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# Adoption and diffusion of organizational innovation, the winning mantra for growth: A case of manufacturing SMEs in Pakistan

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**Abstract:** This multiple case study qualitative research examined the impact of adoption and diffusion of innovation on Small and Medium Enterprises (SME's) growth in the hostile business landscape of Khyber-Pakhtunkhwa, Pakistan. This research is intended to investigate research data and consequent findings based on an interview protocol that was purposefully developed from extant literature, complemented by an initial pilot study of two pharmaceutical SMEs. The researcher conducted 20 interviews, guided by the semi-structured interview protocol offered to the respondents beforehand after sorting their informed consent. The 20 participants represented the different hierarchal levels of the 08 case study of pharmaceutical from the two industrial clusters of Khyber Pakhtunkhwa, Pakistan, located at the Hayatabad Industrial Estate, Peshawar, and the Rashkai Industrial Estate, Nowshera. The analysis of the data presented findings and corroborated the research propositions that those SMEs that are structurally entrepreneurial and adopt innovation amenably, are open to mobility and tourism, yield satisfactory results in terms of their growth as compared to those that are inertial and unentrepreneurial. Similarly, the results offer confirmation that the effectiveness of government agencies that are explicitly formed to address the problems of small businesses is insufficient. They rather create hindrances than assistance due to the excessive delays in approving innovative ideas and conceptions by these related organizations and ministries. Moreover, the proposed framework offers pragmatic recommendations to contextualize entrepreneurial culture and innovative structures in SMEs and their essential factors in critical environmental circumstances.

**Keywords:** business environment; pharmaceutical SMEs; entrepreneurship; industrial clusters; Khyber-Pakhtunkhwa

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## 1. Introduction

The significance of small and medium enterprises (SMEs) in the emerging economies is acknowledged for a long now (Kayanula and Quartey, 2000). SMEs help these emerging economies of the global south to meet their employability and economic growth. It is for the reason that they provide sources of job and social cohesion that these SMEs are being termed as the backbone of these economies (Wee and Chua, 2013). Besides the unparalleled significance, these firms have failed to

reach past a micro-enterprise level, occasionally succeeding to small or medium size at best (Kaya Nula and Quartey, 2000). These SMEs face a range of restrictions owed to the struggle of engrossing large, fixed costs, lack of economies of scale, scope in crucial factors of production, high cost per unit, and meagre cash flow (Rothwell, 1991; Parker et al., 1995; Rammer and Schmiele, 2008). SMEs are discredited for gaining finances, for their meager credit worth, and consequently, do not persist in crisis leading to an ultimate fiasco (De Maeseneire and Claeys, 2012). Bringing Innovation into act can sometimes play a pivotal role in building up the SMEs in need. The creation of new ideas is not often the Innovation, rather it's the acceptance of an idea to help modify the operations of the firms. As it leads to entrepreneurship, Innovation has been acknowledged as an imperative instrument for nation's economic uplift (Schumpeter, 1911). *Innovation is something similar to a spiritual force, culture, or environment which leads organizations to value creation* (Buckler, 1997).

Because of the varying characteristics of SMEs from case to case, there is yet to be a definition which is agreed upon (Lopez and Aybar, 2000). The use of sales, and, profitability, employment, measures make the SME definition unreliable (Kayanula and Quartey, 2000). The European Union calls a firm SME when if it has less than 250 employees and has a capital of fewer than 250 million euros (De Maeseneire and Claeys, 2012). Osei et al. (1993) definition is the most agreed upon. He used the number of employees to categorize an enterprise. He termed an enterprise with less than 5 to 29 employees as something micro-enterprise, the enterprise will be small and from 30 to 99, it will be medium. As per the prudential regulation document of the state bank of Pakistan for financing Small and Medium Enterprise, any business entity with up to 20 employees and a sales turnover of around 75 million PKR is a small Enterprise (The employees may be contractual or regular). Those manufacturing business entities that have 21 to 250 employees and services entities with employees bracket from 21 to 50 and up to 75–400 million PKRs. (Sme Sbp, 2011). Rendering to the statistics of Federal Board, approximately 3.2 million business establishments in Pakistan. SMEs contribute 25% in exports, 35% in manufacturing as well 30% to GDP.

For the overarching poverty of 34.7% in rural areas compared to the urban areas where the poverty graph is 20.9%, rural areas offer themselves more investment and job creation (Poverty, 2007). Since the emphasis was laid on large-scale organizations only, a GDP growth rate of 6+ in the 60s even did not alleviate the poverty then. Nevertheless the SME policy documented for the initial five years of the millennium weighed in the importance and complementarity of SMEs for economic prosperity and growth. The intention of the Pakistan government behind the SMEs policies was the promotion of small industries however it faced issues such as hardware than software focus, addressing issues relevant to manufacturing rather than services, lack of smooth policies to engage stakeholders to play their roles respectively, and lack of concrete efforts to enhance complementary skills.

During the 80s and 90s, some creativities like youth investment and yellow cabs were engaged to follow the 60s and 70s employment promotion policy. However, the downside of these policies was their focus on the individuals rather than enterprise. Furthermore, SMEs do not get loans easily from banks due to their lower loan portfolios.

The government of Pakistan established Small and Medium Enterprise Development Authority (SMEDA), an organization aimed at the development of SMEs however, it does not offer a vibrant substitution for a coherent SME policy to ensure aggressive development of SMEs. Due to the power overlapping of many, federal and provincial ministries, the SMEDA role is somewhat curtailed and it lacks power and control over SMEs. The deficient financial and human resources hinder an overall coverage of outreach programs by SMEDA. Similarly, an SME bank is another initiative, the sole purpose of which is to provide small call finances to SMEs.

Due to the SMEs financial crisis, its output and contribution to the GDP are limited to 5% whereas its contribution to help out unemployment is a mere 25%; a number which certainly falls behind the desired. Faisal Abad, Sialkot, and Gujranwala in the province of Punjab, Hyderabad, and Karachi in Sindh, some areas of Kashmir offer employment markets to laborers as these are hubs of SMEs. However, the SME industry does not function properly due to dire financial constraints.

### **1.1. Problem statement**

This study reflects the role that the adoption and diffusion of innovation may play in the growth of SMEs. The study is carried out in the pharmaceutical SMEs of Khyber Pakhtunkhwa, Pakistan. The rationale behind choosing the pharmaceutical sector is that it is a research and science-oriented sector. Also, these enterprises inherently follow scientific research. Since the case study SMEs of Pharmaceuticals by nature are knowledge-oriented hence, it presumably associates with the diffusion of innovation. There are also researches on the adoption and spread of innovation such as (Hinson, 2007; Klaas et al., 2010) according to which some models are prompted to the adoption and diffusion of innovative methods (Wade, 2009). Hypothetically, the questions stay as it that; what conditions are essential to diffuse innovation among business enterprises? Does Innovation diffusion warrant SME growth and success? Another important facet to this study is that it intends qualitative research to as only a few types of research followed qualitative designs (O'Dwyer et al., 2009) while the majority of the studies are on quantitative designs (Nordman and Tolstoy, 2011; Salavou et al., 2004; Subramanyah et al., 2010; Udry and Goldstein, 1999) in conducting the phenomenon studies. The structures of SMEs tend to be practically flexible and simple, hence it seems to be a doable job for the researcher of this study to use qualitative case studies and dig deep into the real-life contexts. Therefore, this study to research the role of innovation in the SME of Khyber Pakhtunkhwa used a multiple case study approach.

