

## **CHAPTER 7**

### **CONCLUSION**

Innovation begins with the intellectual involvement of the management and the employees through setting objectives, generation of ideas for development and improvement, putting them into practice and continuously monitoring them and integrating them into the organizational value chain. Committing to innovation throughout the organization will accelerate the performance, as more employees will team up and collaborate with the top management rather than resisting it. Because innovation is loosely defined, it is difficult to measure it. Organizations face many challenges in institutionalizing innovations. This chapter discusses on the contributions made by the study and offers directions for further research on the subject.

#### **7.1 SUMMARY OF THE THESIS**

The present study has been undertaken in the context of the Indian textile industry. The textile industry in India has a significant presence in the nation's economy. India earns about 20% of its total foreign exchange through textile exports. The industry contributes nearly 14% of the total industrial production and around 5% to the GDP of the country. The industry currently generates employment to more than 38 million people. China is the number one textile exporter with a share of more than 10% followed by Korea with 8.1%; India's share stay close at 3.5 - 4%. In clothing exports, China holds a share of 18.5% followed by Italy (6.7%) and India (3%). India's share may look small, but in monetary terms it is large (Corporate Catalyst India 2012). The scope for the industry, therefore, is huge. To benefit from the opportunities, Indian textile and apparel industry has to move forward with a sense of urgency and purpose.

The textile industry is among the SME intensive sectors in India, mainly an outcome of government policies during the early years of India's independence. The textile industry of India operates largely in the form of clusters -

mostly natural with roughly 70 textile clusters producing 80% of the country's total textiles. To face global competition effectively, the Indian textile industry, specifically the cluster of interest in the present study, should have certain prerequisites such as imbibing global best practices, adopting rapidly changing technologies and efficient processes, innovation, networking and better supply chain management and ability to link up with global value chains (Dun and Bradstreet 2006). UNIDO study on SME clusters in India revealed that Tirupur knitwear cluster is responsible for 80% of the country's hosiery exports (UNIDO 2005).

Given this context of internationalization and competitiveness, the study area of the present research, the knitwear cluster of Tirupur district, has been viewed and researched on its innovativeness. The principle aim of this research is to investigate the mediating role of innovation adoption in enhancing business performance of firms engaged in knitwear manufacturing in the cluster. The background for the research was established in Chapter 1 by discussing the concepts associated with innovation adoption, its impact on business performance and its relevance in the global context and SME intensive cluster context of the knitwear industry.

Review of pertinent literature was performed to fully understand the underlying concepts in Chapter 2. The research directions existing at present were noticed and research gaps were identified. Using the variance approach, it was interesting to enquire what leads to innovation adoption and what will happen after such adoption. Accordingly, independent, dependent and mediating variables of innovation adoption were established and a comprehensive model was developed. Further literature review revealed that such an empirically validated conceptual model is not much researched in its totality. Specifically, in the context of SMEs in an industrial cluster, where innovativeness is the key to sustainability and competitive advantage, such a comprehensive model has not been empirically tested much. The major pre-adoption constructs identified were innovation objectives of the firms, facilitators of innovation and barriers to innovation as perceived by the firms. The influence of these factors on business performance was hypothesized to be mediated positively by the rate of innovation adoption made by the firms.

Innovation implementation was hypothesized to be moderating such linkage. All the constructs were then operationalized so that they can be measured accurately.

Chapter 3 detailed the research questions to address the research gaps identified. Research objectives were then discussed in detail and hypotheses generated accordingly. The primary objective of the study was to empirically test the conceptual model for its validity to establish the relationships hypothesized. Apart from this objective, several secondary objectives were designed to investigate the causal relationship and association between the variables of interest in the study. To achieve these research objectives, meticulous research activities were performed.

The research methodology adopted to carry out the investigation was discussed in Chapter 4. For the purpose of validating the conceptual model developed, quantitative research orientation was adopted. A standard questionnaire was framed based upon the previous studies and fine tuned to the context of the present study. The questionnaire was validated with experts from the academics, industry as well as entrepreneurs in the industry. Thereafter, the validated questionnaire was pre tested on a sample of 35 respondents. Additional improvements were made on the basis of the results of the pilot study to improve the robustness of the questionnaire. A minimum sample size of 362 was decided to be collected using stratified random sampling from various segments in the cluster that constituted the population of the study. 500 questionnaires were printed and distributed through enumerators for the purpose of data collection. The final valid responses were 384 in number and all the statistical analyses were performed on it. Apart from primary data collected through questionnaire survey, unstructured interviews were also conducted with the entrepreneurs to capture qualitative information that can add to the value of the findings of this study. Secondary sources of information were also used for the purpose of the study.

