CHAPTER 4

SYNTHESIS OF RELATED STUDIES

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4.1 Significance of New Product Studies

New Product Development and Introduction are critical to a firms growth and development. This is true for firms from the industrial sector, services sector and consumer durables sector. Studies on new products often involve a discussion on the new product development process from idea generation to commercialisation. **The present study is a slight shift away from existing such studies** in the sense that once the new product development has passed through these stages of idea generation through commercialisation, the question that arises is what are the various strategies practised by the firms in marketing their new products? Because all the three, developing new products, formulating new product introduction strategies and successful implementation of these strategies are critical to the successof a New Product as also a firm. In a market, filled with tough competition, ad wars, brand wars, ad clutter, product clutter, information overloads, marketing a new product becomes both a daunting and a challenging task. It is important therefore to examine how a new product is marketed, what strategies are followed in new product marketing. In a slight shift away from the existing studies, the present study examines some of these issues. The present chapter seeks to examine studies related on marketing strategies for new products. While no claim is being made that this is an all exhaustive discussion of related work/s an attempt has been made to make it as comprehensive as possible and the subsequent paragraphs are a synthesis of works directly or indirectly related to the subject under discussion.

4.2 Significance of New Product

The development and the introduction of a new product is an important marketing action of a firm. It is critical as stated earlier, to a firm's success, growth and profitability. Besides, it is crucial for a firm to update, modify or innovate its products in its economic interests. The 3M company for instance derives 25% of each years sales from new product introductions and this is stated as the one of goals of the company.[1]

4.3 Competitive Reactions To New Products

In an empirical study on competitive reactions to new products, Heil and Walters[2] refer to the difficulty in determining the competitive reaction to new product introductions, the nature of which vary from ad wars, price wars to brand wars and are signigicant because they affect among other things the firm's profitability, market position and market share. In another empirical study, covering the airline industry

Gatignon[3] points out that firms react to new product introductions from competitors with their marketing mix weapons. Both these studies examine the strength with which firms react to new product introductions given the belief that this in turn has an impact on the performance of a firm, in the sense that the reaction may cause a new product introduction to dilute or cancel or drop the introduction altogether. This is also reiterated in Hansesens study[4] which is based on directly observable competitive market action and not on the motives and intention behind such reactions which is regarded as the limitation of the study. Among the numerous and varied attributes, the more important attributes examined include the scope, intensity, timing, and competitiveness of the introduction and how firms introducing new product's react to these attributes.

4.4 Timing of New Product Introductions and Related Issues

Considerable attention is being paid to new product introductions and speeding new product development especially the significance attached to the timing of new product. This is evident in Gupta, Brockhoff and Weisenfeld's work.[5] Gupta et al. cite a model developed by McKinsey and Co. which showed that high-tech products earned 33 % less profit over 5 years if the new product came to the market of budget and 6 months late compared to new product's being on time. As against this, Company Profits were cut by only 4% if new products were out on time and 50% over budget.[6] Gupta et al.[7] also cite a study by Rudolph S.E.[8] which found that 15% to 27% loss of profits were caused over a product's life cycle by a 6 months delay in product introduction. These studies reiterate the significance of timing of new product. Among the various facets discussed in the study are time / cost trade off, product specifications, multi-disciplinary approach to developing new products in American, Japanese and German firms. The study highlights the significance of and differences in managing development schedule, development cost and product performance, among the U.S., German and Japanese firms and points out why Japanaese are more successful as compared to the other two players in the World market. A similar comparison by Graves throws light on why European and Japanese companies are gaining a competitive edge over U.S., companies and why the latter are loosing their competitive edge in the World markets.[9]

4.5 Team Work And Its Impact

It is increasingly being felt that marketing's role has boundary spanned and there is an increasing recognition of the significance and contribution of marketing in strategy formulation. This was one of those instances of the mutual respect of various disciplines for one another. Similar respect for interfunctional teams is also evident. Mabert, Muth and Schmenner[10] in their discussion, with reference to a comparison of

six case studies, on collapsing new product development times, highlight the need for and significance of interfunctional teams. Their study has discussed the various facets of team work such as the approaches to organising team-work, full-time versus part-time team memberships - with the latter facilitating speedier product developments - coordinator on the team, concurrent engineering within a team, costing on the team, early involvement of both marketing and marketing research, regular agenda based meetings, proximity in the location of team members, and its impact on reduced new product development time and the resultant quality of new product. Similarly the need to serve the customers, new avenues to serve customer needs as also the need for better/improved new products - necessitated by the threat of significant market share gains by competitors, served as motivation for companies to develop new products reducing new product development time and improving quality. The study also suggested the involvement of outsiders in the team as a means to achieving the stated goals. The study is a pointer towards reducing new product development time as also improving product quality through cross-functional approaches, involvement and participation of members from interdisciplinary functions, thereby suggesting an integrated team approach towards achieving the goals.

4.6 Interdisciplinary Approach To New Product Development

The imperative role of interdisciplinary approach to new product development is reiterated in the Rochford and Redelius study.[11] The authors examine the effects of obtaining information from several functional areas in the course of new products development process on the new product performance. The absence of several functional areas contributing to or using information in new product development stages was observed in the study. At the same time, however, obtaining information areas from more functional aras as also sharing it among more functional areas had a positive impact on new product performance for the new product process stages. The new product process was seen as a multi-stage approach requiring acquisition and sharing of information from and among multidisciplinary areas. Among the products sampled in the study, while the balance were new-to-the-world products 68% (of the sampled products) were product modifications. Varied significance of the different interdisciplinary functions emerged in various stages of the multistage new product development process. Significant relationship between information sources and new product performance emerged in the study especially when it came to developing information from a larger number of sources. This was true for both early stage as also later stages across the spectrum of stages involved in the new product development process. Infact the study views more sources of information to be critical to new product success. Significant relationships between information utilization, especially with respect to the number of functional areas using that information at the

different stages of new product development, and new product performance also emerge for four out of twelve stages that were considered. More groups using information at the two stages namely preliminary technical assessments and market information study is related directly to the improved product performance in the context of the relationship between information utilization and performance. However the authors are quick to point out that despite this obvious relationship between the utilization of information and performance, the information should be used with some discretion and only amongst those it matters, lest it has dysfunctional effects in terms of appreciation, understanding and use of that information, especially in the context of early stages of the process. Whereas greater number of functional areas using information at the later stages in the process increases the chances of the firm having a successful new product.

