumstance occurs in the organization it can be first solved by information sharing. He also wrote that because of information sharing the probability of risks goes down, results in better decision making, and it also strengthen the bonds with each other (Dawes 1996). To enhance fruitful relationship with supply chain stakeholders an organization should think about information sharing as an important aspect (Li and Lin 2006).

**Information Quality**

For ensuring strong social links and creating an overall trustable organization, Information quality and knowledge sharing both have a vital (Molina et al., 2004). Lalonde (1998) from five pillars of supply chain practices, quality information is one of them, which helps in the firm’s operations. Information quality is a significant part which leads and organization to the road of success (TC, 1996). If the supply chain partners of the firm work on gathering information jointly as a team and consider information quality and information sharing as an important part, this thing will save their cost, time and they have to strive less (Stein and Sweat, 1998).
Internal Operations: Internal operations like external operations also have a significant role in any organization. According to Lee, internal operations includes some systems that a person can work on, managing the flows of production, and helps team members to counter the change in market quickly (Lee et al., 2018). A successful Supply chain management must have the ability to perform interorganization operations in this way that it can forecast the supply chain performance as whole (McAdam and McCormack 2001; Van Hoek 1998). In-bound and Out-bound logistics are the two more important aspects of supply chain management (Mabert and Venkataramanan 1998). If the firms add in-bound logistics at the start of product development they will get benefited and all the disadvantages will be pointed out related to the cost efficiency and effectiveness (Tracy, 2004).

Guanxi

It is a term from Chinese language means having personal social and influential relationships, networks, connections, or trust on one another. The word “Guanxi” was composed of two words i.e., “Guan” (meaning “pass” or “fortress”) and “Xi” (meaning “inter-connected”). It is also beneficial for the betterment of businesses. According to Peng and Luo, guanxi is an in-person relation which is used to have favors from others (2000). It can be the relations between exchange partners i.e. with consumers, rivals, new commers, and the main suppliers also (Luo 1997a). Guanxi is like a lifeblood for any organization and without guanxi business functions cannot run smoothly (Anon n.d.). There is an important part in the expansion of business and commerce by fostering relationships among business partners and government (Fu, Revilla Diez, and Schiller 2013). There are two essential aspects of guanxi.

- Connections with buyers, suppliers, business middlemen & competitors.
- Connections with government representatives at different government related mediations.

Guanxi can be flourish among relatives, friends and with government bodies. When it is with government bodies, companies can have financial benefits (Chen and Wu 2011). According to another study it is also helpful in getting data and information which everyone cannot access to (Gu, Hung, and Tse 2008). Relationships by guanxi are made on joint trust and perception and creates win win situation for everyone (Anon n.d.; Cheng, Yip, and Yeung 2012; Chong et al. 2011b). Guanxi is the base of gaining competitive advantage for small and medium enterprises. It helps them making business fruitful and profitable through social relationships (Ouet et al, 2014). In some research, it was found out that Guanxi plays a crucial role in business operations (Fock and Woo 1998; Tsang 1998). Guanxi is popular as a basic part for business achievements among partners (Cui et al. 2013). In one study, guanxi was defined as a connection with goes with norms also (Cheng et al. 2012).

Technological Innovation

Innovation is the foundation for building competitiveness in this era (Lee et al., 2018). European Commission (1996) defines innovation in three ways: (a) to explore and establish new ways to produce, supply and distribute; (b) re-engineering of processes; (c) continuous expansion and renewing in product and service according to market need. Previous studies show that TI is categories
into various ways, Like Chuang (2005) divide innovation into administrative and process, while Mavondo et al. (2005) categorized it into a product, process and administrative. Most of past researchers (Cooper, 1998; Damanpour & Gopalakrishnan, 2001; Prajogo & Sohal, 2001; Chong et al., 2011; Lee et al., 2018) mainly discussed product and process innovation under the umbrella of TI. It is an extended form of product innovation, service innovation and process when an organization performs its operations with its supply chain partners side by side (Cao & Zhang, 2011). Innovation process and product concern in customer satisfaction and efficiency in work (Roy et al., 2004; Seo et al., 2014). Technological innovation helps firms to enhance their productivity and capital along with improvement in supply chain practices (Christopher, 2005). Normally, innovations take place in processes, strategies, services, and organizational structures (Rogers, 2003). (Roberts & Amit, 2003; Muiruri & Ngari, 2014; Báñez-Lazo & Woldesenbet, 2006) enlightened the unquestionable value of product and process innovation along with attaining resilient keenness plus higher financial performance in this sector. Organizational performance can be improved when its functions run effectively and efficiently (Zafar, 2021).

Process innovation involves the changes in tools, techniques; software', which results in efficiency in production and supply chain, processes (Bi et al., 2006). Damanpour and Gopalakrishnan (2001) defined product innovation as a way of developing a product or delivering services along with uniqueness in one's product or service, so the expectations and needs of the clients can stand satisfied. Furthermore, here we have discussed the role of technological innovation in the sense of the restaurant industry of Pakistan.

