# Chapter 2.0

# Executive Summary

## 2.1 Objectives and Scope of the Study

The broad intent of this project was to understand how innovations are managed in the SME sector. The objectives of the study were:

1. To investigate the process of technological and managerial innovations of SME firms operating in select sunrise industries and arrive at a model for management of technological innovation
2. To study the influence of the organization's inter and intra operating environmental forces namely legal/political/economic, demographic and technological environments on the creation of technological and managerial capabilities of firms
3. To understand technology strategy formation and management of technological innovation in the context of the business strategy of the firm.
4. To examine the Human Resource Management and Knowledge Management practices that facilitate the process of innovation

The study was conducted in the SME sector of Electronics industry and three case sites located in the city of Bangalore were chosen for the study.

## 2.2 Methodology

The research design was a case study approach with multiple case sites with embedded units of analysis. The research was exploratory in nature. The data collection instruments were: interviews, documents and archival records.

## 2.3 Findings

While the case study sites share similarities with regard to the sector and scale, they do differ on many critical dimensions such as a) age of the organization b) sales turnover c) nature of the product - market d) breadth of the product-line e) geographic spread of operations f) background of the promoters etc.

The understanding gathered from the three case observations has helped us generalize a model for Management of Technological Innovation reflecting the perspectives of management of technology and knowledge. This model is presented on page ____ for reference.

In relation to the stated objectives, our findings are:

- Technological innovation has been traditionally differentiated from managerial innovation. Technological innovation deals with the 'technical' aspects of organizational activities. Our observations point to an understanding that technological innovation is invariably supported by managerial 'efforts' in the direction of synergizing

physical resources, people resources and *converting* skills, and knowledge into new products and processes.

- Managerial innovations deal with new ways of operations with regard to the systems and procedures in the organizational context. Our understanding is that technological innovations are facilitated by managerial innovations resulting in the building of innovation *capabilities*.
- Innovations are influenced by both external and internal organizational factors.
- We have not been able to identify any particular environmental factor significantly influencing innovation in the case study organizations.
- A number of internal factors facilitate technological innovation. Interdepartmental coordination, communication, the organizational structure that includes aspects like size, hierarchy of relationships, individual roles played in different layers, the leadership style etc are factors that contribute to the building up of *integrative* capability, the ability to synergize the resources available. These have been conceptually understood to be the *influencers* that shape the way the capabilities are acquired.
- We have been able to establish some connection between the technological innovations undertaken and the business strategies of the case study organizations. This connection reveals whether the

innovations are appropriate in so far as they contribute to building the fundamental competitive advantage for their organizations.

- We have attempted to map the innovations in order to understand the 'mix' of projects and thus the commitment of efforts. This has helped us understand the degree of alignment between the Technology Strategy and the Business Strategy.
- The application of the concept of technology strategy has yielded insight into the kind of capabilities the organizations seem to be building up which has critical implications for the future of the organizations. The case study organizations, we found, do not generally recognize this.
- An important insight based on this study has been that knowledge management is a people process. Therefore, Human Resource management is subsumed within knowledge management. The way the organization manages its human resources has a lot to do with the learning that takes place. The reward system and direct conscious efforts made by the leaders, the thrust of the leader's vision, the shaping of organizational culture etc. has a lot to do with learning.
- Learning is understood to be a key process in the acquisition of innovation capabilities. The innovation capabilities are built up through two levels of Functional capability that deal with specific skill

sets and knowledge and integrative capability that merges and synergizes the functional capabilities with other resources.

- The process of Learning and acquisition of these capabilities can be measured in two ways. One as the effectiveness *of problem solving events* and the *efficiency of continuous improvement* activities. There are a set of *Influencers* that determine the rate of learning. These influencers have been identified to the Leadership, Organizational culture, the Vision and the Human Resource Management Practices.
- In all the three case study sites problem solving efforts and continuous improvement activities clearly constitute the core of the process of learning of capabilities
- Integrative capability seems to be directly related to the size of the organization. As organizations grow they seem to learn to acquire this capability to link up the critical activities involved in innovation.
- The process of management of knowledge and learning seem to be similar across the case study organizations.
- The organizations exhibit variation in their adoption of product vs. process centric innovations, perhaps revealing a significant characteristic of their technology strategy.
- The choice of the market segments to serve - OEM vs. mass market, industrial vs. retail market, seems to influence the technology strategy of the organizations.

- The technology strategy, which also implies the nature of technological capabilities sought to be built, *is not automatically* aligned with the business strategy - past, present or the future.

## 2.4 Rationale for Electronics Sectoral Focus:

The electronics sector and the case study sites chosen have fortunately presented us with a representative sample of innovations for study. They have also offered us opportunities to understand the management of innovations in a variety of contexts characterized by a) the stage of the technology life cycle - mature to early growth b) the type of innovations - process-oriented to product- oriented; derivative as well as platform c) organizational type - established status to new venture status d) promoter's background - outsider-to-the-industry' to 'expert-in-the-industry' e) nature of the product-market- customized to standard product , industrial - mass market to retail mass market to OEM market . Even in terms of the number and types of innovations covered (over 25 innovations, varying from low-end derivative to high-end platform) it was found adequate and appropriate to confine our study to electronics sector.