4.7 Stages in New Product Development Process

There are studies on the activities involved in the stages in the new product development process. Bozz, Allen and Hamilton[12] are often quoted especially with reference to studies relating to strategy/(ies). Among other studies which focus among other aspects on the process or the stages involved therein mention must be made of one of the early works undertaken by Pessemier[13], as also Coopers works on new products and related issues.[1415] Other studies are discussed in the succeeding paragraphs.

4.8 Success/Failure Measures

From the numerous studies undertaken on the new product development processes, seventy seven according to one of the studies,[16] it would seem not only rational, logical but also imperative to inquire into the various dynamics of success and failure measures of new product development process. In their findings of a PDMA taskforce, studying measures of product development success and failure, Griffin and Page's[17] investigation sought, through a comparative study of literature and companies, to identify the current measures used, group them based on functions performed and contrast them as used in academics versus companies in order to be able to evaluate new product development performance. Based on a comparison of measures as used in over seventy-five published studies and those companies stated they were using, the authors observe that the two groups viz. Academicians and Managers focus on rather different sets of product development success/failure measures. While the former tend to investigate product development performance at the firm level, the latter tend to investigate product development performance at individual product/projects level. The origin of this kind of research is traced back to 1964,[18] followed by Booz, Allen and Hamilton's work in 1968.[19] In an attempt to

draw generalisations based on the need arising out of their experience in the course of examining seventy-seven published research articles as also in the "academic" research paper sessions during the 1990 PDMA International Conference, Griffin and Page obtained thirty-four success/failure measures then used by participating companies in four such conferences and seventy-five measures if literature review was included of which sixteen were core success/failure measures used across the two group and the remaining grouped into five headings.

The five general categories of success/failure measures being : 1. Measures of firm benefit 2. Program-level measures. 3. Product-level measures 4. Measures of financial performance 5. Measures of customer acceptance - which were found to be used in varying degrees by the surveyed companies like the variations reported in their use by academics v/s companies, with a desire by one-fourth of firms to shift to firm-level measure as against the current product-based measure, as also their inclination to measure customer satisfaction not just in revenue, share or volume as is currently prevalent but in terms of devising additional measures towards this end. Among the reasons cited by the study for not measuring success/failure were absence of systems to measure success/failure, lack of company culture supporting measurement, absence of holding someone accountable for results, do not understand the development process, short-term orientation, no time to measure results, including a few citing measuring was unimportant. All the same consensus does emerge on the multidimensional use of success/failure measurement in varying degrees, in the measures used and in the focus on firm versus product or project by the researchers versus companies to suit individual requirements.

4.9 Innovation and Related Dimensions in New Product Development

Yet in another study, while referring to the important role of technical innovation for successful product development, Thamhain[20] cites several studies indicating the competitive advantage generated by innovation for a firm as against in its absence, the erosion of market position for another. While earlier researches on the determinants of product innovation focussed on an individual's quality, recent efforts encompass planning, entreprenueurship, top management involvement, marketing factors etc. indicative of the widening scope of research in this area both in breadth and depth of variables involved in the management of successful product innovation. Abernathy and Clark[21] point out new product and design, product assurance, production systems, communications, customer applications, deliveries and field service, as some of the functions that should be targeted for innovation to promote new product success. Management of technological innovation does not work in isolation rather it calls for expertise from several disciplines and functions and requires a multi-disciplinary approach, an integrated approach that calls for team work

that is transformed into an integrated work group with an aim or objective of fulfilling a project goal/project objective. Thamhain[22] further points out that in several studies undertaken by him to investigate the characteristics of highly performing product team a strong association of product success, innovative performance and leadership criteria was observed. Among the factors perceived by managers as being important to high product team performance, the strongest driving factors that emerged include clear objectives, stimulating work, professional growth potential, overall direction and leadership, mutual trust and good interpersonal relations, proper project/product plans, good communication within team and across functional lines and management involvement, to mention a few. The study points out the need to investigate team characteristics, work environment and managerial leadership. Among the characteristics of successful innovative performance that emerged from the study were - number of innovative ideas commercialised, adopted or recognised by the organisation, organisational objectives met, adaptability to changing requirements and commitment; **task related factors** viz. clarity of objectives, directions and project plans, technical direction and leadership, team involvement and project visibility, **people-related factors** viz. personal work satisfaction, mutual trust and team spirit, low threat, job security, low power struggle, good communications, **organisation related factors** viz. organisational stability, involved, interested, supportive management, sufficient resources, rewards and recognition of accomplishments, were among the characteristics of an innovative work environment. Among the characteristics of innovative team performance were **task oriented variables** viz. plans, involvement, autonomy, **people oriented variables** viz. satisfaction, trust, team spirit, **organisation variables** viz. stability, resources and goals. Project perceived as unimportant, unclear task, conflict among team members, low motivation, apathy, low team spirit, uninvolved, disinterested management, role conflict, unclear role definition, strong resistance to change, professional skill obsolence were among the few early warning signals of problems with innovative team performance crucial to managing new product success.

