

Research article

## Open innovation in SME's of Southern Punjab Pakistan

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### Abstract

Researches indicate that adoption of open innovation strategies in the entrepreneurship offers a promising way to face the ever increasing challenges due to the increasing competition within the companies and customer demand. Mostly researcher focus studying on open innovation practices in large enterprises they neglects its implication in SMEs. This study has tried to find out the parameters of challenges that are being faced by the SMEs. This study is totally based on SMEs of SOUTHERN PUNJAB from different sectors like jewelers, boutique, and Beauty parlors. A questionnaire has been made and distributed to the selected business sectors. The result show that SMEs of southern Punjab implement the practices of open innovation and to obtain information use different external resources like customers, suppliers and distributors. SMEs face different constrains in open innovation implementation. This study has tried to find out status of open innovation and the parameters of different challenges regarding Human Resource, policies and competition that are being faced by the SMEs of Southern Punjab.

*Keywords:* Innovation, Open innovation, SMEs.

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### 1. Introduction

The concept of innovation was introduced by Schumpeter (Schumpeter, 1934). To describe open innovation he used following five types:

- New products,
- New methods of production,
- New sources of supply,
- The exploitation of new markets,
- New ways to organize business.

The paradigm of closed innovation was utilized during most of the 20th century, among most of the enterprises, especially the large and multinational organizations. That time closed innovation was considered as the base or fundamental of keeping enterprises developing. In paradigm of closed innovation Companies should generate their own ideas, and then in developing, building, marketing, distributing, servicing, finance them, by their own (Chesbrough, 2003). Every organization wants to create monopoly in technology and to insure the

monopolist status in the market enterprises they prefer to building laboratory with enough technology. (Chesbrough, 2004).

With the passage of time when it was realized that closed innovation can no longer meet the demands of innovation activities, that time with a paradigm shift open innovation appeared. The concept of open innovation was move forward by Chesbrough (2003). To create value in this kind of business model, open innovation utilized both internal and external ideas. It also assumed that to generate additional value internal ideas can be taken to market through channels outside the businesses (Chesbrough, 2003).

In the management of innovation, Open innovation is one of the most important innovation concepts. Open innovation practices and different research show that, with the constantly development of science and technology, open innovation can bring more return than our expectation (Chesbrough, 2006). Open innovation proves that sources from external market are as important as information sources within

organization. In emerging markets open innovation activities are widely concerned. Open innovation directly influences the competition of enterprises, and under the age of knowledge economy it contributes to the exploration of development. For enterprises open innovation it is an efficient way to coordinate internal and external resources. So the enterprises can get the access to break the bottleneck of technology development (Chen, et al., 2006).

But mostly researchers have focus on open innovation in large and multinational enterprises. Only few researchers have studied open innovation in SMEs. Different studies (Christensen, et al., 2005; Lichtenthaler, 2008; Vahter, et al., 2012) show that SMEs also have advantages and motivations to implement open innovation. For SMEs Market is one of the primary motivations and of open innovation can be proved better in SMEs than that in large enterprises. Since the policy of regulation and openness, the market in Pakistan has become more and more active. This is SOUTHERN PUNJAB based study interested in the motives and challenges for SMEs to implement open innovation activities. Because of the gaps in the scientific literatures about open innovation in SMEs in SOUTHERN PUNJAB, this study is willing to give the better accesses of open innovation in SOUTHERN PUNJAB and to find out different challenges in implementation of open innovation.

## 2. Purpose of the study

Basic purpose of this study is to know about the actual state of affairs of open innovation in SMEs of SOUTHERN PUNJAB and to know about the actual implementation of open innovation in SMEs of SOUTHERN PUNJAB. Acquire knowledge about different external sources from which SMEs can get information and which best practices SMEs can adopt in this competitive market. Identifying different constraints which SMEs face in implementation of open innovation Human resource problem (skills, recruitment, etc.) related to implementation of open innovation strategies and Constraints related to business policy issues, and issues related to competition impending open innovation.

## 3. SMEs in Pakistan

Today SMEs are widely regarded by experts and plays a vital role in the development of economy. In particular small-scale sector incorporating the informal firms is expected to solve numbers of problems, including unemployment, low growth and poverty. Today mostly countries designed policies for the promotion of this sector and their faith in SMEs is ever growing (Khawaja, 2006).

In terms of its contribution towards GDP, employment generation and export developments SME sector is the backbone of Pakistan's economy. In

Pakistan mostly firms are small with little potential for employments and little opportunities for growth. In Pakistan the firms with more workers as compare to firms with small number of employees are in minority. Moreover, most of the firms are owner-managed supported by family workers. The hired workers are few and found mostly in growing firms (Economic Census of Pakistan, 2005).