### **1.2. Research question**

This research aims at finding an answer to the research questions as to: How does the adoption and diffusion of innovation impact the growth of Small and Medium Enterprises in Khyber-Pakhtunkhwa, Pakistan?

## **2. Literature review**

The recognition of significance of SMEs in economic development inspired the Pakistan Government to affirm SMEs as one of four vital pillars for the reinforcement

of economy in during 1999–2000. Beginning of the millennium, Pakistan reached to macroeconomic solidity up to some extent and the emphasis was then to prompt the progression of economy with the purpose of poverty reduction, jobs creation, and encouraging rural development. Some rigorously developed financial policies assisted the government for a fiscal space to exercises on equal geographic distribution of the policy to accomplish the targets. Similarly, according to the poverty lessening strategy and Medium Term Development Framework documents the SME has been recognized by Pakistan government as one of the essential instrument for economic growth and evolving private sector (Poverty, 2007). While the government formulated strategies for the growth of private sector but there is a robust need for the government to concentrate on the SME policy whereas the sustainable private sector development is targeted. Approving an SME centered policy will not just help in enhanced growth rates but will also guarantee to getting rid of the unequal wealth accumulation and revenue generation.

As of Pakistani perspective, the SME is usually an enterprise involved in business actions, whatsoever legal form it takes. The SMEs are variably labeled from one province to another, even. In Punjab province, any business which has a stable asset worth of at least 20 million Rupees, exclusive of its infrastructure cost. But, in Sindh business entities having amount of fixed asset for around 10 million PKR are termed SMEs. Pakistani villages mostly remain self-reliant on the basic provisions and own their expert practical workforces for their activates, several families rest on the cottage business for generating money, the industry is reflected to be one big provider to the whole GDP of the country. Since the small business bear severe fiscal restrictions, they consequently do not yield the anticipated output, hence can only fund about 5% to GDP in its entirety. The Pakistani SMEs put up about 25% of the workers; there is a need for the enhancement of the SME segment to counter the unemployment condition. The parts of Punjab like Faisal Abad, Sialkot, Gujranwala, and of Sindh such as Karachi and Hyderabad are centers of SMEs. Several regions of Kashmir are also famous where small and medium size enterprises are operated. Due to some grave financial restraints, the SME sector in Pakistan appears not to perform properly.

Sometimes the revenue produced by these businesses have no more worth than to endure the operational expenses and resultantly no additional money is left to grow the business further. In line with its failure to create economies of scale, goods produced by SMEs are by no means equal to the quality products of large- scale manufacturers. Owing the lack of quality control, and there no coordination among SMEs, their products typically cannot match the export criteria, and there is alteration in prices due to the lack in shared coordination. The lack of technical knowledge of the owner, the processes are carried out over the obsolete methods and technologies in the firms. Sometimes the wholesalers purchase the products from the producers at the cost price and leave them with meager profits causing discouragement for the producers that results in drop down the quality. The crisis of energy in rural and sub-urban areas dampen the setting up of small enterprises. Moreover, the extraordinary electricity prices and the repeated fluctuations also augment to the difficulties of small enterprises. The free trade and dumping policies mark it further tough for the small enterprises to nurture as they cannot compete with their globally established export quality opponents. The SMEs appears to face problems to channel their goods as there

bearing the lack of suitable communication channels and the fragile networking of these SMEs. Ensuing networks and appropriate communication channel will assist them for attainment of sufficient competitive advantage. Aiming to mitigate the trade deficit that Pakistan's state is challenged with currently, SMEs need to yield great quality products which can substitute imported products. SMEs ought to be aided by the government organizations in this respect as to partake in global trade expos; because these SMEs in Pakistan are not only economic actors and add to GDP, rather they are also there to maintain the cultural identity as well.

### **2.1. The growth of SMEs: Paths to walk**

SMEs follow various tracks to reach an optimum level of growth. Sometimes unorthodox policies like new business ventures and going into export business may add up more value than being efficient and penetrating through the existing market. For the aggregate development of any economy, new SMEs are as important as long-lived SMEs for the growth of countries. Economic dynamism, business cycle, competition level are external factors whereas types of activities, planning for growth, and SMEs' capability are the internal factors that play a significant role in SME's growth. SMEs also follow the cooperation model wherein they set up relations with and link up vertically with the external world; more specifically with academic institutions and R&D organizations. They also look around to other SMEs to partner laterally and grow accordingly (Yao, 2008). Since the newly launched SMEs are more conscious about their growth and follow comprehensive growth policies, their growth is faster than the established ones as the latter already reach the decline stage in their cycle. It is the very determination of firms that leads the ladder to growth (Wakkee et al., 2015).

### **2.2. SME's entrepreneurial orientation**

Entrepreneurship is generally believed to have close nexus to innovation, growth, and flexibility; the founding pillars of entrepreneurship (Drucker, 1985). As a matter of fact of the rapid globalization of business entities, SMEs need to internationalize for which the entrepreneurial behavior is of utmost importance.

Those SMEs which are entrepreneurial by nature have a more competitive advantage and are fit for sustainable performance. For firms to be entrepreneurial, they need to proactively innovate and must not shy from taking risks while seeking opportunities (Miller, 1983). Firms can exploit the new marketplace by initiating new processes and adopting new technology while leaving behind the old ones. Entrepreneurial SMEs take the risk by pouring more financial resources into unknown markets; some of the bigger chunks of this money are borrowed.

Additionally, SMEs from developing economies gain their internationalization goals by involving themselves in export business; being proactive rather than reactive. This is how they can get a competitive advantage over the competing SMEs and make huge profits as the first mover. Domestic SMEs can overcome the scarcity of experience and resources by learning innovations and translating them into the production of new export quality products and services (Ogutu et al., 2023; Taylor, 2013).

### **2.3. SMEs innovation through government intermediaries**

Contrary to the fact that SMEs of developed countries have mastered the art of innovations, the SMEs of the developing world has yet to overcome the obstacles and make a way through innovation. These SMEs are unable to explore the application and utilization of open innovation in developing economies.

There is a likelihood for economies to reach economic prosperity by following national innovation initiatives. Although the importance of these initiatives is inevitable, the small economies find it difficult to incorporate the innovation hubs. In such a situation, it is desirable for government agencies, research teams, and experienced investors to carry joint efforts and enable SMEs for innovative production. Through a roadmap of comprehensive programs, innovation-friendly policies, and protective regulations; government can promote innovations. Reciprocally, due to the substantiation of economic growth, SMEs can spur innovation in any country (Yao, 2020).