**Empirical Review**

**H1: There is a significant effect of strategic supplier partnership on technological innovation.**

Khalil, Khalil and Khan (2018) studied how the organizational performance effect by supply chain practices along with innovation as the mediator in SMEs. The paper uses strategic supplier partnership, degree of sharing information, intensity of information sharing, internal SCM processes and lean practices as independent variables, innovation as a mediator, whereas performance of organization as dependent variable. Since the study is quantitative in nature therefore the paper gathers data from 207 enterprises. The data was collected from SME of Punjab, Pakistan. In this paper, PLS-SEM approach was used to test the theoretical model. The finding was that sharing information and partnership with strategic supplier has no impact on organizational performance. On the other hand the other factors influence significantly on the performance of the firm. Although entirely all SCM practices had a positive and significant impact on innovation. The outcomes of the study were beneficial for the managers in improving performance of SMEs.
Huo, Li, and Zhao (2018) evaluated the relation between supply chain coordination and innovativeness by collecting 617 survey questionnaires from Chinese manufacturing firms. The techniques they used are structural equation modeling and exploratory factor analysis. The outcomes show that the coordination of supplier positive and significant influence on the manufacturer, customer coordination, and supplier innovativeness. Manufacturer coordination stimulates manufacturer innovativeness and customer coordination. Supplier innovativeness directly increases manufacturer innovativeness and indirectly improves financial performance with the help of manufacturer innovativeness. In future researchers may use longitudinal analysis to an improved understanding of the effects of supply chain cognition. This research only used data of Chinese firms; future researchers can extend a similar study by generalizing the target population.

Kalay and Lynn (2015) recognized the impact of strategic innovation management practices on firm innovation performance. The study intends to explore the influence of innovation culture, organizational structure, technological capability, innovation strategy, and customer and supplier relationships, which are considered in the literature as strategic innovation management practices in business enterprises, on firm innovation performance. Since the study is quantitative in nature, therefore the paper uses a structured questionnaire for data collection from 132 managers of 66 firms operating in the manufacturing sector of Turkey. With the help of structural equation modeling (SEM), the proposed hypotheses are measured and tested over software package SmartPLS 3.2.0. The findings of the paper reveal that there is a positive impact of IS, OS, and IC on firm innovation performance. However, there is no significant impact of TC and CSR on firm innovation performance.

**H2: There is a significant effect of customer relationship on technological innovation**

Dekoulou and Trivellas (2017) enlightened special effects of structure innovation performance of organization, value of relationship with customers in Greek media and advertising industry by using 163 survey questionnaires. PLS is used to test the association among variables. The findings reveal that performance through innovation in the marketing business to business market nurture the business customer relationship and business financial performance meanwhile, monetary, and fiscal outcomes are also positively exaggerated by a gainful relationship with the customer's relationship. The study has a role in previous marketing affiliation literature as it defines the scopes of structure of organizational and numerous parts of performance in the media and advertising industry; it is also reveals that there is a mediating role relationship with customers flanked by innovation and financial performance in the B2B market. It is concluded that directors should focus on the trainings, coordination’s, supervision which results in competitive advantage-built trough creativity, innovation, and customer relationship.
Zhang and Shuang (2015) explore the influence of intellectual capital on technological innovation inside a firm and transitional impact of supply chain learning concerning different views of intellectual capital and technological innovation. 167 technological manufacturing firms in China filled survey questionnaires. The results of the study reveal that dimensions of supply chain learning have a direct impact on technological innovation, i.e., learning from suppliers and customers’ effect significantly on technological innovation, and learning from customers exert a more significant effect on technological innovation. Whereas from the four dimensions of intellectual capital, only two dimensions, external and internal social capital exert a significant impact on technological innovation. Future researchers must extend the current study by taking longitudinal data instead of cross-sectional data. By doing so, researchers would be able to explore the changes due to time and provide statements over the relationship between the variables.

**H3: There is a significant effect of information sharing on technological innovation**

Cao and Zhang (2012) analyze the influence of knowledge governance on knowledge sharing. The keen objective of this study is to find out the impact of governance on sharing of knowledge in the presence of guanxi as mediator. Researchers collect data from the 339 employees of Chinese strategic firms. The findings disclose that governance play a vital role in sharing of knowledge, whereas there is a partial mediating impact of guanxi among informal knowledge governance and sharing of knowledge and the full mediation exist among formal knowledge governance and sharing of knowledge. Moreover, the results of the study give an overview to the strategic firms of China to recognize the influence of knowledge governance on sharing of knowledge consequently it improves an organizational guanxi for social and economic benefits. There will be enhancement in effects of guanxi in Chinese firms. In future researchers will develop a large-scale questionnaire and collect data from different countries to explore the impact in more detail.

Sumner (2015) used the interagency information sharing theory to analyze the benefits, risks, experiences, and rewards associated with sharing of information. The scholars investigate the previous literature and understand the effects of knowledge sharing among employers of health care institutions. The findings show the efficient use of technology and theory in implementing information sharing technologies by professionals belongs to human resource in the organization. After this study, organizations and systems can evade numerous issues allied with hiring employees.