4.10 New Product Performance and Measurement

Both new product and new product development is critical for the growth and success of a firm be it consumer durable firms or industrial product firms or services firm. While examining new product success in Industrial firms, Cooper[23] while reiterating this also points towards what is increasingly becoming 'the leading edge of marketing effort i.e. marketing strategy. He cites Hopkin's study to draw home the point that industrial firms are far from satisfactory and that "67% of industrial product firms thought their new product rate to be disappointing or unacceptable as against 56% for consumer goods firms". New product failure rates were reportedly as high as

90% to 50% whereas 70% of new product expenditures were devoted to products that failed or stood cancelled.[24] However, there have been arguments against these high rates and instances involving lower rates have also been cited. Arguments have also been put forward in connection with determinants of firms new product performances especially with respect to the focus on product project itself versus the focus and the need to look into variables at the firm level. While the PIMS (Profit Impact of Market Strategy) Studies dealt with the topic at a macro level and were concerned primarily with overall corporate profitability and found a positive impact of R&D spending on firms return or investment (ROI), however, measures that directly gauge new product performance such as new product sales, success, etc. were excluded.[25] Cooper[26] reported a mean success rate for developed industrial products to be 59% while new products that actually failed commercially after launch were 19%. **New product** in the study **was defined** from the firm's point of view i.e. a product which was a significant departure from the company's current products in terms of markets or product itself and not new to the market which excluded minor modifications and style changes which is to say it included innovations or improvements in product line, ready for commercialisation and **success was defined** as "commercial success i.e. the degree to which a product exceeds or falls short of the minimum acceptable profitability for the given investment". **Measurement problems** such as differing accounting practices across firms, prediction of sales over the product's life and the choice of an appropriate discount rate were cited **the new product performance** as some of the measurement difficulties. Among measures included in the study were **inputs** viz. annual R&D spending, financial resources, R&D skills and people, engineering skills and people, marketing research skills and people etc., **output** viz. successes, failures, killed and moderating variable viz. Industry type, firm size by annual sales, ownership in terms of domestic, MNC – domestic v/s foreign. Little impact of the nature of the firm on new product activities was observed in the course of the study. None of the several new product performance measures were strongly related to firm characteristics namely industry, ownership and size in terms of annual sales except for the sales-to-R&D efficiency ratio. While new product effectiveness in terms of percent of product successes, failure and "killed" was consistent across industry, ownership and firm size categories, light and heavy equipment had the highest success rates, components had the highest failure rates and chemicals and pharmaceuticals had the highest kill rates, electrical and electronic firms had the highest percent sales by new products. As stated earlier, Nature of the firm had little impact on new product activities, new product effectiveness was consistent across industry, ownership and firm size, company size had a non-significant impact on new product effectiveness (percent of product successes, failures and killed), company ownership played a minor role in new product output and efficiency results, and size

of the firm had an impact on the sales-to-R&D ratio with the larger firms achieving more sales for higher dollar spent (but low as percent of sales) and vice-versa. Further, with respect to impact of R&D spending, new product success, failure and kill rates varied little across R&D spending categories, however, there was evidence to suggest rapidly diminishing returns to R&D spending within a firm. With respect to impact of the firms resources, marketing resources especially marketing research, advertising and promotion, and distribution/salesforce were critical to a successful new product program as against the expected engineering, R&D and production. The study based on evidence suggested that marketing variables are the key to effectiveness and efficiency and that a look at the strengths in the marketing area does increase the success rate and returns to R & D, and that a marketing orientation, understanding users' need, greater attention to marketing including customer focus are critical to success even in technological innovations and needs to be appreciated in industrial product firms.[27]

4.11 Entry Strategies

Yet another area of decision making in marketing involves developing entry strategy either for a new product in a new market or new product in existing market where the definition of new product may vary from a technologically new product to an improved product, a modified product, an innovation, a line extension and so on. In their study involving entry strategies for new markets, Green and Ryans[28] discuss timing of entry, the magnitude and areas of investment and the basis for competitive emphasis the three components of an entry strategy while also noting the paucity of research on entry strategy and product performance relationships. A crucial question with respect to entry strategy is the timing of entry, the questions that fall out include should the firm be a pioneer, a fast follower or a late entrant ? Among the significant findings of the study, the hypothesis that earlier the entry, stronger the performance was supported although as an indirect effect since the direct effect was not significant. Implying thereby **a negative effect** of timing on performance and that timing is important but not the sole significant construct. Literature is also suggestive of greater expenditure preceeding entry resulting in success. As such **positive association** was observed between marketing investment and performance, investments in advertising and distribution indicated stronger performance. There have been arguments both in favour of and against early entry into the market i.e. early entry leads to better performance than late entry as the latter acrues out of a better understanding of consumer needs and facilitates better positioning.

Among the significant findings, **timing was positively associated with competitive position achieved** i.e. later entries lead to better competitive position.[29] What logically follows would be, does a better competitive position lead to stronger

firm performance ? The answer was in the affirmative. Infact in one of the few studies that examined positioning, the three variables namely positioning, timing of entry and magnitude of advertising investment explained 76% of the market share performance in Urban's study.[30] As a firm enters a new market, several, varied and dynamic variables influence a firm's performance. One wonders then if larger markets at the time of entry leads to stronger performance. However this hypothesis did not gain support in Green's study. Among the other hypotheses that did not gain support included the relationship between R&D expenditure and performance, market share volatility and performance, competitors strength and performance, market size and performance.[31]

4.12 Brand Image and Strategies

What is equally crucial is building an image for the new product under consideration. Developing and managing a brand image is as much an important part of a firm's marketing program as it is a vital step in positioning.[32 to 34]. In an attempt to examine the relationship between consumer product brand image strategies and various global market characteristics Roth[35] found that depth strategies had higher sales volume than breadth strategies in lower economic developed (LED) countries as against the hypothesized higher economic developed (HED) countries, sales volume was higher for depth strategies in LEDs than HEDs with not much difference across economic markets for breadth strategies and no significant effect on profit margin or market share was found. In terms of depth versus breadth strategies in high context cultures the former was significant and a mix of the two for low context cultures. Higher sales volume growth was observed for the depth versus breadth strategies in markets with low degree of competition as against the hypothesised higher competition but the same was not significant for profit margins or market share. Both breadth and depth strategies were suggested for highly competitive markets while for low competitive markets only depth strategies were recommended.