### **2.4. Theories of organizational innovations**

Schumpeter (1950) viewed technological and organizational innovations are interlinked and that changes in the organizations promote new products and processes, while new markets are discovered. Broadly speaking, organizational innovation literature can be categorized into three streams and categories.

#### **2.4.1. Organizational design theories**

As the title suggests, these theories advocate the association of structure and innovation. These theories primarily lend themselves to structural attributes of organizations and focus to see how these structural factors influence the process and product innovations. The more the organic structure of an organization is, the more are the ways for innovations to diffuse through the structures of these organizations and vice versa. Furthermore, the innovation rate will also be higher (Burns and Stalker, 1961). Organic structures best suit small firms whereas mechanical structures fit with large-scale organizations (Hull and Hage, 2017). The organizational structures modify in accordance to their transactions that happen around within the environment and for the same purpose, they tend to coordinate their activities (Lawrence and Lorsch, 1969). The management of these organization through a thorough reengineering improve the processes (Liker, 2004).

#### **2.4.2. Organizational cognition and learning theories**

The advocates of these theories view the learning and knowledge creation of firms relevant to organizational innovation. The precise emphasis is in what way the knowledge creation learning courses can shape the activities of organizations in innovative manners. Utilizing the outline of Riessman (1993), Bartel (2011) calls for the prevailing unexpected and unusual capabilities of organizations to their knowledge and learning. Nevertheless, the learning and narrative development can either come through the experiential approach of stimulus-response mechanism or through scientific generalization which produces further learning. Glynn (1996) and Bartel and Garud (2009) through their research work denote the significance of novel knowledge creation and education process on the road to organizational innovation.

### **2.4.3. The organizational change and adaptation theories**

The focus of these theorists is on the compatibility of organizations with radical technological and environmental shifts. Therefore, this philosophy relates organizational innovation to their adaptability to the variations that occur in the bigger external environment that shape up these organizations. The dynamism and adaptability of firms help them utilize their internal and external resources and accordingly make the necessary changes (Burgelman, 1991, 2002; Teece, 2007). Although the small firms are unable to exploit or explore the opportunities consistently (Teece, 2012).

### **2.5. The pragmatism of the cultural theory for anchorage Innovations and Inventions**

Mast (2006) states that *“In a cultural context innovation is the well-suited utterance signifying a pairing of a signified and signifier which pervade through the social fabric and itself becomes a believable concept”*. According to Mast (2006) when the routine exercise of organizations is configured due to a disruption or change, innovation has occurred. However, innovations need proper interpretation as they cannot do not represent themselves. Ever since interpretation is part of a representational progression in a complex cultural outfit, related foundations are the ingredients of sense-making and sense-giving practices.

### **2.6. Research gap**

The proposed study on the adoption and diffusion of organizational Innovation in small and medium enterprises (SMEs) in Khyber Pakhtunkhwa, Pakistan, fills an important research gap in the existing literature. Although the importance of innovation sharing for SMEs is well known, the contribution of this phenomenon to SME growth in Khyber Pakhtunkhwa is unknown. The existing literature lacks a comprehensive understanding of the internal and external sources of innovation affecting local SMEs.

This study aims to expand this area by exploring specific sources of innovation and demonstrating its impact on organizational growth. In addition, the proposed research contributes to the literature by examining the technical, organizational, and environmental factors that facilitate or hinder the diffusion and adoption of innovations by SMEs in Khyber Pakhtunkhwa. Understanding these processes is important for designing effective policies and strategies to support innovation in SMEs.

In addition, this research examines the simple relationships between different types of SMEs and the innovative management programs that are most effective in each type of SME. This holistic approach recognizes the diversity of the SME sector and aims to provide meaningful insights to businesses based on their unique circumstances. In fact, by addressing this gap, this study aims to provide a better and more comprehensive understanding of the definition of innovation among SMEs in Khyber Pakhtunkhwa.

In summary, the proposed study not only addresses gaps in the literature on the diffusion of innovation in SMEs but also has practical implications. The findings of this study will provide information to SME managers in Pakistan, thereby providing

valuable insights for policy development and implementation. Ultimately, this study aims to enhance the entrepreneurship and innovation of small and medium enterprises in Khyber Pakhtunkhwa and contribute to the sustainable growth of this important sector of the Pakistani economy, by providing some empirical guidelines based on the findings of the study to the policy makers and practitioners.

### **Theoretical frameworks underpinning SME growth**

Small and Medium Enterprises (SMEs) play a pivotal role in the economic landscape of any country, contributing significantly to employment, innovation, and economic growth. For SMEs in the manufacturing pharmaceutical sector in Pakistan, routing the complex terrain of innovation diffusion is crucial for sustained growth. This current research aims to integrate relevant theories and concepts to provide a robust theoretical foundation for understanding the sources of innovation in SMEs, the conditions for innovation diffusion, and their impact on SME growth in the context of Pakistani pharmaceutical manufacturing SMEs.

To grasp the effect of innovation on SME growth, it is necessary to deliberate theories linked to organizational learning and dynamic capabilities. The Organizational Learning Theory underlines the implication of an organization's capability to attain, share, and use knowledge for constant enhancement. This is replicated in the way pharmaceutical SMEs in Pakistan devote to employee training plans and inspire a culture of learning. Moreover, the Dynamic Capabilities Framework emphasizes that businesses with the capability to adapt and reconfigure resources in response to changing environments are more possible to accomplish sustained competitive advantage.