**H4: There is a significant effect of information quality on technological innovation**

Hamdoun, Jabbour & Ben Othman (2018) explores the effect of information quality and environmental management on firms' innovation by using the role of knowledge transfer. Its focus is on the involvement of quality and environment management on the firm’s performance. 136 survey questionnaires by gathered from companies operating in Tunisia. The results of structural equation modeling indicate that information quality and environmental manage. Usually, businesses appliance quality management first, shadowed by environmental management, because of the privation of
environmental know-how and financial capitals. Although, quality management practices can develop resources and structures that may be used in employing environmental management practices.

Li & Lin (2006) investigates the role of information sharing and information quality in SC practices, it empirically examines the influence of inter organizational relationship, environmental uncertainty, and intra organizational facilities on information sharing and quality of information in the SCM. Multiple regression analysis was performed on the data collected from 196 organizations to assess the factor affecting information quality and information sharing. The findings reveal that information quality and information sharing are significantly trusted by strategic partners in supply chain and adversely negative by uncertainties in supply chain. Although, the upper management has a positive impact on the sharing of the information however the opposite views about information quality. Furthermore, the results expose that the relationship with partners play an important role in the implementation of the supply chain practices. The imminent worth of information quality and information sharing is based on the information which is not available. Moreover, there are some most significant factors in differentiating among the firms with low level of information sharing and quality and high-level of information sharing and information quality.

**H5: There is a significant effect of internal operations on technological innovation**

Lee, Kwon and Severance (2007) exemplify the relationship between supply chain connections and supply chain performance. Supply chain linkages comprise of linkages among customers, suppliers, stakeholders, and internal integration i.e., internal operations. While supply chain performance includes cost containment and reliability of supply chain partners. Out of 400 distributed questionnaires, 122 questionnaires were considered as valid for a multiple regression model. The outcome shows that internal integration is a most chief contributor to cost containment, although incorporation with suppliers is a significant approach for achieving reliable supply chain performance, It further concludes that if electronic ordering systems are available for customers, so the customer performance will be more reliable and operation are fast and easy. Moreover, operations will be more convenient and smoother if there will be connectivity among customers and suppliers.

**H6: There is a significant the mediating role of guanxi among strategic supplier partnership, customer relationship, information sharing, information quality, postponement, internal operations on technological innovation**

Wang and Chen (2018) examine the competitive advantages of guanxi by giving references from high-tech firms in Taiwan science parks. The variables used in this study are guanxi and innovation performance whereas size and age of firms are used as control variables. This study uses a sample of 144 well reputed firms in Taiwan Science Park. To test the hypothesis researchers, use nonlinear regression. This study concludes that higher guanxi is directly linked with the innovation performance of high-tech firms up to a definite point, beyond this further increase of guanxi shows diminishing benefits, which results in decreasing innovation performance of the firms. Furthermore, it is concluded
that in business networks guanxi as a competitive advantage can significantly improves the innovation performance of the firms in Asian countries.

Zhang and Hartley (2018) studied guanxi, IT systems, and innovation capability along with the moderating role of proactiveness in China. The paper scrutinizes how SMEs enhance their innovation capabilities by deploying resilient IT systems and guanxi with the stakeholders. The paper uses IT systems and guanxi as an independent variable whereas proactiveness as mediating and innovation capabilities in new product performance as a dependent variable. By using random sampling, the paper collects data from exporting Chinese SMEs in the manufacturing industry. Moreover, with the help of a structured survey questionnaire, the paper gathers data from 210 industries. With the help of variance-based structural equation modeling (SEM), the proposed hypotheses are measured and tested over software package SmartPLS 2.0. The findings show that IT systems are significantly related to innovation capability. Further, the relationship between guanxi and innovation capabilities is significant for firms that have a high level of proactiveness but not significant when proactiveness is low.

Chu, Feng, and Lai (2018) investigate innovation in logistic services by third-party logistics providers in China. The researchers use political guanxi and business guanxi as dependent variables and innovation in third-party logistics services as a dependent variable, whereas organization structure plays a mediating role, ownership, firm size and firm age are controlled variables. Survey data was collected from the 165-3PL provider of China. Findings reveal that business guanxi and political guanxi have a positive impact on logistics service innovation. Political guanxi impact more effectively on third party logistic providers because of its centralized organization structure. Further research may investigate the nonlinear relationship between guanxi and innovation meanwhile 3PL services.

Jiao et al. (2016) investigate the relationship between entrepreneurial abilities and technological innovation with the moderating effect of ownership. The data was gathered from 788 publicly listed companies in China. Multivariate regression analysis concludes that guanxi, strategic leadership, and social relationship has a positive significant effect on innovation in technologies. Guanxi allows enterprises to get necessary information regarding development opportunities. The study also reveals that increase in the degree of nationalization results in better the effect of entrepreneurial abilities (guanxi, strategic leadership, and social relationship) on technological innovation.