4.13 Timing of New Product Launch

Another relevant decision with respect to a new product is the timing of new product launch or as some prefer to call the introduction of the new product. Many a new product(s) in the past either failed or failed to take off because the concept, the idea or the product was premature. The product was one whose time had not come and the market was not ready to receive it; as a result of which the product sales failed to pick up which otherwise would have. Microwave owens and cellular phones at one time were confronted with such a situation in the Indian context. Putsis Jr.[36] reiterates the complexity involved in and the importance of the timing of a new product introduction. In his article he has addressed the influence of two of the several factors

namely cross product effect and saturation effect on the timing of new product introduction. Also addressed is the issue of the incentive to introduce a new product which according to the author is greater when "a products saturation level is high and also when introducing a new product will detract only minimally sales of the firms existing product line." The incentive to introduce products such as "super VHS" and "laserdisc" players was much greater after 1989 as compared to 1979 when VCR sales were increasing at a phenomenal rate. Similarly, it may be advantageous for a firm to delay the introduction of a technologically feasible new video cassette recorder provided the current high-growth rate in colour television sales was not hampared by the introduction of the new VCR.

4.14 New Products and the Business Cycle

If one were to extend this discussion of time to new product introductions, one may want to relate it to a business cycle and ask whether new product introductions vary over the business cycle. Devinney's study indicates that in the aggregate it does[37] and that new product introductions do vary with movement in economic growth with a lagged effect of economic growth on the level of product introductions being observed. Among the hypotheses that found support were the number of new products leading the Business Cycle, where new product introduction increased when GNP and price cycles were low and vice versa with business cycle measured by GNP and price level; the number of new products were negatively related to the level of aggregate prices and positively related to level of investment but not to the rate of investment; original NP introductions were less affected by business cycle than updates of existing products; product updates lagged the general business cycle i.e. product updates were more important when the cycle is weak; the only hypotheses not supported was number of NP introduced was negatively related to the level of inflation. The aforestated hypothesis provided an empirical evidence to the existence of a cyclical component to new product introductions and also pointed out that the cyclical component was known to vary by type of cycle considered, GNP, price or investment and rate of investment with a differential impact on products of different levels of innovativeness, where original new product introductions were shown to lead the business cycle for instance.

4.15 Product Introduction Strategies

In their attempt to identify sources of durable competitive advantage in new products, Lawless and Fisher[38] have proposed a conceptual framework for analysing the sources. Various components of new product introduction strategies with respect to their degree of competitive immitability have been assessed with the less imitable component leading to more durable profits. Based on review of research in strategy

and promotion, distribution and firm characteristics, the authors while identifying seven strategic components also indicate an innovating firms ability to affect a new products imitability and the duration of returns by selectively managing these components. While pointing out the three types of significant advantage accruing to innovating or first mover firms,[39] Lawless and Fisher[40] divide new product introduction strategies into components that have their own potential to resist imitation. The components being product form, product function, product intangibles, pricing, promotion, distribution and firms characteristics. The rationale behind dividing new product introduction strategies into components being its ability to differentially affect the ability of innovating firms to generate durable returns. Since some components were more difficult to imitate they helped firms achieve a more insulated competitive position and generate more durable returns. Among the less imitable components were product function vis-à-vis product form, product form and function versus product intangibles, distribution related marketing strategy versus product form function, firm characteristics versus new product strategy components with all these components generating more durable returns. Price versus other new product strategy components and promotion related marketing strategy versus product form, function and intangibles were among the highly imitable components that generated less durable returns. **Firms should consider similarities and differences in introducing a new product** because similarities help and infact may be necessary to enter a market while differences enable gain competitive edge and above normal returns. The focus on the need to consider product form, function and intangibles, place, promotion, distribution and firm characteristics is one among the frameworks suggested in introducing new products.

4.16 Business Strategies

Walker Jr. and Ruekert[41] integrate into one conceptual framework various theoretical views, normative statements and pieces of empirical evidence about contingent relationships between business level strategies and organisational structures and processes especially structures and processes involved in conducting marketing activities. While proposing a hybird typology of business strategy adapted to suit their study the authors examine the impact of three variables namely corporate – business unit relationships, interfunctional structure and processes, and marketing policies and processes on the implementation of business strategies. Drawn from individual case observations of a variety of business, Porter[42] distinguishes three types of strategies based on how a business attempts to gain and maintain a competitive advantage. The three strategies being : 1. Overall cost leadership 2. Differentiation with respect to building customer perceptions of superior product quality, design, brand name or service and 3. A "focus" strategy wherein a business concentrates on a

market niche using either cost leadership or a differentiation approach. Porter's view however does not consider the organisational structures, processes or programs required to implement the strategies effectively. As against this, considering a business intended rate of product market change, Miles and Snow[43] classify business units into four strategic types namely prospectors, analysers, defenders and reactors.