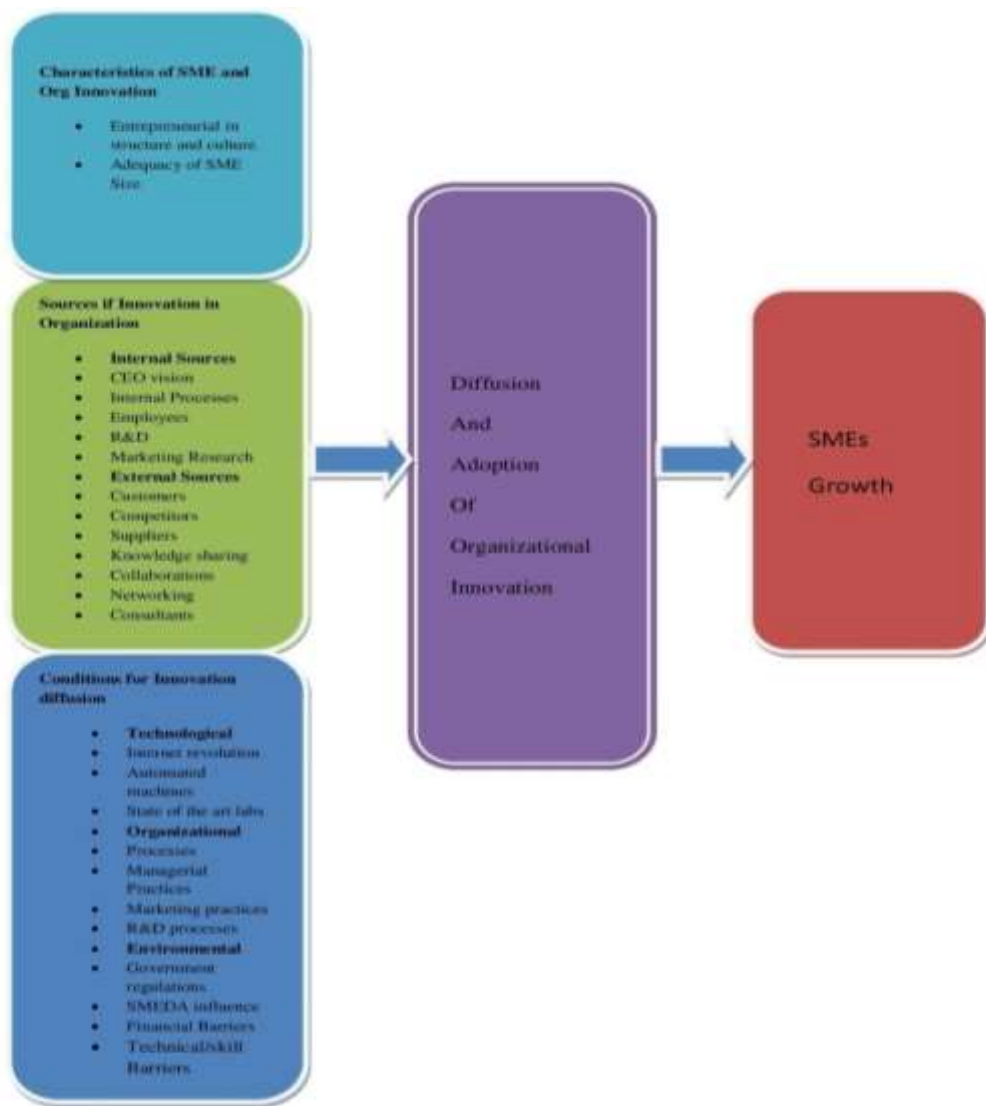
Innovation diffusion within SMEs is influenced by numerous external and internal factors. Rogers' Diffusion of Innovations theory is mainly appropriate in understanding the process of how new technologies or idea spread within organizations. In the context of Pakistani pharmaceutical SMEs, the theory highlights the importance of communication systems, social channels, and the perceived features of innovations in influencing their adoption. The close-knit nature of the pharmaceutical industry in Pakistan, with frequent interactions between firms and regulatory bodies, creates an environment that needs investigation for diffusion of innovation.

In the realm of SMEs, innovation is frequently determined by a combination of external and internal factors. The absorptive capacity theory postulates that firms are more possibly innovative when they can successfully adjust and exploit external knowledge. As per pharmaceutical SMEs in Pakistan, this is shown in the collaborative research initiatives with academic institutions and partnerships with pharmaceutical companies in the clusters. Additionally, the resource-based view suggests that the internal capabilities and resources of SMEs, such as skilled human capital and research facilities, contribute significantly to innovation.

Beside the theoretical basis, the empirical evidence from research studies carried on the Pakistani pharmaceutical industry provide empirical support for the utilization of the theoretical frameworks in the current research. As evident, Ahmed et al. (2020) proved the positive correlation between collaborative research initiatives and innovation in pharmaceutical SMEs. Khan and Malik (2018) discovered the role of



organizational learning in improving the adaptive capacity of SMEs in Pakistan. These studies are associated with the existing conceptualization of theoretical frameworks, and contribute to the understanding of how innovation and its diffusion influence the growth path of manufacturing pharmaceutical SMEs in Pakistan.



**Figure 1.** Conceptual framework.

In conclusion, the integration of pertinent theories and conceptions connected to innovation diffusion, organizational learning, and dynamic capabilities provides a comprehensive theoretical foundation for the current research study on the SMEs in Pakistan. By intertwining together these theoretical frameworks, this research attempted to explore the intricate interplay between internal and external factors that shape the innovation ecosystems, the conditions influencing innovation diffusion, and the eventual impact on SME growth, as shown in **Figure 1**, the conceptual framework. This integrative approach not only reinforces the theoretical underpinnings but also lays the foundation for future research activities in this critical area.

The conceptual framework guided the researchers throughout the data collection phases (desk and field).

### **3. Methodology**

The section provides a specific elaboration of the methodological rigor, Case study SMEs, respondents, data collection method; offers a detailed note of the way interviews are transcribed and likewise how the data was coded. Furthermore, it also presents how data was analyzed to draw meaningful conclusions.

In light of the guidelines put forth by the objectives of this study, a multiple case study approach is adopted for examining the theoretical replication across the case SMEs and literal replication in the sector; the pharmaceutical sector (Yin, 2006). Since, a similar study in this field using the qualitative in Khyber-Pakhtunkhwa, Pakistan has not been conducted before, therefore being a context-based exploratory nature of study warrants this research approach (Yin, 2013).

#### **3.1. Methodological rigors**

The issues related to internal validity, external validity, construct validity, and reliability are addressed by taking numerous steps during the data collection and analysis phases.

The semi-structured interviews with diagonal slices were coupled with researcher observation. More thoroughly, the criteria to target the pharmaceutical firms were recognized as being cognizant of their scientific and knowledge-oriented nature. In addition to this, literature has been used as a guide besides situational realism to finalize the respondents for this study.

Due to the nature of the study, resource availability, complexity, and using literature as a guide, the non-probability sampling is justified. For data collection, eight pharmaceutical firms from the local cluster were chosen. The SMEDA website was used for selecting these case firms. However, some of these firms were contacted as referred by friends who work in the field of medicines. Some of these firms have official Facebook pages and websites.

For the aspects of trustworthiness and overcoming the lack of statistical generalizability, the researcher tried serving the same interview protocol with the same set of questions and same probe questions to different managers but in separate/isolated offices. This served the purpose of confirmability and trustworthiness of responses. Besides, the researcher used the non-participant observation method while making field notes about important activities of the case study SMEs. The exquisiteness of qualitative data collection through a semi-structured interview is that the researcher can triangulate the data by comparing and contrasting the responses of the participants from the within the same case study organization and Cross-case as well. This helped the researcher to add rigor and triangulated the responses, equally.

#### **3.2. Respondents**

During the data collection process, the target was to conduct three interviews with different managers working in different sections of these firms; a purposive sampling concept advocated by Miles and Huberman (1994). Though, in some pharmaceuticals, only two managers participated willingly. In doing so, in total 20 interviews were carried out. This number of interviews is sufficient as it qualifies the required number

as suggested by Creswell (2016), Yin (2013). The interviews were guided by an interview protocol carefully developed by adding descriptive themes reviewed in the literature. The main themes and sub-themes included in the interview protocol were, characteristics, nature, and culture of case study SMEs, sources of innovation in organizations, technological, organizational, and environmental conditions.