Feng et al., (2016) examine the mediating role of integration in supply chain for operational performance and guanxi. The purpose of the study is to find out the association among supply chain integration, guanxi, operational performance, also the mediating role of SCI among guanxi and performance. Researchers use guanxi as an independent variable, supply chain integrations as mediator and operational performance as a dependent variable. Since the study is quantitative in nature, data was gathered from automobile manufacturers of chine by using random sampling method 126 responses were collected. For data analysis purpose, researchers apply exploratory and confirmatory factor analysis to determine the non-response bias and common method bias.
Further, the paper applies the ordinary least square (OLS) regression to test the hypotheses proposed within the study. Findings of the paper reveal a significant positive association between guanxi and SCI, SCI is significantly related to operational performance. Further, it is concluded that guanxi indirectly affects operational performance through SCI.

Conceptual Model

![Conceptual Model Diagram]

**RESEARCH METHODOLOGY**

The aim of this analysis is to explain the effects of supply chain management practices including strategic supplier relationship, customer relationship, information sharing, information quality, internal operations on the technological innovation of restaurant industry of Karachi Pakistan along with the mediating role of Guanxi. The nature of this study is quantitative. Survey is conducted to collect the data with the help of questionnaire as an instrument which is converted to numerical form for further data analysis. This study is correlational in nature. Which comprehend the connection between the variables and understand the relationship between the variable whether that is significant or insignificant, positive or negative? Moreover, the strength of variables whether strong and weak has been observed.
The true representation of the population is determined by the sampling technique. This paper used the non-probability sampling technique for the collection of data for data collection. Non-probability sampling is selected due to its subtype of a snowball sampling method. The snowball sampling is further divided into a linear snowball, exponential non-discriminative and exponential discriminative snowball. Exponential discriminative snowball was used because the chain referral process allows reaching the target population that is difficult to reach. This technique is selected because this is continent, fast and inexpensive. To determine the effects of SCM practices on technological innovation in the restaurant industry of Karachi; Pakistan, the targeted population of study are the supply chain managers and owners of different restaurants of Karachi. To find out the effect of SCM practices on technological innovation, we used quantitative survey and the study was conducted with sample size of 232 respondents who were selected through non probability snowball sampling (Bian, Xuemei; Mountinho, Luiz, 2011) to collect data from supply chain managers and owners of the restaurants of Karachi, Pakistan. Results are given based on the questionnaires filled by 232 respondents. Data analysis (Comrey & Lee, 1992) suggest that the sample size of 500 as poor, between 200 till 300 as a good sample, 500 as very good and 1000 as excellent sample, so this sample size is considered as the good data for analysis.

**Statistical Techniques:**

To estimate both the measurement model and structural model we used SEM (structural equation model) in SmartPLS 3.1.6 (Ringle, Wende & Becker, 2014) as a statistical tool in this research. PLS-SEM is suitable for examining the multiplex models (Hair, Ringle, & Sarstedt, 2011; Henseler et al, 2014). The competency of the model was examined by the convergent and discriminant validity. Further analysis was performed by booth stepping and blindfolding.

**Measurement Instrument:**

The measurement instrument consists of 43 items, which fulfill the minimum questionnaire requirement stated through (Hair, Black, Babin, Anderson & Tatham, 2006). The independent variable supply chain practices which include 6 items of SSP, items of CR, 6 items of IS, 5 items of IQ, 7 items of IOP are taken from (Li et al., 2005; Petrovic-Lazarevic et al., 2007). There are four items of guanxi taken from (Cheng et al., 2012; Luo et al., 2014) whereas TI comprises of 5 items of product innovation and 4 items of process innovation are adopted from (Prajogo & Sohal, 2003; Singh & Smith, 2004). A 5 point Likert scale ranging from 1 till 5, 1 “Strongly Disagree”, 2 “Disagree”, 3 “Neutral”, 4” Agree” and 5 “Strongly Agree” was used to measure. Moreover, demographic data was also collected from the respondents.

**Ethical Consideration:**

The required data is purposefully gathered from the respondents through a survey. Secrecy of personal information of respondents was the prime objective and the collected data was entirely used for research study.
DATA ANALYSIS

Demographics:

The demographic profile of respondents is represented in Table 4.1. The demographic profile shows the age of restaurant and the type of food offered by 232 restaurants of Karachi, Pakistan. 87 (37.50%) restaurants aged less than 3 years, whereas 99 (42.67%) had an experience of 3 to 6 years, while 27 (11.64 %) restaurants aged between 6.1 to 9 years, 11 (4.74%) restaurants were 9.1 to 12 years old, 4 (1.72%) restaurants were 12.1 to years old, only 4 (1.72%) have been operating in this industry since more than 15 years. When it comes to the type of food offered 81 (34.91 %) restaurants offered fast food, 17 (7.33%) restaurants offered Chinese food, 20 (8.62%) restaurants offered Italian and seafood; while 48 (20.69%) restaurants offered desi food items and the remaining 27 (11.64%) restaurants offered other food items like Turkish food, ice creams, desserts, and confectionary items.