The data collected were tested for reliability and validity and data purification was performed to enhance the quality of findings. Descriptive analyses were performed initially on the data followed by inferential analyses. The details of the same have been discussed in Chapter 5. The mean scores of items within each constructs revealed the presence of moderately strong presence of most of the

internal facilitators, external facilitators, innovation objectives as well as barriers. There is also moderately strong presence of various types of innovations adopted by the firms; business performance indicators also are moderately strong. The construct 'collaboration status' was found to be yielding insignificant results in the reliability and validity tests and therefore had to be removed from further analysis. The purified data were placed in the model for testing the significance of relationships.

Using PLS method of structural equation modelling, the model was tested for its significance. The causal paths between each of the constructs in the structural model proved to be significant which led to the empirical validation of the model. The regression analyses were performed separately to test the significance of individual paths. All the paths proved to be significant. Chi-square analyses and Cramer's V tests were also performed to understand the influence of demographic factors on innovation adoption and business performance.

The final tested model indicated that facilitators and objectives of innovation have positive influence innovation adoption. Barriers negatively influence innovation adoption. Among the facilitators, internal facilitators are found to be more influential. The significance of influence of barriers on innovation adoption is lesser when compared to that of facilitators. The most frequently adopted innovations in the cluster are administrative innovations followed by marketing and technological innovations. Innovation adoptions have significant positive influence on business performance. Innovation implementation positively moderates between innovation adoption and business performance. Majority of respondents are found to be high adopters of innovations. Majority also score high on innovation implementation status. Significant positive associations were established between most of the demographic variables related to the responding firms and innovation adoption. Similar results were established between demographic variables and business performance.

Although, the past research studies have shown mixed results, the results of this research established a significant linkage between innovation adoption and business performance. The discussions based on research findings are presented in

Chapter 6 followed by recommendations. Finally, this chapter provides the concluding remarks for the entire thesis.

## **7.2 RESEARCH CONTRIBUTION**

The present research contributes to the domain of knowledge on innovation management among SMEs in the context of industrial cluster pertaining to the textile industry, specifically knitwear industry. The study also contributes to practice by providing explanation on the mechanism that promotes innovation adoption thereby enhancing business performance based on the model. The model helps to predict the outcome of specific conditions that can be developed in the firms to promote a suitable culture of innovation, in turn enhancing firms' financial and market performance in the light of stiffened international competition.

### **7.2.1 Contribution to Knowledge**

Several studies have been conducted at various parts of the world on innovation. Some of them are studies on diffusion of innovation, national innovation systems, comparison studies of innovators and non innovators, factors leading to innovation adoption, innovation linkage with performance and the like. Innovation as a domain of knowledge, being multi disciplinary in nature has abundant empirical as well as conceptual literature. However, there is a dearth of studies on innovation in the Indian context. In the context of Indian textile industry, specifically with respect to the knitwear cluster of Tirupur, there is literally no such study available so far. The literature also is in want of empirical findings based on the comprehensive conceptual model developed in this research.

The study provides empirical evidences on the factors contributing towards innovation adoption as well as factors obstructing the same. Among the various factors supporting innovation, climate for innovation, market orientation and leadership are found to be prominent. All these are the manifestation of the presence of a strong leadership. This finding reinforces the findings of the previous studies that highlight the critical role of leader towards innovation.

The present research empirically supports the existing literature that proposes mediating role of innovation in enhancing business performance. This study also highlights the fact that entrepreneur's personal profile may significantly influence his firm's innovativeness as well as business performance. The SEM analysis reinforces that innovation adoption acts as a complete mediator between the independent variables of interest in the study and business outcomes established in the study. Hence the study contributes to the existing body of knowledge on innovation. By drawing attention to the socio-psychological and economic aspects of innovation, the study adds to the growing body of research on the subject significantly. The study has proved the relationships already established in the literature among various constructs associated with innovation adoption. Though Tirupur knitwear cluster is a naturally developed cluster, most of the results of the study confirms with the hypotheses framed based on the results of previous studies on innovation conducted in different parts of the world.

