
Innovation profile and marketing strategies

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Abstract: This is a managerially oriented paper, which attempts to organize existing knowledge about new product development and marketing in a systematic framework. The major argument is that the choice of a new product marketing strategy and the choice of a development process for a new product should be influenced by the analytical assessment of specific conditions, which we call the innovation profile. The three major parts of the paper are: 1. The Innovation Profile, 2. The marketing strategies and 3. The product development strategies. The analysis of specific conditions based on the innovation profile has direct implications on the choice of strategies and product development processes.

Keywords: Innovation Profile, New Product Development, New Product

1. Introduction

Innovation is the means by which entrepreneurial managers are converting societal needs into profitable opportunities. The innovation creates an added value for customers through a mix of product and service attributes not available previously. A major portion of R&D efforts is allocated to the development and marketing of new products.

It has been widely observed that the success and failure of new products depends not only on the technical development, but also on the marketing and business strategies and processes. The purpose of this paper is to develop a framework to analyze major external and internal factors that have an effect on the marketing strategies and the new product development processes of the firm.

The paper has three parts. The first part outlines what we call The Innovation Profile. This part is devoted to the situation analysis of a new product. The second part is devoted to the presentation of major marketing and business strategies and the conditions for their application and success. This part emphasized the relations between the selected strategies and the innovation profile. Part three of the paper presents major product development processes and outlines the relationship between these processes and the innovation profile.

This is a theoretical paper with a managerial orientation and no empirical data. Examples of real life applications are presented to support and demonstrate the arguments. The

paper can provide a framework for empirical testing of the relationships between the innovation profile, marketing strategies and new product development processes.

2. The Innovation Profile

The innovation profile can be divided into two parts:

1. An external analysis including customer's readiness, market barriers and opportunities and competitive analysis.
2. An internal analysis, which includes corporate readiness and nature of the technology.

2.1. Customers' Readiness

Customers' readiness is a complicated concept. To simplify it we review it from two points of view:

1. Customers' segmentation, with a major emphasis on segmentation by time of entry.

2. The diagnostic factors which affect readiness.

Segmentation by time of entry has been demonstrated to be a useful way to review the adoption process of new products. Different customer groups can be identified and analyzed based on the following characteristics:

1. Estimated stage, or time, of potential adoption of a new innovation. (This could be affected by the nature of the innovation, its record of proven benefits and the need for it)
2. The potential size of each group.
3. The characteristics of the group (Identification of members and ways to reach them).
4. The key attributes, which are considered essential for possible adoption.

Rogers, Moore and others have demonstrated that the marketing strategy must take into account the above characteristics in order to avoid potential pitfalls in adoption.

Analysis of the causes that limit customers' readiness to adopt a new product can be useful for diagnostic purposes and can usually be classified based on the following categories :

1. Usage opportunity
2. Cost – benefit
3. Usage risk
4. Image of product, and or, supplier.

2.2. Market Barriers and Opportunities

Four kinds of general barriers can usually be identified:

1. Economic barriers (like high customs).
2. Regulatory barriers (like the cost and time of acquiring a license to sell)
3. Political barriers (these could be based on the country of the seller or the country of the buyer)
4. Marketing barriers (these barriers are usually related to blocked distribution channels.)

Customers can be ready to buy the new product, but the system could make it difficult, or impossible, to reach these customers with a viable proposition.

Market opportunities could be the outcome of special outside circumstances that favor the adoption of the new product and possibly justifying a higher price for it. Following is a classification of different type of opportunities:

1. The government has decided to invest in an area which requires new products or services.
2. Environmental conditions favor the adoption of a new product or service. (Situations like war, terrorism, disease and economic prosperity)
3. Some parts of the value chain are very costly and as a result there is a potential to innovate to reduce costs. (For example: Dell bypassing the retail outlets and selling direct).

A measurement of market barriers and opportunities could be based on an assessment of market conditions and distribution channels.