Table 4.1

Demographics Profile

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Frequency</th>
<th>Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age Of Restaurant</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 3 years</td>
<td>87</td>
<td>37.50%</td>
</tr>
<tr>
<td>3 to 6 years</td>
<td>99</td>
<td>42.67%</td>
</tr>
<tr>
<td>6.1 to 9 years</td>
<td>27</td>
<td>11.64%</td>
</tr>
<tr>
<td>9.1 to 12 years</td>
<td>11</td>
<td>4.74%</td>
</tr>
<tr>
<td>12.1 to 15 years</td>
<td>4</td>
<td>1.72%</td>
</tr>
<tr>
<td>More than 15 years</td>
<td>4</td>
<td>1.72%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Food</th>
<th>Frequency</th>
<th>Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast Food</td>
<td>81</td>
<td>34.91%</td>
</tr>
<tr>
<td>Chinese</td>
<td>17</td>
<td>7.33%</td>
</tr>
<tr>
<td>Italian</td>
<td>20</td>
<td>8.62%</td>
</tr>
<tr>
<td>Sea Food</td>
<td>20</td>
<td>8.62%</td>
</tr>
<tr>
<td>Desi</td>
<td>48</td>
<td>20.69%</td>
</tr>
<tr>
<td>Arabic</td>
<td>19</td>
<td>8.19%</td>
</tr>
<tr>
<td>Others</td>
<td>27</td>
<td>11.64%</td>
</tr>
</tbody>
</table>

Model Measurement

Convergent Validity

To know the validity and reliability of the model, variables were passed by different tests described by Hair, Ringle and Sarstedt (2011). Table 4.2 exhibits the values of the reliability and validity of the model, each component in reliability and validity table must be greater than 0.5 (Hair, Ringle & Sarstedt, 2013). Foremost reliability of the model was tested by composite reliability, which should be
more than 0.7 (Gerbing & Anderson, 1988; Das et al., 2011; Hair et al., 2011) Value of composite reliability for customer relationship is 0.948, guanxi is 0.892, information quality is 0.893, information sharing stands at 0.871, 0.913 is for internal operations, strategic supplier relationship is 0.872 and technological innovation is 0.931. Composite reliability of all variables exceeds 0.7 which satisfies the standards in the study of Hair et al., (2013). Further validity of the data was identified by convergent validity was used which comprises two factors. The Average variance extracted and Cronbach Alpha. The Cronbach Alpha should be greater than 0.7. All construct exceeds 0.7: CR (0.928), GX (0.839), IQ (0.842), IS (0.779), IOP (0.889), SSP (0.828), TI (0.916). Similarly, AVE should be greater than 0.5. Values of analyzed model CR (0.821), GX (0.675), IQ (0.676), IS (0.692), IOP (0.601), SSP (0.632), TI (0.630) were greater than 0.5 that indicates the validity of the model (Fornell & Larcker, 1981).

Table 4.2  
**Construct Reliability and Validity**

<table>
<thead>
<tr>
<th>Construct</th>
<th>Cronbach’s Alpha</th>
<th>Composite Reliability</th>
<th>Average (AVE)</th>
<th>Variance Extracted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Relationship (CR)</td>
<td>0.928</td>
<td>0.948</td>
<td>0.821</td>
<td></td>
</tr>
<tr>
<td>Guanxi (GX)</td>
<td>0.839</td>
<td>0.892</td>
<td>0.675</td>
<td></td>
</tr>
<tr>
<td>Information Quality (IQ)</td>
<td>0.842</td>
<td>0.893</td>
<td>0.676</td>
<td></td>
</tr>
<tr>
<td>Information Sharing (IS)</td>
<td>0.779</td>
<td>0.871</td>
<td>0.692</td>
<td></td>
</tr>
<tr>
<td>Internal Operations (IOP)</td>
<td>0.889</td>
<td>0.913</td>
<td>0.601</td>
<td></td>
</tr>
<tr>
<td>Strategic Supplier Partnership (SSP)</td>
<td>0.828</td>
<td>0.872</td>
<td>0.632</td>
<td></td>
</tr>
<tr>
<td>Technological Innovation (TI)</td>
<td>0.916</td>
<td>0.931</td>
<td>0.630</td>
<td></td>
</tr>
</tbody>
</table>

Discriminant Validity

The concept of discriminate validity is introduced by (Campbell & Fiske, 1959), for evaluating test validity. Discriminate validity includes Loadings and cross loadings, Correlational matrix and Heterotrait and Monotrait ratio of correlation. Discriminate validity is the point at which any variable differs with another variable in the research model (Carmines and Zeller, 1978). Fornell and Larker (1981) suggested a test to measure the discriminant validity each pair of variables, the total value of pair of their correlational should be smaller than the square root of AVE of item. Table 4.3 exhibits that all the diagonal values are higher than the off-diagonal values which met the benchmark. According to (Tabachnick, Fidell & Ullman, 2007; Raza & Hanif) the cutoff point is 0.5 for individual loadings and all items excel this standard shown in table 4.4. The values of Heterotrait and Monotrait ratio of correlations (HTMT) (Table 4.5) should not be more than 0.85 (Henseler et al, 2014) further, the study of Henseler, Ringle and Sarstedt (2015) demonstrate that discriminate validity has been established if the HTMT value is below 0.9. the results are similar with the work of Henseler, Ringle and Sarstedt (2015) as all values are less than 0.9.
### Table 4.3
**Fornell-Larcker Criterion**