Throughout the data collection phase, the interview protocol and consent letter were provided to the potential respondent's forehand either in person or through email. A time slot was then scheduled with the respondents. Once a respondent ensured his availability, the researcher made sure to be on time and spend the time only allocated for this research interview. Once, the informant was ready for the interview, he was informed that these interviews will be recorded only for transcription later on. Although, the researcher left it to the respondents as to which language they prefer but most of these participants of this research recorded their interviews in English and some parts of the questions were discussed in Pashto or Urdu; an exercise they did when they either needed more elucidations or local examples. Besides the recording, the researcher jotted down the crux of each answer and once the interview session was completed, a summary was drawn for countercheck with the respondent. Importantly, any new theme that the respondents came up with during the interview was marked in bold and was discussed for conformity through probe questions further. These emerging themes were then added to the interview protocol and would be asked of the next respondents subsequently. Along with these interviews, the researcher made sure availing an opportunity to visit the production units, manufacturing processes, R&D office, and research laboratories. The important observations were noted down to compliment the interview responses; a vital method of triangulating the interview.

### **3.3. Sample and sampling strategy**

This study used non-probability sampling techniques to select eight pharmaceutical companies from regional clusters in Khyber Pakhtunkhwa Province, Pakistan. These two regions were chosen because they have similar institutional contexts, which made it easier to control the case selection. Although, the study sample was not large but it is due to the time, resources and non-availability of willing respondents to participate in the current research. Similarly, due to the nature of the study, the eight cases and the 20 respondents fulfilled the saturation logic as put forward by Yin (2009).

There are also some implications attached to the methodology adopted for the current study although the qualities of this methodology outweigh its implications. The biggest issue was reaching the pool of respondents. In the society wherein the current research is carried out, people therein do not spare time for research as interviewees for a number of reasons. The businesses fraternities feel the researchers coming for their projects consume their business time without giving any value to their businesses in return. The business community would excuse whenever approached randomly.

To fix this issue, the researcher used his relation and peers to make the necessary arrangement and schedule interviews. An ex-classmate running his own pharmaceutical SME helped immensely in this regard. Also, a relative who has worked

for over 20 years in the pharma sector used his links and arrange schedules in both Peshawar and Nowshera clusters. Thus, had it not been for their support, collecting data through semi-structured interviews would not have been possible. Although their support is appreciated, the data collection process as a whole was a sumptuous task and took more time than the originally anticipated 6–7 weeks.

The transcription of interviews for the purpose of in vivo coding was yet another implication as the interviews conducted were in different local languages. The reason for this was the fact that the researcher offered the flexibility of the language to respondents for aiming for more articulate and lucid responses than to burden them with the language barrier. The onus was to be borne by the researcher during transcription to interpret the Pashto and Urdu interviews into English, although some respondents recorded their interviews entirely in English. For verbatim transcription, the researcher felt it awfully hard to play and pause the interviews conducted in local languages. The effort was made to make sure there is no theme missed.

Furthermore, the condensation of the data in an organized manner for formal data analysis. Due to the absence of any hard and fast rules for data analysis in qualitative research. The work of Miles and Huberman (1994) set the guideline and the respondent's feedback was used. The researcher observation, official Facebook, or Websites are other sources used for data analysis. The tabular method was used. The font size of any important theme was changed to bold and that of the emergent theme into italic. This method has not been used in research concerning innovation in the local pharmaceutical sector before. Hence, this is also a methodological contribution.

### **3.4. Case selection and its rationale**

Yin (2009) opined preference of a multiple-case above a single case design whenever possible, and taking at least two cases by a researcher requiring to conduct case study research. Consequently, this study implemented an eight-case design, of which five were taken from Peshawar and three from the Risalpur and Nowshera clusters of Khyberpakhtunkhwa, Pakistan. Building on the Yin opinion, the case selection is based on the theoretical and literal replication logic, where the aim is to see similarities within the same case and dissimilarities in responses concerning the factors for adoption and diffusion of innovation through different cases. The multiple-case study necessitates rather more organization to the research design in relations to tools be used for data collection (Yin, 2009). The rationale is that similar measures have to be followed for the purposes of exploration in all the cases or else there will be slight opportunity for evaluation of multiple cases.

The sampling method was appropriate based on the nature of the study, availability of resources, and specific criteria related to the scientific and educational nature of the pharmaceutical companies. The researchers choose the pharmaceutical SMEs because of the reason that this sector use knowledge, innovation and scientific research for making products which could cater the needs of the current challenges posed to them. Beside this, the size of these SMEs is adequate, and the research objectives could best be served by such enterprises unlike some microenterprises which do not afford R&D expenditures and incorporate innovations into their products and processes.

The SMEs selected for this study qualified the purposive sampling logic because of their adequate size in terms of the number of employees, manufacturing capacity and historic entrepreneurial backgrounds. Since, this is a qualitative multiple case study research, the rationale behind the selection of the pharmaceuticals in the two regional clusters of Khyber-Pakhtunkhwa could explore the context of the region which has unique socio-political and geographic location, for its proximity with Afghanistan, a country which has been under war for over 40 years now. This offers some unique business challenges to the SMEs operating their business in such peculiar environment of the north western Pakistan.

### **3.5. Data collection instruments**

This study uses semi-structured interviews targeting diagonal slice, and it is coupled with non-participant observation to capture the researchers' perspectives. All participants were sufficiently informed about the purpose and process of the research and their informed consent were acquired before participation. Respondents were requested to participate in the research through an initial meeting inviting interviews, emails and phone calls. The duration for the interview to be arranged with each respondent was around 60 minutes and before the interview, the participants were provided with an explicit letter outlining the purpose of the research. The interview protocol was carefully developed based on the literature and themes related to the research topics.

The interview protocol included main categories such as historic evolution of SMEs to current status, structural and cultural entrepreneurial nature of case SMEs, sources of idea generation, knowledge and training level of employees and their innovation related expertise, ideas from competitors, environmental conditions, marketing research mechanism, financial constraints, what support do these SMEs get from organizations like SMEDA (if any), what role does collaboration and networking play for adoption and diffusion of innovation in the case study SMEs. These broad categories of themes were covered in questions and probe questions, so that most of the relevant information can be extracted from the respondents.

In addition to the semi-structured interviews with the respondents, the researcher tried to use the nonparticipant observation to identify any meaningful and relevant theme which the participating respondents potentially miss out to mention. The researcher used to add such inquiries through probe questions and generate in-depth responses, resulting in enriching datasets. For example, in some case studies of SMEs, it was observed that there was a lack of state-of-the art manufacturing units and advanced computer systems; even then, the respondents claimed that their organization was structurally innovative and culturally entrepreneurial.