However, due to the peculiarities of the Tirupur knitwear cluster that has an agrarian base, focus on R&D is found to be limited and a highly significant linkage could not be established between R&D and innovation adoption against what has been stated in most of the previous literature. Also collaboration within the cluster is not very significant in this study against the common belief of collaboration status usually occurring in the industrial clusters. It can be reiterated here that each country is unique in its own way and each cluster is unique in its own manner. Comparison on broad parameters, however, gives similar results and hence can lead us to make the conclusion that innovation adoption is invariably determined by certain elements present in the internal and external context of the firms, though its extent of influence might be higher or lower depending on the context.

### **7.2.2 Contribution to Practice**

Globalization has been intensifying market competition adding pressures on the firms to pay more attention to quality, price and delivery commitments rather than on profitability. This requires firms to make substantial improvements with respect to various aspects of the organization, including technology, administration and marketing. Technological upgradation, though may involve additional financial

outlays, will help in long run by ensuring the supply of quality products at cost effective prices.

Apart from the contribution to the body of knowledge, this research also contributes to the practitioners associated with industrial clusters and SMEs generally, and knitwear industry specifically. The findings of this study can be of great value to the entrepreneurs and managers engaged in the knitwear cluster of Tirupur in identifying what are the areas to focus upon in order to improve innovativeness and thereby competitiveness. The findings of the study may be applicable in similar clusters of the country. The findings may also be considered by the Governmental agencies present in the eco system of not only Tirupur but at all other places in the country in association with SMEs.

The conceptual model developed can serve as a framework for the entrepreneurs/ managers in assessing the innovation mechanism they have in place in their respective firms. They can rate themselves as to where do they stand on a scale of innovativeness. They will be able to understand the benefits associated with successful innovation adoption and implementation and challenges associated with the same. Such an understanding will help them to devise suitable policies and practices to drive innovation adoption, facilitate its diffusion and thereby enhance business performance.

On a closer look at the independent variables driving innovation adoption, it can be found that the internal drivers have more significant impact on the propensity of the firms to adopt innovation. If there is a supportive climate for innovation inside the firms, employees will be surely motivated to take up innovations and work towards it. If the organizational structure is flexible with lesser layers and more accessibility, more innovations may take place. If the leader is strong and has a vision for his business, he will be able to translate this to the minds of the employees and can motivate them to work towards it. Hence, the presence of a strong and visionary leadership will create supportive organization structure, pleasant climate for innovation and drives the entire firm to be customer oriented. All the items that measured innovation climate are important and it should be the responsibility of the

entrepreneur or the manager in charge to ensure that they are present within the organization.

Since the survival and sustainability of the firms in the cluster depends upon its alertness in identifying the needs of the customers and in responding to them quickly, it is imperative that firms develop an organizational culture and orientation of receptivity and adaptation. The firms in Tirupur exhibit strong market orientation. This may encourage the firms to make improvements as per the expectations of their customers.

One of the major findings of the study is lack of collaboration of the firms with Universities and other research institutions that are present in the knitwear eco system of Tirupur. Though the firms surveyed are members of trade related associations, they are unable to reap benefits out of such associations which they consider as a 'not so useful' association. Tirupur industrial cluster is a place where firms are located close to each in the immediate vicinity. Diffusion of best innovative practices can take place at a fast rate in the cluster due to which the entire cluster may be able to become competitive as per the expectations of the international customers they are catering to. The linkages with the external environmental players need to be kept open to ensure quick and smooth flow of information into the firm. This will keep the firm abreast of the dynamics in the business environment due to changes in technology, fashion, trends etc. Today, progressive businesses are engaged in open innovations through which they use external ideas along with internal ideas, external paths along with internal paths to market, towards making advances in technology and the like. In this direction, the firms in Tirupur can engage in appropriate collaboration with others inside as well as outside the cluster to promote innovative ideas, technologies etc., and implement them successfully within their firms.

Also the study has highlighted that the focus on R&D is less among the firms in the cluster. Now this is a disadvantage for the cluster specifically because it is competing in the international market with tough competitors from China and Bangladesh. Though extensive R&D will be expensive for a single firm, cooperative



efforts in this regard can be thought about. With due support from the Textile Ministry and TEA, this can very sure become a reality.

As per the findings of the study, there is scarcity of skilled labour experienced in the cluster. Collaboration with Universities and other centres offering training can be made to solve this issue to a certain extent. Staff turnover can be reduced by keeping suitable HR policies in place. Tirupur being a naturally developed cluster faces the problems of lack of professionalism. Elements of professionalism can be brought inside the firms through appropriate staff recruitment and training so that suitable systems are created and maintained. Overall, the study aims to educate the entrepreneurs and practising managers in the cluster to develop innovative practices, understanding the cost and benefits involved, so that the cluster as a whole can develop itself to international standards.