<table>
<thead>
<tr>
<th></th>
<th>CR</th>
<th>GX</th>
<th>IQ</th>
<th>IS</th>
<th>IOP</th>
<th>SSR</th>
<th>TI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Relationship (CR)</td>
<td>0.906</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guanxi (GX)</td>
<td></td>
<td>0.412</td>
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<td></td>
</tr>
<tr>
<td>Information Quality (IQ)</td>
<td></td>
<td>0.115</td>
<td>0.238</td>
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<td>0.822</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information Sharing (IS)</td>
<td></td>
<td>0.336</td>
<td>0.636</td>
<td>0.212</td>
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<td></td>
<td>0.832</td>
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<tr>
<td>Internal Operations (IOP)</td>
<td></td>
<td>0.530</td>
<td>0.722</td>
<td>0.306</td>
<td>0.567</td>
<td>0.775</td>
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</tr>
<tr>
<td>Strategic Supplier Partnership (SSP)</td>
<td>0.065</td>
<td>0.336</td>
<td>0.031</td>
<td>0.252</td>
<td>0.245</td>
<td>0.795</td>
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</tr>
<tr>
<td>Technological Innovation (TI)</td>
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<td>0.296</td>
<td>0.770</td>
<td>0.315</td>
<td>0.628</td>
<td>0.713</td>
<td>0.354</td>
</tr>
</tbody>
</table>

### Table 4.4
**Cross Loadings**

<table>
<thead>
<tr>
<th></th>
<th>CR</th>
<th>GX</th>
<th>IQ</th>
<th>IS</th>
<th>IOP</th>
<th>SSP</th>
<th>TI</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR1</td>
<td>0.919</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>CR2</td>
<td>0.884</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>CR3</td>
<td>0.919</td>
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<td></td>
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<td></td>
</tr>
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<td>GX1</td>
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<td>GX2</td>
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</tr>
<tr>
<td>GX3</td>
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</tr>
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<td>0.861</td>
</tr>
<tr>
<td>IOP2</td>
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</tr>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.797</td>
</tr>
<tr>
<td>SSP3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.805</td>
</tr>
<tr>
<td>SSP5</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>0.723</td>
</tr>
</tbody>
</table>
Table 4.5

<table>
<thead>
<tr>
<th>Hi</th>
<th>Monotrait Ratio (HTMT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR</td>
<td>GX</td>
</tr>
<tr>
<td>Customer Relationship (CR)</td>
<td>0.458</td>
</tr>
<tr>
<td>Guanxi (GX)</td>
<td>0.128</td>
</tr>
<tr>
<td>Information Quality (IQ)</td>
<td>0.375</td>
</tr>
<tr>
<td>Information Sharing (IS)</td>
<td>0.584</td>
</tr>
<tr>
<td>Internal Operations (IOP)</td>
<td>0.129</td>
</tr>
<tr>
<td>Strategic Supplier Partnership (SSP)</td>
<td>0.313</td>
</tr>
<tr>
<td>Technological Innovation (TI)</td>
<td>0.313</td>
</tr>
</tbody>
</table>

Blind Folding

The predictive relevance of the endogenous variables was tested by blindfolding to obtain check cross-validated redundancy of each construct suggested by Hair, Ringle, Sarstedt (2011). The benchmark for Q square is that it must be greater than zero. Table 4.6 exhibits that both the values exceed zero and it tells the fitness of the model has achieved.

Table 4.6

Construct Cross validated Redundancy

<table>
<thead>
<tr>
<th>Construct</th>
<th>SSO</th>
<th>SSE</th>
<th>Q² (=1-SSE/SSO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Relationship (CR)</td>
<td>928,000</td>
<td>928,000</td>
<td>0.381</td>
</tr>
<tr>
<td>Guanxi (GX)</td>
<td>928,000</td>
<td>574,580</td>
<td>0.381</td>
</tr>
<tr>
<td>Information Quality (IQ)</td>
<td>928,000</td>
<td>928,000</td>
<td>0.381</td>
</tr>
<tr>
<td>Information Sharing (IS)</td>
<td>928,000</td>
<td>928,000</td>
<td>0.381</td>
</tr>
<tr>
<td>Internal Operations (IOP)</td>
<td>928,000</td>
<td>928,000</td>
<td>0.381</td>
</tr>
<tr>
<td>Strategic Supplier Partnership (SSP)</td>
<td>928,000</td>
<td>928,000</td>
<td>0.381</td>
</tr>
<tr>
<td>Technological Innovation (TI)</td>
<td>928,000</td>
<td>928,000</td>
<td>0.381</td>
</tr>
</tbody>
</table>
Figure 2