### **3.6. Data coding: Developing categories and themes**

In a qualitative research, coding obliges a dynamic stage of data analysis. During this stage ideas and/or repeated, patterns are recognized across the large quantity of raw data, that is then interweaved with the literature and other data to assist the stage of transition between the raw data and the conceptual analysis proceeding which further conclusions are carried. Generally, the data analysis is decided by research

objectives drawn by the researcher, known as the deductive approach. Additionally, the repeated readings and clarifications rise from the unrefined data directly is known as the inductive approach (Thomas, 2003).

As stated, this is a multiple case study research; thus semi-structured interviews were conducted as the chief data collection instrument specifically aiming formation of a minimal structure across the different cases while at the same time for providing a margin for new themes and ideas to appear from the raw data collected in the field. Henceforth, it provides structure and flexibility to the data collection and analysis of this study. There are two categories of themes involved in this study, the descriptive themes which the researcher identified from the review of the relevant literature and the interview guide was formed from those themes and the emergent or grounded themes, which were identified from the thorough and iterative reading and rereading of the data and looking for recurring ideas and patterns (Thomas, 2003). It should however be noted that the descriptive themes from the literature review were in a broader subject or topic and the content of it as codes came only after the iterative study of the raw data similar to the case of the emergent themes. The process began, after the data is gathered and transcribed into a common design and format, by closely reading the raw data. Following this, specific codes were identified during multiple readings of the raw data. This is known as in-vivo coding where the real words and expressions of the respondents are used to form coding categories (Glaser, 1978). This is also known as lower-level categorization of codes, which are in turn further categorized into more summarized codes called the upper level categories or themes (Thomas, 2003).

### **3.7. Data analysis methods**

Data analysis in qualitative research offers for some creativity from the researchers and then categorizing the same in certain meaningful sequence (Arnaout, 2015). To start with all the interviews were transcribed. The transcription was done according to how the interviews were recorded and the order of the questions and answers were transcribed as they were in the individual interviews. No rearrangement was done in this regard. Then each of the interviews were written for the individual cases using tables called the tabular summary technique by Creswell (2009) and word tables by Yin (2008) whereas Eiesinhardt and Graebner (2007) call it a construct table, while all the time allowing the flexibility for uniqueness as it emerges (Miles and Huberman, 1994).

The tables were ordered according to the themes which emerged during data collection, then during transcription and then during data analysis. This was an iterative process, going back and forth from the transcriptions to the tables to the notes taken during data collection, all the time keeping it open and allowing for the possibility of new themes to emerge during this process. The themes, both the descriptive and the emerging themes were distinctively presented in the tables by making the fonts bold and italic. As it is very important that data is displayed and presented properly, and carefully, it is a main avenue towards qualitative data analysis (Miles and Huberman, 1994). Also, during this time, if any new themes emerged in the progressive transcripts, the previously processed interview transcripts would be

reviewed in light of the new themes to see if they existed or not. This was done for interviews individually as well as for the cases as a whole. The next step was to do the actual coding. Indeed, this is a very important stage for any research. This was done by identifying repeated ideas and themes by closely reading and rereading the interview transcripts. In vivo, descriptive, and grounded coding techniques were employed to identify different themes, code them and then categorize them by bringing together similar themes and putting them into similar categories. After this, following the procedure advocated by Miles and Huberman (1994), the researcher created a master chart; where descriptive data from all the cases are brought together and put in one place in standard format, based on the themes that emerged during the previous process. This allows for all the data to be brought together in one place, giving it a broad overview, and providing a very initial basis for comparison of the data both within and across cases. It should be noted here that at this stage the partially ordered meta-matrix carries all the information from all the cases in one place. It provides a huge amount of un-summarized information making it virtually impossible to draw any meaningful cross-case conclusions. Therefore, all the descriptive data in the master chart had to be condensed to a form which would allow for drawing cross-thematic and cross-case conclusions. From there, the researcher started to conduct cross-case analysis, where the researcher partitioned and clustered similar data, putting these themes into tables. Hence slowly and gradually the huge descriptive data in the master chart is refined, summarized, and reduced through partitioning and clustering accompanied with text clarification. Following this, the researchers employed the mixed strategy approach advocated by Miles and Huberman (1994) which employs both variable-oriented and case-oriented strategies. Furthermore, researcher symbolized the data in the tables for easy comparison but used the relative quotes from the respondents during the explanation building. After which the researcher compared the individual constructs with each other in non-summarized form as well as summarized form and began drawing conclusions.

#### **4. Discussion and conclusion**

This section is dedicated to the main finding of the research to see whether it met the main question of whether the diffusion of innovation in the SMEs of Khyber-Pakhtunkhwa plays any role in its growth and performance. The first part is dedicated to the validation of research propositions and the themes. The next section is meant for theory implications and policy and methodological implications.

##### **4.1. Conclusions about research propositions and themes**

In this section, the researcher discussed the findings substantiating the research propositions.

###### **4.1.1. The nature of organization and type/s of innovation related to the adoption of innovation and growth of SMEs in Khyber-Pakhtunkhwa, Pakistan**

The participating SMEs of Khyber-Pakhtunkhwa consider the structure and nature of the organization as imperative for producing specific innovations. Innovation diffusion and adoption are favored in those SMEs which are entrepreneurial both in nature and structure. It is also important to note that the sector where the firms belong,

also has a strong bearing on the nature of firms to be either entrepreneurial or not. For its knowledge basis and research orientation, the pharmaceutical sector offered brighter chances for these firms to be entrepreneurial. These firms rent themselves to risk-taking and embedding new technologies and processes to their processes.

There is a good number of cases in this research study that are flexible to adapt to the needs of the industry although not all cases. The magnitude of their change varies from firm to firm and from department to department in the same firms even.

An observation of the current research is consistent with the work of Griffin (1997) who opined that for various contexts and situations various processes result innovations of a more robust nature. However, those firms which follow stricter hierarchies and are centralized tend to be more resistant to innovation and vice versa. Hence, the structure of the organization is a double-edged sword, a more implicit feature of some of the case study firms. This emerged as a theme from the response of Hizat pharma. The structure of firms can be a barrier to the adoption of innovation sometimes.

Therefore, it is observed by the researchers and gathered through the participants that those firms can grow promptly and openly accept the diffusion of innovation. Contrarily, the unentrepreneurial and rigid structures of SMEs fail them in the adoption and diffusion of innovation processes.

#### **4.1.2. The role of technological organizational and environmental conditions for the diffusion of innovation in SMEs of Khyber-Pakhtunkhwa, Pakistan**

The researcher further focused on the influence that the technological, environmental, and organizational factors on the diffusion of innovation in the case study SMEs.

Most of these conditions were identified by the researcher during the data collection on the field. Technology predominantly revolutionized the case study SMEs to adopt innovation.

For instance, a case study firm pointed out that the recent technological advancements primarily stimulated organizational innovation. The other participating SMEs also related technology to their innovative processes and production. The technologically developed state-of-the-art laboratories of these case study firms ensure innovative production.

