

Study of Managing New Product Development in Indian SMEs: An Innovative Approach with Special Reference to Surat Textile and Diamond Industry

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Abstract

New product development in SMEs are becoming concurrent issue in countries like India. This paper shows the importance of new product development by studying Keys Success Factors in three stages of new product development process in the city of textile and diamond Surat. The main objective of this paper is to analyze how the textile and diamond industry look new product development. The small and medium enterprises (SMEs) have not received adequate attention from researchers for their product development process. In this paper, an attempt has been made to analyze the Key Success Factors (Importance of Technological Factors) for the product development process with the help of an empirical research in SMEs. The research is based on a sample of 223 SMEs located in Surat region of Gujarat India and found that there is significant importance of Technological factors in all NPD stages.

Keywords: SMES, New product development, Textile, Technology



Introduction

Today, the world is considered the influence of macro-and micro- business environmental. These influences include the flying socio-cultural and socio-technical forms and life expectancy graces, self-knowledge and decisional independence of consumers, a rising significance of bulk production and distribution systems, and never-ending introduction of technological and managerial innovations, increasing levels of competition and globalization dynamics (Ciappei & Simoni, 2005). These influences are impacting the textile and diamond SMEs, creating diverse marketplace opportunities and challenges and their importance. In order for SMEs firm to effectively build and sustain competitiveness in the global textile and diamond industry, they are executing several strategies. One key strategy is to develop capabilities in product innovation and new product development (NPD). It is also evident that companies require a clearly defined and effective new product development process to compete in the global industry. This paper defines new product development (NPD), and technological

factors affecting NPD in each stage.

Literature review

Hauschildt (1991) suggested that success could be measured from both technical and economic perspectives and that multiple criteria were needed if a correct assessment was to be made.

Gruenwald (1992) argues that by developing a corporate mission statement and corporate objectives, organizations will reflect their perspectives, input, capabilities and responsibilities. He also explains that the stronger the commitment to follow corporate strategies, the more successful new product development will be. The commitment is not only a personal career dedication, but involves staffing, funding and investment that could support new product development.

Rosenau and Moran (1993) furnish a guide for success with project management tools to the product development process, emphasizing speed to market, quality management and multifunctional teamwork.

Hart (1993) identified three project level success dimensions, which she termed “beating the competition technologically,” “beating the competition to market,” and “providing a technological breakthrough.”

Cooper (1994) presents a detailed list of the main elements contributing to the final outcome of new product development. These elements are: Unique and superior features of a new product. Product superiority comprises unique product attributes and characteristics, good value for money, meeting customer needs, excellent product quality, superior price characteristics, and perceived product value. A strong market orientation - this means that product development processes should be market driven and customer focused. Requirements of a new product should be clearly defined and agreed by all parties involved in the project.

Urban and Hauser (1993) contend that any organization can decide on its strategic direction for new product development. The two main strategies for product development are either reactive or proactive. A reactive product strategy is based on dealing with the initiating pressures as they occur, whereas a proactive strategy would explicitly allocate resources to pre-empt undesirable future events and achieve goals.

Crawford (1994), in the very beginning of any project most attention should be on the strategic aspect - the mission statement, goals, objectives and organization’s capabilities. All the other stages involve technical product development, evaluation and commercialization that work hand in hand with strategic planning. Crawford concludes that today’s product development is a multifunctional program, where all functions work together to accomplish the required tasks.

Kotler et al. (1994) contends that the most important element in strategic planning and new product strategy is a strategic fit between the organization’s goals and capabilities to implement new product development. The first step for any organization is to have a mission statement and objectives. The next step is to design the business portfolio that is best for the organization and fits its culture. Each business and product unit must in turn develop a detailed marketing plan that supports the overall strategic plan. During this stage new product strategies should be designed and formulated so their implementation can be conducted in conjunction with the organization’s strategic plan.

Bowen et al. (1994) highlights seven critical elements that any outstanding product development project should have in common: (1) recognize and nurture the firm’s core capabilities, (2) a guiding

vision shared by all members in the cross-functional team, (3) project leadership and organization, (4) ability to instill the team with a sense of ownership and commitment, (5) ability to rapidly learn and to reduce mistakes and misunderstandings, (6) ability to push forward the company's performances, and (7) ability to integrate within projects following a systems approach.

Research methodology

The research study involved complete survey of 250 Textiles and Diamond units who are engaged in dyeing, processing, printing, polished and rough diamond. The list of these organizations was obtained from the South Gujarat Processors Association, Surat and the Federation of Surat Textile Traders Association Surat. The questionnaire was distributed to these organizations and 223 responses were received. The questionnaire consisted of 8 technological success factors in each stage of the new product development.