Structural Model

This study is directed towards the structural model and hypothesis testing. The significance of P-value is the basic criteria for hypothesis testing. If the hypothesis is accepted, the p-value should be < 0.5. Table 4.7 exhibits the effect of SSP was found to be significant as the p-value is 0.015 less than 0.5. The direction of effect was positive with the beta value of 0.101 which means that if 1 unit change occurs in SSP, it will affect TI by 0.101 units. Further the result depicts customer relationship (β = 0.116; P = 0.007), information quality (β = 0.100; P = 0.015), information sharing (β= 0.170, P =) and internal operations (β =0.317; P= 0.000) effects significantly and positively on technological innovation. Thus, the hypothesis H1, H2, H3, H4, and H5 are accepted.
Furthermore, the meditation was assessed to determine how guanxi intervene in the linkage among SC practices and technological innovation. The mediation was assessed by the direct and indirect effect. If direct and indirect both effects resulted significant, there will be partial mediation exists among the variables SSP and TI, IS and TI, and IOP and TI met this criterion and found to be partially mediated by guanxi. If an indirect effect is significant and direct is either significant or insignificant there is no mediation exist among the variables like in CR and TI, IQ and TI.

Table 4.7
Path Coefficients

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Path</th>
<th>Impact</th>
<th>Sample Mean</th>
<th>P Value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>SSP -&gt; TI</td>
<td>Direct Impact</td>
<td>0.101</td>
<td>0.015</td>
<td>Accepted</td>
</tr>
<tr>
<td>H2</td>
<td>CR -&gt; TI</td>
<td>Direct Impact</td>
<td>0.116</td>
<td>0.007</td>
<td>Accepted</td>
</tr>
<tr>
<td>H3</td>
<td>IQ -&gt; TI</td>
<td>Direct Impact</td>
<td>0.100</td>
<td>0.015</td>
<td>Accepted</td>
</tr>
<tr>
<td>H4</td>
<td>IS-&gt; TI</td>
<td>Direct Impact</td>
<td>0.170</td>
<td>0.005</td>
<td>Accepted</td>
</tr>
<tr>
<td>H5</td>
<td>IOP -&gt; TI</td>
<td>Direct Impact</td>
<td>0.317</td>
<td>0.000</td>
<td>Accepted</td>
</tr>
<tr>
<td>H6a</td>
<td>SSP -&gt; GX -&gt; TI</td>
<td>Mediating Impact</td>
<td>0.061</td>
<td>0.005</td>
<td>Accepted</td>
</tr>
<tr>
<td>H6b</td>
<td>CR -&gt; GX -&gt; TI</td>
<td>Mediating Impact</td>
<td>0.016</td>
<td>0.550</td>
<td>Rejected</td>
</tr>
<tr>
<td>H6c</td>
<td>IQ -&gt; GX -&gt; TI</td>
<td>Mediating Impact</td>
<td>0.011</td>
<td>0.592</td>
<td>Rejected</td>
</tr>
<tr>
<td>H6d</td>
<td>IS -&gt; GX -&gt; TI</td>
<td>Mediating Impact</td>
<td>0.130</td>
<td>0.000</td>
<td>Accepted</td>
</tr>
<tr>
<td>H6e</td>
<td>IOP-&gt; GX -&gt; TI</td>
<td>Mediating Impact</td>
<td>0.202</td>
<td>0.000</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

Discussion

The study discussed the impact of SC practices on technological innovation focusing on the restaurant industry of Karachi, Pakistan. Furthermore, the research also depicts the role of Guanxi as a moderator among practices of supply chain and technological innovation. The result indicates that partnership with strategic suppliers, relationship with customers, quality of information and sharing of information and internal operations have a significant positive effect on technological innovation. Moreover, guanxi shows full mediation between SSP and TI, IS and TI, and IOP and TI. However, there is no mediation exist among CR and TI, and IQ and TI.

The strategic supplier partnership effect significantly on technological innovation. Our results concur with (Lee et al., 2018; Cao & Zhang, 2011; Peterson et al., 2005) that integration with suppliers is the essential component for technological advancement including new product development and improvement in the process. SC managers consider their key suppliers in the planning process, during the process of developing a new product and improvement programs as it gives them positive outcomes. Long term relationships must be considered by managers while choosing their key suppliers.
which enable firms to solve the routine issue rapidly and jointly, helps firms in product innovation and process development by flexibility in their offerings.

Likewise, the effect of customer relationship on technological innovation was found to be significant. The result was significant with past researches by (Li et al., 2005; Bayraktar et al., 2009; Frohlich & Westbrook, 2002). Customer relationship is equally significant as strategic supplier relationship in doing business. The goal of supply chain is to give better value to customers, customer’s feedback means a lot to the organizations. Organizations must gather information about customer requirements that promote product development. A strong relationship with customers improves the firm’s efficiency, agility, service quality. Restaurants with strong customer relationships can incorporate innovation in their products and processes and take advantage of the market. Additionally, information sharing was significantly linked with TI. In parallel with the study of Huang et al. (2003), Cheng (2011), Pereira (2009) and Zhou and Benton (2007) coordination can improve product quality, better decisions would be taken on forecasting, procuring, and order if information sharing is efficient among manufacturer and supplier. Eatery managers consider that they can perform better by sharing complete information with employees and SC partners. The more the dependency between the members of the firm, the less the dysfunctional conflicts, as well as level of understanding and sharing of information, developing bonds between partners and they work for the same interest together.