While Miles and Snow's categorization of business units does incorporate the element of how various aspects of structure, processes and management style fit under each type of strategy, it is criticised for some of their categories being defined too broadly. For instance, the defender category combines business efforts to maintain positions in mature markets by offering low cost with providing high product quality or superior service, whereas successful implementation of such competitive strategies requires different processes, programs and personnel. In an attempt to provide a more comprehensive foundation for the implementation of different strategies, Walker Jr. Ruckert[44] proposed the hybrid typology of business strategies involving prospectors, low cost defenders and differentiated defenders.

4.17 Key Factors in New Product Projects

A key factor in determining business and marketing performance is implementation of strategy.[45] A business units performance can be measured among other criteria's on, change in market share, profitability as a percentage of sales and return on investment, percentage of sales accounted for by products within a specified time period, and its relationship examined with type of strategy.[46]

The other dimension and a focus area is the implementation or the execution of new product projects. One of the keys to success in this direction is the ability to select the right project for investment,[47] in view of the fact that most new product projects are unsuccessful, some are commercial failures in the market and many others cancelled before launch.[48] Having made a conscience decision about the choice of project for investment the other key to success is the execution of the new product project especially in terms of how well the project is defined, designed and executed by the project team or what is popularly known as the new product system which in improvisation of the evaluation, diagnostic and benchmarking technique for managing newprod projects.[49] Regarded as an excellent analytical, diagnostic and benchmarking tool the newprod system is an important input in the crucial Go / Kill and prioritization new product decision. It not only helps predict whether or not a new product will be a success or not but also facilitate benchmarking, identifies strengths, weaknesses and areas of uncertainties as also builds ground for common understanding for the new product project team. It facilitates project evaluation and analysis for companies that are weak on this aspect and also helps the company

understand project strengths & weaknesses, areas of risks, uncertainties and critical areas of ignorance thereby improving on the go / no go new product project decisions. Besides, the fact the project evaluation team comprises of experts drawn from diverse and different backgrounds with different points of view who then review the results, not only enables team building but also builds a common vision and direction for the company's project.

4.18 Distinguishing the Winners

Question also emerges as to what makes a new product a winner ? Can one distinguish winners ? What factors contribute to the success of a new product ? Cooper and Kleinschmidt[50] while addressing these and related issues point out **that "product differentiation"** apart from being the decisive factor to new product performance is also the key discriminator between new product winners and losers especially the relative product quality as perceived by the consumers to be offering a distinctive advantage to its users. **Among the other key factors contributing to the success of a new product** were value-for-money, price/performance, main benefit, meeting customer needs and unique attributes, whereas low-priced strategy was not as much successful. **Among the non-product variables,** technical support and customer service were found to contribute to new product success while superior sales force, better advertising, company image or product availability were **not significant in product success** in as much as low price strategy **was found to be ineffective in new product success.** Although not central to the success of a new product as differentiation distinctly was synergies such as – management skills, customer service, market intelligence and sales force and project and product familiarities were **moderately important to new product success.**[51] While some studies[52] [53] have found market attractiveness measures to **be decisive to new produce success,** in what is unique to the study Cooper and Kleinschmidt's study[54] reveal mixed results of certain elements of market attractivenes's impact on new product outcomes. Cooper[55] for instance, points out certain elements of market attractiveness which have an impact on new product outcomes such as – market size, customer need level, market stability and economic conditions in the market but is quick to point out the weak relationship of these elements to success. On the other hand, elements that typically characterize attractive markets such as – market growth, customer profitability, customer propensity to change, numeber of potential customers were **found not to be linked to new product outcomes.**[56] Thus indicating the mixed findings as also the unique situation in the study of the firms in chemical industry and raising the issue of the universal applicability of models to predict success and profits. Between new product lines, new items in an existing product line, new product lines offering new features, true innovations and new product lines competing against similar products in

the marketplace fared badly, true innovations and new product lines offering new features performed moderately well while the most successful types of new products were new items in the existing product line in the company.[57] In terms of the order of entry in the market and its impact on product outcomes, the results were not very pronounced, in the sense that "first in" products were marginally more successful while the "follower" products also had almost the same success rate; indicating and reiterating thereby that **new product success depended on product differentiation and not as much on the order in which new product enters the market.**

The stage of the product life cycle viz. introduction, growth, maturity, decline was not decisive in new product success but introduction was marked with poor performance, early growth more successful and between early-growth to the later phases success rates dropped gradually. In essence, all the three, nature of innovation, entry order and stage in product life cycle turned out not be dominant characteristics to be considered in new product strategy development although partially useful.[58]

4.19 The Interface of Marketing and R&D in New Product Development

Questions such as involving marketing in new product development process, in what stage of new product development, to what extent, can one trade off and afford not to involve marketing in certain new product process stages also emerge with reference to new product development process and new product success. The same could be argued for the involvement and marketing and R&D interface in the new product development process and its impact on new product successes. Hise et al. Have examined these and related issues especially with a focus on three aspects of new product development process namely inputs, design and evaluation areas. Notable among their major findings are – collaborative efforts between marketing and R&D in the design stage of new product development process emerge as a key factor in new product success, as compared to the inputs and evaluation stages, management should focus efforts on the design stage of the new product process and that R&D's role in contributing to new product success cannot be ignored in both consumer and industrial products.[59] The other findings are discussed subsequently. Marketing's involvement in the product development was obvious but the level of involvement varied depending on the product development dimension. However, marketing involvement was higher in the evaluative aspect, lesser for the design area and lowest for the input area. Between industrial and consumer products, the latter showed a greater marketing involvement especially for the input and design stage with no significant difference shown in the evaluation stage.[60] Another intriguing area of inquiry would be marketing versus R&D's involvement in new product development process. Hise et al's findings indicate prominent marketing involvement for consumer products in the input stage and the design stage vis-à-vis industrial products in these