Financial access is a key driver in developing the SME sector which in turn leads to economic growth of the country. During April-June 2012, total SME advances declined by 4.5 percent on quarter-on-quarter basis. However, the decline was more than 15 percent as compared to year-on-year basis. Moreover, the number of SME borrowers reduced by around 24 percent on year-on-year basis, which indicates that small enterprises are worse hit by the prevailing macroeconomic conditions.

## 4. Literature review

Open innovation is considered as key trend in research and theory of open innovation is rapidly growing but it is still at the early stage with limited literature (Gassmann et al., 2010). Thus, to identify specific trends in open innovation may not be easy. However, literature show that most of research study open innovation in terms of open innovation mode, external cooperation, and open innovation performance (Chesbrough and Crowther, 2006). In this context, existing studies shows there are four environmental factors: industry type (manufacturing industry/service industry), company size (large company/SMEs), technology intensity (high-tech industry/low-tech industry), and market type (foreign markets/domestic markets) which open innovation activities mostly depends on (OECD, 2008, Lichtenthaler, 2008, Van de Vrande et al., 2009).

To define open innovation in systematic way there are few trials. To measure the open innovation activities some studies focused on the degree of use of open innovation mode (practice) such as R&D outsourcing, and licensing. (Van de Vrande et al., 2009) and some Others studies measured the degree of importance of use of external information sources (e.g. UK Community Innovation Survey). However, within industry to define and analyze open innovation using one factor could misrepresent the open innovation phenomenon. That is why in the current literature open innovation activities have incomplete definition (Gassmann et al., 2010).

Two concepts are explained in literature to define open innovation activities (Laursen and Salter) 'breadth' (the number of external sources) and 'depth' (the degree of use of different external sources). In their research they explain the performance relationship related to the degree of being open to external partners

but they did not state various types or categories of open innovation.

The concept of open innovation first began in large companies, and manufacturing industries than move toward the low-tech industries, SMEs, and service industries (Gassmann et al., 2010, Chesbrough and Crowther, 2006). And in these categories it is still more active than others. As a result of tough global competition these industries require close follow of novel knowledge and more innovation (Gasman, 2006). Open innovation is mostly studied in large companies especially multinational companies through case studies (e.g., Lucent, Intel, and 3Com) in high-tech manufacturing industry (Faria and Schmidt, 2007). However, there also exist contradiction in researcher views in open innovation regarding the four environmental factors some researcher posit that company size and industry type do not have an effect on open innovation in manufacturing industries, large companies, high-tech industry, and companies with foreign markets have more experience in open innovation activities (Lichtenthaler, 2008; Gassmann, 2006).

### **Constraints to open innovation**

SMEs face different type of constrain in implementation of open innovation. Literature review reveals the intellectual property involvement, venture capitalist and technology trading platform (Gredel et al., 2011). As mention above there are also some other constrains which have been categorized in to human aspects, constraints in general and related to policies, and constraints that generate due to increased globalization and competition. In these aspects different variables are used to measure the constraints. (Adopted from Flash Euro barometer; SME Observatory Survey- Fieldwork: November-December 2006, Q16, 17, 21; Community Innovation Survey 2006-2008; this postdoctoral research).

### **Human aspects**

The ability of an organization to realize and capture the benefits from innovation is affected by visionary leadership factor (Tushman and Nadler 1986). Ashurst et al. (2012) agreeing with the Tushman and Nadler that for organization to gain and to maintain the competitive edge, they should focus not only on effective management of for today but simultaneously is creating innovation for tomorrow. And innovation can be driven by better understanding of human dynamics by validating new targets. To fit in to new realities the open innovation business model needs to be updated dynamically, which is a great challenge for SMEs (Jaruzelski and Dehoff, 2008; Rahman, 2010). This study places different variables to learn the behavior of the surveyed firms in facing challenges of human aspects. Variables used in this study are Low image of the profession, Low image of the sector, Low

image of the type of enterprise, Wage levels too expensive, Unpleasant work, Unpleasant working conditions, Scarcity of skill man power.

### **General constraints**

In their study Abu rub and Lee (2011) posit that there are four basic environmental factors that affect the degree of open innovation like industry type, market size, company type and intensity of technology. This research observe that there are three other type of constrains that an organization feces during business process. They are general constrain, policy constrain and constrain that company faces because of global competition. To learn about constraints related to adoption of open innovation strategies, this study place different variables in the questionnaire. Selected variables are Lack of skilled manpower, Too expensive manpower, Lack of quality management personnel, Problems with administrative regulations, Problems with infrastructure (e.g., electricity, gas, communication, etc.), Problems with access to finance (other than interest rates), High interest rates, Lack of knowledge in implementing new form of technology, Lack of knowledge in implementing new form of organization, Difficult to protect intellectual property, Lack of market demand (Low purchasing power of customer).