Further, Information quality has a notable impact on technological innovation of the restaurant industry of Karachi, Pakistan. This finding is compatible with the findings of (Lee et al., 2018; Sellitto et al., 2007). Accuracy of the information is essential need of firms. The form of information quality includes availability, accessibility, accuracy, relevance, timeliness. The firms that practice these qualities of information can lead the businesses towards success. Quality management motivates employees and results in betterment in product and process innovation. It is concluded that stronger the information quality, improves the coordination among subordinates, increase the possibility of businesses to be more innovative and creative. Practically, internal operations are the key indicator of supply chain practices for affecting technological innovation. The outcomes are on par with the conclusions of (Lee et al., 2018; Perry & Sohal, 2000; Elmuti, 2002) that it is important for the firms to incorporate the internal operations effectively with the external functions to increase the competitiveness and efficiency. Integration in internal operation effect significantly on the innovativeness of the firm as the level of production is up to the mark so the internal functional flow of logistics for the end product is adequate; the continuous improvement in production system takes place, such operations encourage the TI of organization.

Guanxi affect positively and significantly on technological innovation in restaurant industry this is similar with the past researches (Park & Luo, 2011; Abramson & Ai, 1999; Lee et al., 2001; Fan, 2002; Lobo et al., 2013; Murray and Fu, 2016) shows close association with business partners provide an security against any unfavorable situation in business, improves financial as well as market performance, and contribute to business growth.
Moreover, it comes to the mediating effect of guanxi among supply chain practices and technological innovation. Guanxi has full mediation with supply chain practices comprising of strategic supplier relationship, information sharing, and internal operations whereas no mediation exists among customer relationship and technological innovation, information quality and technological innovation. The synchronized finding from preceding literatures (Park & Luo, 2011; Feng & Wang, 2013; Wong et al, 1999; Lee & Humphreys, 2007; Cheng et al., 2012) reveals that these types of relations with supply chain partners are crucial for businesses in the long run, attending as a base for process development and product innovation. Guanxi with top suppliers can influence the way of processes like fair negotiations at ends, commitments, managing conflicts, and adequate communication. Such communications improve the level of combine planning and problem solving, which facilitate development of new product and advancement in technology and improving the speed towards the market.

CONCLUSION AND RECOMMENDATION

The intention of this study is to find out the effect of supply chain practices on technological innovation of restaurant industry of Karachi, Pakistan. Along with the role of mediator that is guanxi. The target area of the study is the owners and managers of the eateries mainly from Karachi. This study uses a questionnaire based on five-point Likert scale which was filled by people who own a restaurant or managing anyone’s else food business. Further, this research used some supply chain practices including strategic supplier relationship, customer relationship, information quality, information sharing, and internal operations as an independent variable. Technological innovation includes product innovation and process innovation was used as dependent variable while guanxi used as a mediator. 232 was the sample size. The model was examined by Smart PLS.

Results of the present reveal that strategic supplier partnership, customer relationship, and information quality, information sharing and internal operations effect significantly on the technological innovation in the restaurant industry. When it comes to the mediating role of Guanxi, it partially mediates the effect of SSP, IS and IOP on technological innovation, conversely there is no mediating impact of guanxi on customer relationship and technological innovation and information quality on TI. However, strong guanxi or close ties have proven that inter-organizational trust between strategic partners is present. It is a source the sustainability of business setup, consequently an imperative compound for the development of new product and process.

Managerial Implication

This study is fruitful for managers, owners, and supply chain practitioners of the restaurant industry. Managers must have to maintain a strong relationship with the key suppliers, which will improve negotiation, procurement process and solve conflicts among them and result in product innovation and process innovation. Managers also must give value to customers, consider their feedback positively, and improve product and service efficiently and timely. Moreover, managers can work on information quality and sharing by encouraging open-minded discussions on the opposite and different points of
view. Although internal operations can be improved if they work on lean practices. Guanxi with chief suppliers was marked down as the most important determining factor in reaching to the higher Technological innovation. This study also helps businesses to get insight from supply chain practices at the time of product and process development.

**Future Recommendation**

There are some points which will be useful for future researchers which were not achieved in this study because of time boundaries and limited resources. Firstly, the sample data was collected only from Karachi, future researchers can work in other cities of Pakistan as well as in different countries and cross countries. Secondly the researcher used only five SCM practices, in future researchers can take extend this by adding more supply chain practices. Further researchers can work in different industries like textile sector, manufacturing sector, automobile sector as this study only focused on the restaurant industry.

**REFERENCES**


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