stages. With few differences in the involvement of marketing and R&D in the evaluation stage being noticed.[61] With respect to the impact of marketing's involvement on the success of new products, the percentage of successful products when marketing's involvement was high exceeds that when marketing's involvement was low for consumer products. Thus indicating the curcial role of involving marketing in new product development process for consumer product. Also, statistically significant results emerged for joint efforts between marketing and R&D in the design stage, thereby discriminating between areas that need and those that do not necessarily need to be focus areas. The same pattern of marketing's involvement and joint effort between marketing and R&D also emerged for industrial products.[62] One is logically then forced to argue whether marketing's involvement leads to greater success of which of the two – consumer or industrial – products ? Between the higher success of industrial products and consumer products, the percentage of the latter exceeded the former, however the difference was not statistically significant. The same was true for R&D involvement in case of both – the consumer and the industrial products.[63]

4.20 Differentiating Some Innovators

Given the not so statistically significant difference in the industrial and consumer products' success, raises a logical question as to whether one can identify the characteristics of innovative firms and their managers in understanding better, the innovation process. In a study covering the computer industry in Brazil, Rocha et.al. have looked at the comparative picture of the more innovative firms to the less innovative firms, the characteristics of these firms, the managers characteristics and whether these characteristics are generalizable to other industries and environments.[64] Concurring with Kamien and Schwartz's view[65], the hungarian Sappho[66] and other studies, a positive relationship between the size of the firm and innovativeness was observed.[67] Contrary to the findings of Langrish,[68] Freeman[69], Rothwell[70] and others Rocha et al[71] reported a substantially greater proportion of employees assigned to R&D for more innovative firms than their counterparts. Similarly, the study also found the more innovative firms to be younger than the less innovative ones[72], concurring with Bollinger[73], Garvin[74] and Kims[75] works. Examining the relationship between innovation and exports undertaken, the more innovating firms were found to have realized their export potential as against the less innovating firms that had not[76] concurring with Johne[77], McGuiness and Little[78] and Daniels and Robles[79] views. Among the manager characteristics greater probability of managers being associated with an innovative firm when they had greater technical education, greater participation by the CEO's in the ownership of their firms amongst the more innovative firms, greater professional experience among the more innovative firms

were some of the major Rocha et.al.'s findings with one unexpected finding being the probability of a CEO being associted with an innovative firm was less when his contacts with other countries was greater. The study also suggested that the firm and managerial characteristics were generalizable to other industries and different environments.[80]

4.21 Some Aspects Of Promotion

Examining 216 sales promotions, Hardy[80] observed that the key success factors for both consumer and trade promotions differed according to the objectives set and achieved. It would therefore not be inappropriate to generalise that the key success factors for consumer promotions were different from the the key success factors for trade promotions. This was based on the exploratory study examining the differences between sales' promotions that had achieved their objectives versus those that had not.[82] The main common correlate of successful promotions was found to be greater salesforce (trade) support with factors such as salesforce support, promotion period, dual promotion and level of incentives found to be within the product managers control. These factors also emerged as the additional factors that needed to be considered in trade promotions because neither high incentives by itself guaranteed high support from the trade nor low incentive prevented that support. With 50% of promotions regarded as unprofitable and the indifferent impact of incentive levels on consumers, necessitated paying greater attention on the salesforce and reducing the focus on incentives alone because consumer/trade incentives alone did not guarantee trade support nor did it emerge as one of the sales promotion success factors in package goods. Infact salesforce emerged as the key to getting the promotions into the store, gaining trade support as also consumer support.[83]

4.22 Success and Failure Rates

In a comparative study of the Japanese and the British companies in the United Kigndom, Edgett, Shipley and Forbes examined the success and failure factors in new product development from the British perspective and reported that new product failure rates were still high and contrary to popular belief of the success of Japanese firms, the former only marginally outperformed British firms.[84] Edgett et.al. point out that despite the increasing numbers of new products launched in the market in the past two decades, owing to heightening competition, increasing diffusion of technology, rapidly changing consumer needs etc., the success rates of new products launched in the past 30 years have not been very encouraging in as much as the failures rates have been unclear.[85] While Booz, Allen and Hamilton way back in 1968 suggested somewhere between 30% and 40% of consumer and industrial goods to have failed[86], Crawford's review of published failure rates reported a failure rate from

a low of 20% for a US Conference Board's study to a high of 90% for a US Department of Commerce's study[87], while Edget cites Lin's US-based study that showed a failure rate of 36%.[88] With the growing incidence of Japanese being perceived as successful and leaders in new product development as against the failure rates of the US-based companies, Kotler cited the example of Japanese car manufacturers in supporting this view[89] while Willard & Savura point out that the Japanese are quick in adapting products in order to serve better the neglected market segments.[90] Given the growing presence of Japanese products felt in the market, growing presence of their success perceived by the market, a large amount of literature on Japan's success, Edgett, Shipley and Forbes in their comparative study of Japanese and UK firms based in UK found that in the preceeding five years, the frequency of "new business or venture" among the types of new products' introduced was higher for the Japanese firms than for the British firms. Thereby indicating the greater rate at which the former were expanding in a foreign market than the latter in their own domestic market. Interestingly, radical product innovations among both these firms scored the highest among the type of new products introduced in the past five years. Despite the difference in the focus on the sources of new product ideas – with the former emphasizing internally – generated ideas and the latter emphasizing customer suggestions – no significant difference in the sources for new ideas between the Japanese and British firms emerged.[91]