### **Policy constraints**

The challenges of SMEs managers are quietly different from the large firm managers but it is an uncharged area of investigation (Chesbrough et al., 2006). In innovation policy fostering transactions also play a significant role in the evolution process. When organization look to realize any innovation opportunity they can and should use both external and internal ideas and paths to the market and to generate value internal ideas may also take to markets through external channels (Van de Vrande et al., 2009). In this aspect, this research has selected a few variables. e.g. High cost of open innovation, Lack of financing, High economic risk, Organizational rigidities, Government regulations, Lack of customers' responsiveness, Lack of knowledge to use new technology, Lack of information on market to find out the pattern of challenges that the SMEs are facing in terms of policy constraints.

### **Competition**

Enterprises have become much more competitive than ever before in the era of globalization and the evolution of Internet technologies. Hence, firms have to keep track of elements not within the entities or local situations, but knowledge of global or regional market is essential even to keep up with the local market. To compete and survive, all businesses need to innovate (Rahman, 2010). To measure the competitiveness among the surveyed SMEs in terms of competition

different variables e.g. Increase quality of product/service, Increase product differentiation, Look for market niches (demand), Increase marketing activity, Reduce costs of production, Forming strategic partnerships, Reduce prices (prices of products/services), Increase working hours, Look for other markets have been chosen.

## 5. Research methodology

### *Research objective*

The present research has been designed with a view to investigate and determine the parameters and challenges that SMEs face in market of SOUTHERN PUNJAB and in which condition they made open

innovation and what problems they face and is there turnover increase after open innovation, and their Human resource issues they face.

### *Population and sample size*

This research covers the SMEs of SOUTHERN PUNJAB. We take three business sectors.

- Jewelers Business
- Boutique Business
- Beauty Parlor Business

The sample size is 15 we take 5 business shops from each sectors. Questionnaire has been made and distributed to the selected business sectors to find out the results.

**Table 1: Business shops**

JEWELERS	BOUTIQUE	BEAUTY PARLOR
Shamsi Gold Smith	Multan Zareen House	Islamabad Beauty Parlor
Shahzeb Gold Smith	Gulshan Zareen house	Shiraz Beauty Parlor
Diamond Gold Smith	Moonas Boutique	Ayesha Beauty Parlor
Arian Gold Smith	Shades Boutique	Teens Beauty Parlor
Umer Gold Smith	New Multan Zareen	Mode Face Beauty Parlor

### *Data collection techniques*

Primary data for this research is basically collected through questionnaire. Data is collected from the business owners through questionnaire which has been made. Some open and close ended questions has been made and some data has been collected through direct interview from the owner of the business a simple and understandable questionnaire has been made to find out the deep insight of the business personals.

### *Data analysis techniques*

The data was analyze through the software SPSS. The filled questionnaires were put into the software to find out the results. Due to the nature of data and questions we use descriptive statistics technique. SPSS show the result in frequencies tables.

### *Findings*

Today is this competitive era organization focus not only on profits & revenue of present, they need to

focus on sustainability and for this the most important instrument is innovation. Innovation helps you to maintain and sustain your position in the markets. But unfortunately in Pakistan innovation is still a new concepts and its important is realized. Governments, different organizations and institutes pay no attention to innovation and Open innovation is unknown term, mostly people even didn't know the basic definition of open innovation. In our research to study the current situation of open innovation in SMEs of Pakistan we develop a questionnaire in which we asked different indirect questions to them.

In our visit to SMEs when ask about open innovation either they implement open innovation or not mostly reply they didn't know about open innovation. When we define open innovation to them and in the start of questionnaire a paragraph about open innovation they give answer to us.

Table 2 shows the result about status of open innovation in SMEs of southern Punjab.

**Table 2: Open innovation in SMEs of Southern Punjab**

Thought a totally new design	22	73.3%
Create new design	22	73.3%
Get new idea in discussion with customer	26	86%
Get new idea in discussion with supplier	24	80%
Get new idea in discussion with distributors	21	70%
Have any knowledge network	6	20%
To get information about market you discuss with your Customers?	24	80%
To get information about market you discuss with your supplier?	19	63%
To get information about market discuss with distributors	18	60%

Asking different questions about product designs, their ideas, resources and materials results show that 73% respondent said that in product designing they use their own ideas and also get information from different resources. Some time they produce customized product on demand of customers. 86% respondent said that in product designing they get information from customers, 80% said they take information from suppliers and 80% said they get information from distributors. In beauty salons industry managements says that mostly they get information from suppliers. They keep them update about fashion and new trends in market. In boutique industry management said that they partnership with different distributors. They help them in selling of their products in different cities like MULTAN, LAHORE and KARACHI. They said that their distributor provide them information about the

customer needs and demands. On basis of this information they produce different new products.