### **7.3 LIMITATIONS OF THE STUDY**

In spite of exhaustive literature analysis, extensive data collection and careful data analysis, the findings of the study should be interpreted and discussed in the light of several limitations faced by the researcher during the period of her research. The limitations of the present study are discussed below in order to provide caution to the readers and researchers during interpretation and further research in the same direction.

There may be several factors that influence innovation adoption among SMEs. Also, the consequences of innovation adoption can be manifold which may be beyond the business performance indicators identified in the study. The conceptual model developed here is based upon the available literature that could be accessed by the researcher. In this respect, the study has taken a narrow view and the scope of the findings is limited to the variables of interest conceptualized in the study.

The study is cross-sectional in nature. The researcher has not taken into consideration the 'time' factor, which is in fact an important element in the theory related to innovation diffusion. Time and cost constraints were the major reasons for adopting cross sectional study.

Due to the inherent nature of the model on account of the presence of latent constructs and mediating role of innovation adoption, SEM was adopted for model testing using PLS method. The study therefore suffers from the limitations of the said model and method.

The results are based on the perceptions of the responding entrepreneurs that may be influenced by other factors which are beyond the scope of the study. The cluster is facing several problems now on account of the strict environmental norms enforced by the State Pollution Control Board that has led to the closure of several wet processing units in the cluster. There are chances that this situation may influence the opinions of the entrepreneurs surveyed and could have affected the quality of responses observed.

#### **7.4 FUTURE DIRECTIONS**

The present study has adopted a comprehensive conceptual model and has viewed innovation adoption in its totality based upon the variables identified and discussed within its scope. Researches can be conducted in future to study the influence of individual independent variables on innovation adoption. For example, the influence of 'leadership' on 'innovation adoption' can be researched separately; similarly a study on the causal relationship between 'competition' in the environment and propensity of the firms to adopt innovations can be conducted. Further, the mediating role of innovation adoption between each of the independent variables and business performance indicators can be studied separately to get an in depth view of the relationships involved. Advanced statistical tools such as Sobel test can be applied to understand the direct, indirect and total effect of the relationships between the independent variables separately on business performance mediated by innovation adoption. This will help to understand whether innovation serves as a partial or total mediator in promoting business performance.

Though the present study has been conducted with an acceptable sample size, the same study can be conducted exhaustively with a larger sample size so that the validity of the model developed can be strengthened and the generalizability

improved. Further, the relevance of the model can be tested in the context of large enterprises. Also, the model can be empirically tested in the context of service firms.

Researchers, in the future, can adopt a longitudinal view of innovation adoption whereby the study can be conducted during different points in time to better assess the relationships established between the model constructs. A system dynamic approach can be adopted while testing this model empirically so that the dynamics involved in the reality can be captured and recorded. This approach will help in understanding the dynamic behaviour of complex systems over time.

The study has not touched the diffusion of innovation that has high relevance in the context of an industrial cluster. An in-depth research that investigates the diffusion of innovations as to its causes, extent and pace can be taken up at the next level based upon the research findings of the present study. A comparative study between the adopters and non adopters of innovation can be conducted to evaluate the benefits and challenges associated with innovation adoption. In-depth case studies can be conducted in different firms to get individual firm's perspectives on innovativeness. This kind of case analyses can be conducted separately in each of the major segments identified in this study such as knitting, wet processing, garmenting, compacting, printing/ embroidery and others.

Comparative studies on the innovativeness of the cluster and other similar textile based clusters in the Indian context can be another prominent area of research to understand the peculiarities of each cluster in promoting as well as obstructing innovations. Similar comparative studies can be conducted with the textile based clusters situated outside India so that country specific influences can be investigated.

## **7.5 CHAPTER SUMMARY**

This chapter detailed the conclusions based upon the major findings of the research. The summary of the entire thesis is presented followed by discussion on the contribution of the study towards knowledge as well as practice. The limitations of the study are discussed and directions for further research are outlined. It can be concluded that with a clear commitment towards innovativeness, firms need to integrate innovation initiation, deployment and measurement as a part of their

strategic plan and thereby upgrade themselves according to the needs of time. Such an initiative will certainly result in enhanced competitiveness and business performance.