The value additions to the processes of these firms that they bring in through the technology and they collaborate within or outside the population clusters for the said purpose. It is found out from the aggregate responses of the participants that technical staff makes the biggest pie as drivers of innovation through which these case study SMEs benefited as their internal innovation drivers. This attribute is cognizant of the fact that Romer (1990) mentioned in his work where he substantiated that firms reach their desired growth levels by persistently gaining new knowledge and technology.

Likewise, organizational conditions play an essential role in the adoption and diffusion of innovation. These comprised of the employees, the organization culture, the structure, and the internal research and development activities. Besides these, the vision of the CEO of the case study firms played a pivotal role in adopting and spreading innovation across all the wings of their firms.



For the case study SMEs where the internal conditions and factors were welcoming to innovation, the SMEs remained energized and absorbing whereas in some cases, the negativity on the part of internal conditions detrimentally affect the growth of the SMEs.

As compared to the R&D, which is not as well advanced, the employees play a much more integral role in making the processes of SMEs entrepreneurial and innovative. As per a common belief among the employees, with a larger number of employees with creative ideas and technical knowledge, the firms can be more innovative. This is the reason why some of the participating firms weigh in the presence of quality rather than a huge quantity of employees.

Organizational culture and structure are the other internal characteristics and conditions that are important to the adoption and diffusion of innovation in these SMEs. SMEs offer flexibility in their structures as compared to the big corporations.

The survival of SMEs depends on whether their culture and structures are entrepreneurial. The participating SMEs of the current research are mostly entrepreneurial in culture and structure. They are willing to take risks in a calculated manner and this adds innovation to their processes.

The culture of any firm is a set of norms and values that represent the processes and objectives that revolve around their employees (Khazanchi, 2007). The case study SMEs unanimously agree (except one SME) that their structure is one big internal factor to diffuse and adopt innovation.

As a grounded theme, the vision of the CEO is an important internal condition that promotes innovation in the case study of SMEs. A more visionary CEO lay more impetuous to the factors such as innovative human resources, collaboration, and networking with academia and business fraternity. These have yielded positively to the growth of these case study SMEs.

Together with the aforesaid organizational conditions, there are environmental situations that were also found as noteworthy for the diffusion and adoption of innovation in the case study firms. These include the prevailing trends in the market, the customers, suppliers, competitors along with networking and collaborations. The role of government agencies is another environmental condition of importance. These conditions have been observed to have affected the case study SMEs either way.

The case firms reported a trigger in innovation adoption predominantly when the market trends favored innovations. It is for this reason that a tilt in responses of case SMEs towards the marketing intelligence, market and market trends has been observed as their stimuli for creative ideas and innovative product generation; an input to make these SMEs more innovative. This external environmental factor is termed by Yong and Ho (2006) as a paradigm from imitation to innovation in firms.

Among the external factors found important, the customer plays a central role in the innovation process. In strict contrast to the work of Edvardson et al. (2010), Easingwood (1986), the current research found strong evidence that customers help in innovative ideas generation. A good part of six SMEs out of the eight researched in this study, the idea generation for service or product came from either the direct or indirect feedback of customers.

The well-informed SMEs play their part in the innovation process by giving their feedback. This mostly routes through the franchises, doctors, distributors, or indirectly

or direct interaction on their official websites, social media pages, or WhatsApp numbers. Their role cannot be denied as they force the management to improvise and innovate the products as per their demands and suggestions.

Among the eight SMEs, only two agreed to the positive role of competitors in SMEs whereas in the other case SMEs disagreed and that was the reason that this was discarded as a strong external environmental condition to force innovation among the case SMEs.

The supplier role is found to be an amicable one both from the extant literature as well as from the field data from the case study SMEs. The role of the supplier is marked as an emergent theme as the innovation process cannot be completed without the timely supply of quality raw material. Seven out of eight SMEs strongly agreed with the importance of suppliers. Due to a long-term relationship between SMEs and the suppliers, the role of suppliers takes strategic importance.

Further, networking and collaboration for knowledge sharing among these SMEs is an important factor for bringing innovations; mostly through gaining technical knowledge. These collaborations are either horizontal where the case study SMEs collaborated with other SMEs who were market leaders in the field or with varsities. This finding is consistent with the extant literature and substantiated the descriptive themes.

Government agencies can be identified to have a compelling role in bringing the economy of any country on the right track. These agencies can support investment by making the environment more investment-friendly (De Propriis, 2002) and subsequently make them more innovative. However, the findings of the current study are nearer to that of Hadjimanolis (1999) which considered an overt regulation by any government is as big a barrier to the diffusion of innovation as is the skill barriers and/or financial ones.

Theoretically, the government role is positive from the prism of literature as the government looks after the financial sides by lessening the tax burden, practically, however, the current study found that these SMEs are dissatisfied with the government role by all means. To the practical understanding of the respondents, government plays the role of a watchdog than a facilitator. Even the role of the Small and Medium Enterprises Development Authority (SMEDA) is not anyway positive in the case study firms; not even in capacity building or concepts development. The respondents claimed that these authorities visit their firms once in a while but even then, the visit is counterproductive as the officials come there to get some personal benefit; some kind of bribes.

Another astounding finding of the current study is the tightened bureaucracy which hinders the approval of innovation processes by undue delays when these SMEs apply for permission and license to develop new molecules. This has brought the local SMEs at stake and has been a profound reason for the lack of flourishing the local small business entities.

#### **4.1.3. The adoption of innovation and growth of SMEs in Khyber-Pakhtunkhwa, Pakistan has a positive relationship with the availability of internal and external sources of innovation**

The internal and external sources of innovation affect the adoption of innovation and this tips to the growth of the case study SMEs. During the review of literature, some factors were identified that as drove the diffusion of the innovation process. These were added as broad themes in the interview protocol by the researcher and were presented to the respondents to see the impact of these factors on the diffusion and adoption of the innovation process in the SMEs of the current study. Although the role of factors like government intermediaries and competitors were not a far-reaching one, the rest of the factors included in the broad descriptive technological, organizational and environmental themes all play a positive role in the growth of SMEs through the adoption of innovation. However, the important question that the researcher wanted to investigate is to see what prompts SMEs to be innovative and whether or not these innovations play any role in the growth of the case study SMEs.

Related to what Rormer (1990), Vollenhoven and Buys (2010), Le Bas and Scellato (2014), Peters (2009) suggested, the current study also established that the case study SMEs contemplate persistence in innovation to be a competitive advantage over competing SMEs over a long period. The respondents looked convinced that when the SMEs operate innovatively, they can earn a big chunk of the market part; ultimately ensuring growth. Their innovation-driven policies are more strategic in nature for the long survival goals not just for current market goals.