When asking about knowledge networks they said they don't have such networks but to know what's happening in the market and to keep them update they get information from their customers their suppliers and distributors.

Based on questionnaire survey 30 respondents provide their data. Results show that the biggest problem faced by SMEs of SOUTHERN PUNJAB in human aspect is scarcity of skill manpower, 73% respondent select this option. Because in open innovation company uses the external information, in obtaining and using that information companies need skilled manpower, which is a problem for SMEs of SOUTHERN PUNJAB.

**Table 3: Scarcity of skill manpower**

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	22	73.3	73.3	73.3
Valid No	8	26.7	26.7	100.0
Total	30	100.0	100.0	

**Table 4: Wage level to expensive**

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	20	66.7	66.7	66.7
Valid No	10	33.3	33.3	100.0
Total	30	100.0	100.0	

Table 4 shows another problem faced by SMEs of SOUTHERN PUNJAB in human aspect is high wage level, 66.7% respondent select this option. Because in open innovation company use the external information, in obtaining and using that information companies need skill manpower and ultimately they have to pay them more as compared to unskilled labor or laymen, which is a problem for SMEs of SOUTHERN PUNJAB.

### **General constraints**

The results show a problem faced by SMEs of SOUTH PUNJAB in general constrains is Lack of skilled man power, 76.7% respondent select this option. Because the available man power in SOUTHERN PUNJAB are not properly educated and don't know how manage the complete process of open innovation.

The problem faced by SMEs of SOUTH PUNJAB in general constrains is Too expensive man power, 83.3% respondent select this option. Due to high inflation rate in Pakistan wages are increasing rapidly and it's ultimately leads to high cost of production.

Additional problems faced by SMEs of SOUTH PUNJAB in general constrains is the problem related to infrastructure, 80.0% respondent select this option. The problems of energy crises (gas and electricity load shedding) and communication also among the top problems that SMEs of SOUTHERN PUNJAB faces.

The problem with access to finance, 70.0% respondent select this option. They are unable to get easy or sometimes even any type of finance from financial institutes or banks because of regularity problems and the involved risks.

The lack of quality management personnel, 76.7% respondent select this option. Because of their limited resources and circumstances they lack quality management personnel's.

### **Policy constraints to open innovation**

The findings show that the problems faced by SMEs of SOUTH PUNJAB in general constrains is Lack of financing, 70.0% respondents select this

option. Their own resources are limited and they are unable to get easy or sometimes even any type of finance from financial institutes or banks because of regularity problems and the involved risks.

High cost of open innovation, 56.7% respondents select this option. Because in open innovation they are going to work on idea generated from external sources, and in this they have to face cost of new material and machinery which ultimately increases the cost

Lack of knowledge to use new technology, 66.7% respondents select this option. It indicates low level of knowledge in SMEs of South Punjab because mostly SMEs of SOUTHER PUNJAB use their traditional way of working they don't know how to use new technology.

### **Competition**

The results indicate that SMEs of SOUTH PUNJAB adopted to increase marketing activities, 70.0% respondents select this option. It indicates higher level of competition in SMEs of South Punjab and to meet this competition they focus on advertising their products extensively to capture the maximum market.

SMEs of SOUTH PUNJAB adapted to increase product differentiation, 70.0% respondents select this option. They focus on differentiation of their products to get a competitive edge on their competitors.

SMEs of SOUTHERN PUNJAB adapted to Increase Quality of products 76.7% respondents selected this option because increasing quality helps them to generate competitive edge.

SMEs of SOUTHERN PUNJAB look for other markets as clearly shown in the table that 66.7% respondent selected this option.

### **Result analysis**

Among all the variables we use in our questionnaire, in SMEs of SOUTHERN PUNJAB the following challenges are at the top level.

#### **Challenges in terms of human aspects**

Challenges	N	Response rate
Scarcity of skill man power	22	73%
Wage level too expensive	20	67%

Our finding and interpretation on challenges in terms of human aspects: With high wage level, Scarcity

of skilled manpower remains as the major two challenges in this area.