4.23 Success and Failure Factors

Edgett's study also revealed the rather dismal percentage of new product ideas that emerged from customers or distributors for both the Japanese and British firms. Marketing the changing customer needs, growth in new segments of existing markets and the desire to gain market share from competitors where the top three reasons for new product introductions among both the firms in the market. While the British were observed to be slightly more reactive to the marketplace the Japanese were proactive in seeking new markets was evident from more new products introduced by the Japanese firms than the British firms to develop growth in new markets, whereas more British firms were found to have introduced new products to complement existing product lines just as they were found to have launched more new products to remain competitive.[92] With respect to the failure rates, the Japanese firms reported a mean failure rate of 40.2% for all new products launched within the last five years as against a mean failure rate of 45.7% by the British firms indicating the little improvement that has taken place in success/failure rates in developing new products successfully although there may be instances of high success rates such as those reported by the Japanese (31.9%) and the British (25.6%) firms.[93] The study also indicated the need as revealed by the Japanese firms for the product to have a

competitive advantage if the product were to be a success among the clutter in the market. This was over and above the generic need for "matching the consumer need" that was identified as one of the foremost factors contributing to new product success. Although identifying factors contributing to new product failure was not an easy task nor forthcoming as the success factors, inadequate marketing research, overenthusiasm, faulty products were among some of the reasons cited by the British firms while both the Japanese and the British companies cited failure to understand customer needs (24.8%) and lack of a differential advantage (24.3%) as two of the more frequent causes contributing to the failure of new products with insufficient pre-launch development (25.3%) and product costs higher than predicted (24.3%) being reported as common causes of new product failure.[94] Both the Japanese and the British firms had slightly higher rates of new product failures than those reported for U.S. firms, although not significantly, the Japanese firms were observed to have a marginally higher rate of successfully launched products than the British firms, with the former laying more emphasis on meeting consumer needs with good quality and reliable products at competitive prices while the latter were observed to be overenthusiastic with new products with little effort on market research. The study has raised the issue of the common belief of new products from the Japanese firms being more successful than those from British firms and opened avenues for the need for empirical research to probe into the high rates of new product failures[95] including new products from the U.S., the Japanese, the British firms or firms from other countries and across industries.

4.24 The Application of Methods and Models

Given such success and failure rates one would argue if new product models and their applications in any way facilitate and/or ease new products process or new product development in firms. Mahajan and Wind in a study based on industry practice confronted with a decision involving which models and methods to use, their shortcomings and improvements called for, have assessed the role of new product models in supporting and improving the new product development process.[91] Most of the firms were observed to take a short-term perspective in evaluating a new products success with profits and sales reported as the dominant criteria of new product performance evaluation. Varying significance of the frequency of use and importance of new product development activities was also observed though amongst all the NPD activities, business/financial analysis and product development emerged as two activities whose frequency of use and critical importance was regarded as being crucial in new product development.[96] Although twenty-four different models and methods were cited by the responding SBU's, these models and methods found very little application or use by the responding firms with only one method viz. focus

groups found to be the most used method in the new product development by more than half the SBU's. Varying use of the methods and models emerged in different proportions for several of the activities involved in new product development process with some of them used in the idea generation, new product screening and consumer testing stages of the NPD process.[97] Despite its limited use, the respondents were satisfied with these models and cited several reasons for their use – prominent among them was that it improved the success rate of new products and helped identify problems with the product and alternative marketing strategies; while among the shortcomings, forecasting inaccuracy emerged as the major pitfall. Towards improving the models and methods, some of the suggestions that emerged were the need for more formal and quantitative approaches, top management involvement, the need to add forecasting models in the idea generation, concept screening, market study stages of the NPD process.[98]

4.25 The Dynamics Of Firm And Environment Characteristics

Similarly, it may be argued that the interactive process and the dynamics of firm characteristics and aspects of competitive environment may have an impact on strategies for launching a brand. In a study encompassing sixty-eight brands in the pharmaceutical industry, Gatignon, Weitz and Bansal[99] while pointing to the significance of the importance of market growth have indicated the need to understand better the role of market growth in explaining the performance of new products. The authors also point out the significant effect on market share of the competitive structure of the market, high concentration or lack of competitors served as an inducement for firms to introduce new brands, that only firms with the ability to enter the market on a large scale introduced brands in concentrated markets which was a fallout of the entrants direct effect of product quality on market share. Besides, when a limited number of brands hold a large share with the market more attractive to new brands, managers could expect better results in terms of market share.[100] Although not indicating an unlimited budget spend on R&D, Gatignon, Weitz and Bansal's study indicated that better products resulted in higher market share therefore the strategic importance of R&D also needed to be considered just as they suggested that a new brand be supported with a larger (marketing) effort. when introduced in a fast-growing market than when introduced in a mature market, larger the size of the market larger the marketing effort for the new brand, more resources should be devoted to growing markets in relation to what the competitor's have deployed, superior product quality was important and competitive structure of the market was equally important in introducing new brands.[101]

Existing market conditions not only determine strategic options but also have implications for market segmentation and product differentiation strategies. Say

for instance the latter can be pursued with or without market segmentation strategy but the former can be pursued only when product differentiation already exists. It becomes explicit then that a strategy of product differentiation does not need existence of market segments while a strategy of segment development is plausible only when product differentiation either already existed or was accompanied as a strategy.[102]