The researcher also found that the nature of sector and industry matters when innovation adoption and diffusion are studied. As the current research is conducted in the pharmaceutical sector, the very nature of which prompts innovation, else, the molecules and products will become obsolete; resulting in reduced sales. The participating managers and CEOs of the case study SMEs associated the export promotion with increased innovative and uniquely developed products. Hence, an increase in export makes the growth of these SMEs possible; recognition of what the researcher already reviewed in the literature.

#### **4.2. Implications for theory**

As a base theory, the Diffusion of Innovation theory of Rogers set up the yardsticks for the current study to the pharmaceutical industry of Khyber-Pakhtunkhwa, Pakistan. The theoretical aim was to test the diffusion of innovation theory in the local context, in the province of Khyber-Pakhtunkhwa, with all the various challenges and uniqueness. The study confirmed that the case study SMEs achieved growth in terms of the number of employees and infrastructure due to diffusion of innovation. These SMEs also expanded their market shares and maximized profits because of being entrepreneurial. The study is one of its kind as the diffusion of innovation theory pharmaceutical sector of Khyber-Pakhtunkhwa was not tested before. Also, the qualitative study of this kind rendering deep-rich data was not carried out in this sector earlier.

An enabling contribution of this study is the finding which refers to the lack of proficient national or Regional Innovation Systems of the western world in the

province of Khyber Pakhtunkhwa, Pakistan. On the contrary, the government agencies here are barriers by being bureaucratic. The government is devoid of giving any business-friendly policies nor does it give financial support so that these SMEs can produce innovative services and products. This study also contributed by pinpointing the contextual, cultural, structural, and environmental impediments that pose challenges for better business growth in the case study SMEs in particular and small businesses in general. This study explored the fact that a visionary CEO/owner can make their SMEs entrepreneurial, though all employees are equally responsible for making the processes entrepreneurial. The case study SMEs which are headed by visionary CEO has penetrated through the market by becoming more entrepreneurial against all the odds of environmental conditions. Without the visionary CEOs, these case study SMEs might not have overcome these impediments.

The researcher also tested Cultural Theory and observed that there is a positive impact of culture on diffusion and adoption of Innovation. A fact particularly articulated is that managerial practices make organizational culture more innovation-friendly and support the workforce to make innovation a central pillar of their organizational culture.

The firms can best serve their cause by outsourcing some of their projects in parts to credible consultants working in this field. This is an addition of dimensions to the existing patterns from the case study SME's perspective.

The current research also found that different innovation types are influenced by certain marketplaces called niches. This can guide organizations to focus on specific geographic regions that best suit specific products. This is an important addition to the theoretical body of knowledge.

According to the findings of the current research, the diffusion of innovation in organizations is a cyclic process. This cyclic loop starts from the market and involves R&D, the marketing force, production department and reaches the market for commercialization. The role of suppliers is marked as an important factor and can be a strategic partner for the long run and import raw material to these SMEs.

Interestingly, the local SMEs share knowledge sources with each other when it comes to technical knowledge, however, they refrain from sharing their knowledge when it comes to information about market share and sales. This is a finding of the current research and needs further investigation as to whether the sharing of this information will be good or bad for these SMEs and the SME sector.

The overall role of government is a question mark as reported by the respondents of this study, however, there are instances where small efforts on the part of the government to boost innovation in SMEs. One participating SME specifically substantiated this phenomenon; the Triple Helix Model involving government, industry, and academia. This triple-helix model renders a high degree of success for the growth of industry and society as a whole. This highlights the contribution of the government. From this, it is anticipated that a more all-out effort from the government can uplift the small businesses community to bloom further.

Another important contribution of the current research is the development of a wholesome operational definition of Organizational Innovation, a definition developed for the specific study in light of the extant literature. This definition will facilitate the research for similar contexts and of similar nature.

### **4.3. Implication for policy and practice of future trends**

The current research offered some practice and policy implications. The research marked the importance of government intermediaries and found that the government pulled Triple Helix Model (Etzkowitz and Zhou, 2007), as in one case study SMEs (Delta Pharmaceutical) can guarantee long-run strategic growth for SMEs. Therefore, the study recommends a more proactive role of government that can furnish growth to the SME sector. Also, the government needs to strengthen SMEDA further to function properly and support SMEs to carry out the innovative business venture. Support, these SMEs teeming up from concept to commercialization.

There is a need for the government to make the concerned ministries more innovative by introducing the Internet Technology prevalent to mitigate the time wastage by documentation while the SMEs take their ideas to ministries for approving their new products/molecules, this is a barrier to the diffusion of innovation. Therefore, the introduction of new technology will minimize the time taken for introducing the innovations. As a result, the ministry will process quickly and will lessen the grievances on the part of SMEs.

The practitioners and owners need to make their organization's culture more research-oriented so that organizational innovation is enhanced. For this purpose, they need to make sure the availability of research work of the technologically developed world research and innovation that they have introduced to similar SMEs for sure. By equipping the R&D with the updated global techniques, the practitioners can get an advantage over other competitors. It is for this fact that sometimes the SMEs need to hire people with advanced knowledge of technology; which will overcome the skill barrier too. By making the structure of SMEs open and decentralized, more innovative ideas will be nurtured and all personnel will have some sort of say rather than only top management.

### **4.4. Limitations of the study**

Due to the fact that no Qualitative Research prior to this has been carried out concerning the diffusion of Innovation in Pharmaceutical SMEs of Khyber Pakhtunkhwa, Pakistan. The research conducted either in the developed world or their research design is quantitative. Another unique feature is that this is a study focused entirely on Diffusion of Organizational Innovation and SME growth in the local context, though from a broader perspective. An instance of study is that of Hadjimanolis (1999) who carried out research limiting the barriers to innovation in SMEs and Saigosoom (2013) studied the opportunities and barriers to innovation in Taiwanese SMEs. The current study focused rather on more comprehensive ways of addressing environmental, technological, organizational, cultural, and contextual factors accounting for innovation adoption in SMEs, a test of diffusion of innovation theory in the local context. Nevertheless, this study has some limitations and demerits of small magnitude too.

Although this study has made an effort to unearth the phenomenon of diffusion of innovation explicitly, the study is cross-sectional rather than longitudinal. Hence this could not ensure an understanding and in-depth knowledge about the diffusion of innovation in the SMEs under study. It must be added here that this does not pose

serious implications over the findings of the study with respect to the main research question, that is, whether innovation adoption and diffusion have a role in SME's growth!

Another limitation is the nonexistence of statistical generalizability. Due to the qualitative nature of the study, the researcher aimed at analytical generalizability. The targeted limited audiences were interviewed in-depth to study the specific contexts, however, the statistical generalizability is lacking.

#### **4.5. Directions for future studies**

The research offers direction for future research for replication of the similar study in other regions and clusters of Pakistan so that the findings regarding the cultural and contextual factors for the diffusion of innovation in SMEs are further substantiated. A similar study can also be extended to other sectors and small businesses to post a comprehensive picture. The positivist research design can also be a future research direction for studying the diffusion of innovation and SMEs growth.

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