Objectives of the study

1. To examine the technological factors new product development process in Textile and Diamond Manufacturing Unit in Surat Region.
2. To examines importance of technological factors in each stage of new product development process from managerial perspective.

Hypotheses

H1: There is Importance of Technological Factors in Stage 1 Idea Generation Design and Concept Development

H2: There Importance of Technological Factors in Stage 2 Product Design and Development

H3: There Importance of Technological Factors in Stage 3 Commercialization

Data analysis and discussion

The SMEs were classified as the definition given by ministry of MSME Act 2006 were used.

Table I Classification of SMEs.

| Investment in Plant and Machinery | Frequency | % |
|--|-----------|-------|
| over Rs 25 lakhs but not exceeding Rs 5 Crores (Small) | 121 | 54.3 |
| Over Rs 5 Crores but less than Rs 10 Crores (Medium) | 102 | 45.7 |
| Total | 223 | 100.0 |

The table I shows that there were total 121 units that is 54.3% in small size and 102 units that is 45.7% fall in medium size firm. SMEs.

Table II Classification of Units.

| Key To New Decision Makers | | |
|----------------------------|-----------|-------|
| | Frequency | % |
| Business Partner | 41 | 18.4 |
| Manager | 96 | 43.0 |
| Owner | 75 | 33.6 |
| CEO | 11 | 4.9 |
| Total | 223 | 100.0 |

For further analysis Table II shows the key decision maker in new product development process. The key decision makers are 96 managers (43%) and 75 owners (33%) involved in new product development decision making process.

Table III, shows the importance of the key success factors of new product development process. It was found that we computed Mean of each criteria of technological factors in each stage of NPD process and compare it with applying t statistics and results are below:

Table III: t- Statistics for Stage 1, 2 and 3 of New Product Development

| Criteria Technological Factors | df | For Stage 1 | | | For Stage 2 | | | For Stage 3 | | |
|---|-----|-------------|------------------------|------------------------|-------------|------------------------|------------------------|-------------|------------------------|------------------------|
| | | t | Sig. (2- tailed) | Mean Differ ence | t | Sig. (2- tailed) | Mean Differ ence | t | Sig. (2- tailed) | Mean Differ ence |
| The technology is new or Significantly improved | 222 | 5.388 | 0.000 | 0.314 | 6.147 | 0.000 | 0.386 | 2.618 | 0.010 | 0.161 |
| The technology is core or platform | 222 | 11.98 | 0.000 | 0.632 | 9.383 | 0.000 | 0.587 | 8.989 | 0.000 | 0.529 |
| The technology is reliable | 222 | 5.093 | 0.000 | 0.314 | 8.429 | 0.000 | 0.502 | 4.124 | 0.000 | 0.26 |
| The technology is complex | 222 | 7.453 | 0.000 | 0.422 | 7.472 | 0.000 | 0.417 | 5.591 | 0.000 | 0.314 |
| The technology is hard to be substituted | 222 | 5.979 | 0.000 | 0.318 | 6.142 | 0.000 | 0.309 | 5.059 | 0.000 | 0.265 |
| The technology is not easy to be imitated | 222 | 6.745 | 0.000 | 0.363 | 6.673 | 0.000 | 0.396 | 6.988 | 0.000 | 0.399 |
| The technology or product has a great market potential | 222 | 7.614 | 0.000 | 0.439 | 8.018 | 0.000 | 0.466 | 5.849 | 0.000 | 0.341 |
| The technology preference for open source over proprietary software | 222 | 10.86 | 0.000 | 0.578 | 7.775 | 0.000 | 0.457 | 6.281 | 0.000 | 0.363 |

Table III shows the t statistics and significance at two tailed, that there is significance importance of the technological factors in Stage 1 Idea Generation and Concept Development, Stage 2 Design and Development of Product and in Stage 3 Commercialization of NPD process. Prove the alternative hypothesis that there is importance of technological factors in Stage 1 Idea Generation Design and Concept Development, Stage 2 Design and Development of Product and Stage 3 Commercialization of Product.

Conclusion

From the analysis it is concluded that the textile and diamond firms of Surat are actively involved in NPD. From the research the researchers found that there is important role of technological factors in all stage of new product development namely stage 1 Idea Generation and Concept Development, Stage 2 Design and Development of Product and Stage 3 Commercialization of the product. The managers, owners and partners of the both diamond and textile firm believes in adopting technological change in all three stages of new product development. This indicated that both textile and diamond firms are technology savvy.

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