Among the other elements of marketing, more effective salesmen, offering a wide range of services and speed of service were observed to give competitive advantage to firms offering paying services. Prominent and visible advertising and larger size of organisations contributed to gaining advantages in paging services just as satisfaction with the firms service and word-of-mouth did. Whereas "solving a problem" or reputation of the firm were among the reasons cited for favouring a firm that was losing its market share to a competitor who gained for reasons cited in the preceding statement.[103] Larger firms for being able to afford innovative products and to tolerate risks, adopted new products earlier than smaller firms that valued seller information more, took more risk and adopted new products. Besides, concurring with the hypothesis set up, Schellinck[104] concluded that larger firms adopted pagers later, the product being inexpensive and more amenable to being adopted by smaller firms first. **With respect to the effect of time on marketing strategy**, the author observed that buyer behaviour changes over time and influences the relative effectiveness of competing strategies as the nature of the problem stimulus, the amount of information searched, the number of salesmen and associates consulted, the role of salesmen and associates and the number of suppliers considered varied over time necessitating changes in strategy to maintain market share.[105]

4.26 The Significance Of The Stages And Factors In New Product Development

Even in the case of industrial products, launching a new product is a crucial decision area given the high failure rates of both consumer and industrial products. Dundas and Krentler[106] have acknowledged in their work that failure at the end of the new product development process or at the launch has not only a greater risk but results in heavy financial loss, man-hour loss and possibly even design/concept loss to other players in the market. Citing Gerlach and Wainwrights compilation, the authors point to poor timing, insufficient marketing effort, inadequate salesforce, competitive reaction, inadequate market analysis, weaknesses in distribution, higher costs than anticipated, product defects, lack of proper support staff – as some of the reasons for the failure of new industrial products reiterating also that failures were caused not by defective design, workmanship or product features but poor timing and improper product announcement both internally and externally were also among the most frequently cited reasons in case of new (industrial) product failures.[107] Therefore, it

was important to pay close attention to stages involved in new product development process and reduce chances of failures where critical path method was one of the tool in this direction.

4.27 The Channel Length And Factors In Distribution

Also important in marketing new products are the distribution channels that vary depending on the nature of the product, the market for the product, the manufacturer, the middlemen. Citing Aspinwall, Miracle and Kotler, Jackson, Krampf and Konopa[108] have summarized predictors of channel length – some of which include – market conditions (size of customers, number of customers, number of industries, geographic concentration, purchase frequency), product conditions (unit value, sales volume, technical complexity, searching time etc.), middlemen conditions (availability of middlemen, capability of middlemen), manufacturer conditions (size of manufacturer, number of product lines, financial strength, knowledge about customers) and have examined the relationship between these predictors and channel length. Among the significant predictors of industrial channel length, Jackson et.al's study[109] note availability of capable middlemen, number of customers, significance of purchase, customer volume potential, geographical concentration of market etc. while the nonsignificant factors that emerged from the study were financial strength of manufacturer, product complexity, manufacturer's size. The results of the study also found support for the hypotheses that channel length increased as the availability of capable middlemen increased, as number of customers increased channel length decreased, as the significance of purchase increased, as the customer volume potential increased, as the geographic concentration of the market increased and as the industrial concentration of the market increased[110] indicating the need to consider these while deciding on the length of channel for industrial products.

4.28 Improving Product Performance

Very often one comes across examples of "new", "improved", "modified" versions of products indicating the need to revitalise the products. Varied approaches and dimensions are available in doing so. Avlonitis[113] suggests reducing costs as one of the approaches to improving product performance. Infact among the three measures within this approach product redesign (modification) was among the most popular corrective actions suggested towards reducing cost, the other two suggested measures being better buying of components and materials and second-investing in capital equipment, tooling and plant. With respect to price change, 75% of the sampled firms regarded it to be a corrective measure with price change in both upward and downward direction; promotion-another element of corrective action did not emerge as a significant element of marketing strategy with greater emphasis placed on

personal selling as against the promotion and print ads that were used as supplementary activities with the exception of three capital equipment manufacturers reporting sales promotions (exhibitions, literature) to be more important than print-media advertising, eight manufacturers of capital equipment regarding both sales-promotions and print advertising to be equally important and nine capital equipment manufacturers reporting the latter to be more important. The third element of the suggested change-the channels of distribution found very little application and was regarded as an inflexible factor in marketing strategy. Among the fourth element of change was the development of new markets as an additional method of revitalising a weak product apart from the changes suggested in the physical attributes of a product and/or marketing strategy. Even among these suggested changes, product modifications was the preferred course of action by 15 of the 20 respondents as a means to revitatising products.[114] The significance of the study is evident in the areas of discussion thrown open and avenues that need to be considered in decision making.

4.29 Identifying Risk Factors

It would also help managers to identifying the risk factors in new products because after all scarce resources are invested in new product projects. These factors would be indicative of the risks involved implying thereby the precautions decision – makers need to take in committing the expensive, scarce resources in any project. More[111] based on data analysis involving 43 new industrial product ventures points out that "rejected products tended to have greater product newness to the company, lower similarity of buyers, lower suitability of the sales-force and lower similarity of the service task and greater similarity of competitors." Therefore products rejected by managers involved markets that were less similar to the company's existing markets. Rejected projects also exhibited a tendency to have lower similarity of technology to the company, lower extent of prior technology use and lower ability of company technical personnel. Therefore new development technology was a critical dimension of risk in rejecting potential projects. Further, competitive advantage was regarded as a major dimension of risk in rejecting potential projects. Therefore, lower extent of patent protection, lower extent of license protection, lower competitive product improvement, lower product uniqueness, greater ease of competitive duplication and a higher product price position were observed in rejected products.[112] With respect to buyer risk, the fact that managers were sensitive to buyer's risk, high risk to potential buyers was translated to higher risk to the developing company. Therefore, the tendency of lower buyer purchase experience, lower familiarity of the purchase task to buyers, lower buyer time commitment and greater extent of buyer adaptation was evident in rejected products.[113] The significance and implication of More's study lies in the dimensions of risks thrown open by the study which could be considered in new

product projects as they influence a managers selection/rejection decision and the extent to which they are taken care of could reduce the risk involved in new products or new product projects.

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