#### General Constraints of Open innovation

Constrains	N	Response rate
Lack of skilled manpower	23	76.7%
Economic crisis	25	83.5%
Lack of quality management personnel	23	76.7%
Problem with infrastructure	24	80%
Problem with access to finance	21	70%

Our interpretation on challenges in terms of General Constraints of Open innovation:

Result show that open innovation in SMEs is mostly affected by the economic crisis, because it's directly affect the purchasing power of customer and in such situation testing new idea would be very risky. To deal the whole process companies needs skilled and quality management personnel but in Pakistan such personnel's are not available to SMEs. They also face problem related to infrastructure and finance.

Our finding and interpretation on challenges in terms of Policy Constraints of Open innovation: the result show SMEs face different policy constrains in open innovation specially the problems related to finance and cost of innovation because to implement something new or different you have to bear a cost. Furthermore lack of knowledge to use new technology, updated information about the market, and organizational rigidities in term of employee's perspective cause major policy barrier in open innovation.

#### Policy Constraints to Open Innovation

Constrains	N	Response rate
Lack of financing	21	70%
High cost of open innovation	17	53%
Lack of knowledge to use new technology	20	66.7%
Organization rigidities	21	70%

In order to meet the competition SMEs take different action and activities, first of all they focus on differentiating their product, try to increase the quality

of their products, increase their marketing activities and some time to capture more markets they move towards different markets.

#### Actions/ Activities to compensate the barriers related to competition

Activities	N	Response rate
Increase marketing activities	21	70%
Increase product quality	22	73.3%
Increase product differentiation	23	76.6%
Look for other markets	20	66%

## 6. Discussion

Open innovation in SMEs is a newly emerged field in research. It deserved prolonged and strategically developed qualitative and quantitative studies on available resources, focusing on different strategies and conceptual approaches, business models and practices. In the development of open innovation process it is very important that one should first look in detail of all the fundamentals of open innovation process, including organizational and cultural differences.

Developing open innovation as an alternative to closed innovation, it face different challenges like venture capital investments, intellectual property management, challenges from market, or emerging issues in the face of the economic crisis . In this aspect further research is needed because this study is based on SMEs of SOUTHERN PUNJAB result show they didn't face problems regarding intellectual property rights because these companies didn't have such rights. Today open innovation has changed its status, it's considered as a less expensive source of innovation. SMEs can't afford highly intensive R&D departments for them it is replacement of R&D for innovation. But many countries including Pakistan are lagging in tackling the challenges. Researchers need to focus on field of technology and innovation management.

## 7. Conclusion

Open innovation is considered as less expensive source of innovation mostly for SMEs which don't bear the expenses of intensive R&D department. This study shows the actual state of open innovation in SMEs of SOUTHERN PUNJAB. It shows that open innovation is still a new and unknown concept. But still in some way they said SMEs are using open innovation in their product development and services. They develop new products and in developing new product design they take information from different external resources like customers, suppliers and distributors and many other sources. To keep them update about the market trend and fashion they collaborate with their customers, suppliers and distributors.

In term of finding constrains that relate to human aspects, this study show that SOUTHERN PUNJAB SMEs in recruiting, face the problem of scarcity of skilled manpower and high wage rates. Because inflation rate is high in Pakistan and it's a major reason of high wages. In term of general constrains SMEs of SOUTHERN PUNJAB face the problems of Lack of skilled manpower, Economic crisis, Lack of quality management personnel, Problem with infrastructure, and the Problem with access to finance.

Our findings and interpretation show that SMEs face the problems of high cost of open innovation, limited financial capacity and lack of access to finance,

updated information about the market, and lack of knowledge to use new technology and organizational rigidities. In order to meet the competition they focus on improving their quality, differentiating their product, increase their marketing activities and some time they look for other markets.

### *Limitations*

Limitation of this study is that the survey is subjected to the respondent's behavior toward the study. Hence 100% accuracy can't be assured. Due to a short span of time, we could not widen the study. The study could not be generalized to adapted personal interview method/

### *Future directions*

Future research in this aspect should also incorporate establishment of national and regional to promote open innovation among the SMEs, not limiting them to the administrative SMEs within a region should open themselves to others if the product or service are not locally available Similarly, dedicated tools to access unified information, recognize accepted follow management chain, reduce physical distance, and add economic value in terms of open innovation deserves further research discourse Today in competitive era the organization need to focus not only on their present but also focus on future, like today open innovation is an important source of innovation but it will be same in future?

There are the questions, will remain to be taken cared by the future researchers, such as: How far this format of open innovation will go and how long will it last? Will it lead to a real impetus to SMEs in need (though researchers are naming it as a paradigm shift), or will the open innovation applications be irreversible and really differ in terms of its long- term impact.

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