2.3. Competitive Advantage

There are at least three different dimensions to analyze competitive advantage with a new product:

1. Time to market.
2. Market-based comparison
3. Feature-based comparison

1. The time to market issue can be viewed in relation to the product life cycle. Let us distinguish four stages in expected product life cycle: introduction, growth, maturity and decline. A new product entry during the introduction stage is a leadership position in the time to market dimension. This position implies a set of unique tasks concentrating on educating the market about the new product. The focus is on the growth of the whole market rather than on market share.

An entry during the growth stage is considered a "me too" or imitation strategy. With this entry the focus is more on

market share, ability to supply, and on developing advantages in comparison with the leader.

An entry during the maturity stage is more likely to focus on price or to concentrate on a unique niche.

As time goes on there is usually a shift from a competitive advantage that is based on features and performance to advantages based on reliability, availability, relationship and price.

2. The market- based comparison with potential competitors focuses on the supplier's characteristics. These include: reputation for reliability and performance, distribution and service infrastructure, and price competitiveness. A chart, which outlines the strengths and weaknesses of potential competitors on these dimensions, can indicate the need for specific strategies to build on strength and avoid weaknesses.

4. The feature-based comparison with potential competitors focuses on existing or expected strengths and weaknesses in the new product in terms of features. A comparative chart can outline avenues for further product development, as well as a search for customer segments with preference for attributes where the firm has relative strength. Feature-based comparisons may not be feasible, at the entry stage, for first to market products with high technological newness.

These three comparisons could influence the process of product development as well as the marketing strategy. The diagnostic information in this area is probably more important than the overall score of competitive advantage.

2.4. Corporate Readiness

Corporate readiness refers to the motivation and the capability of the corporation to change policies and practices that will support the specific innovation. There are many situations where the barriers for a successful innovation are primarily internal rather than external. Low levels of corporate readiness point to the need for internal marketing in addition to external, customer-oriented marketing.

It is possible to distinguish the following barriers to corporate readiness :

1. Capability readiness.

This factor refers to limitations in knowledge and specialization, which are not in harmony with the innovative technology. Engineering and technical personnel, who are not familiar with a new technology, usually tend to postpone a commitment and to downplay the potential of a new product based on this technology.

2. Operational readiness.

A poor fit between the new technology and existing production lines would tend to postpone a commitment to a new product. Frequently, there is also a strong emotional attachment to an existing operational system that has worked well in the past. There is a natural tendency to delay an adaptation of a new operational system, when the old system is working.

3. Resource readiness.

Most of corporate resources are usually committed to

current breadwinners. It is therefore quite common, that new products which require a heavy commitment of time and money will not receive priority if there are no slack resources available.

4. Infrastructure readiness.

To be successful in the marketing of a new product a corporation needs an established infrastructure. This infrastructure refers to items such as: selling personnel, service facilities, distribution logistics, intelligence and promotion channels. General infrastructure barriers are common for small start-up companies. Specific infrastructure barriers are typical when a company is considering a new product that is targeting new markets, new customer types or new decision-maker within existing customers.

5. Risk Attitude

It is quite common for corporate managers to prefer projects with a low risk and low return to more daring projects that are associated with a high risk and high expected return. Many ambitious new products are associated with high levels of technological and marketing risks. A risk-averse attitude is a common cause for rejecting many new product projects.

6. Short-term outlook

In similarity to the risk attitude factor, a managerial outlook that gives very high priority to short-term results will tend to cancel, or postpone, innovative projects with a potential over the long term. Most managers are under pressure to produce results in the short term and this would frequently affect their allocation decisions.

7. Centralized decision-making.

There is some evidence that new ideas can penetrate faster into organizations which are decentralized, where there are many independent decision makers. A centralized decision-making team tends, over the years, to think alike. Since many innovative new products challenge existing assumptions, there is usually a lower readiness to experiment with innovation in centralized organizations.

The level of readiness of an organization has important implications for both the strategy and the process of managing new products. The strategy has to take into account the existing attitudes and preferences. The process must direct attention to cultivating support and to internal marketing activities.

2.5. Nature of the Technology

The nature of the new product technology could have a major impact on the strategy and process. Three factors in particular are important in this area:

1. The level of newness

The level of technological newness of the new products has an important impact on strategy and process. A high degree of technological newness is frequently associated with a relatively high technological and marketing risk. The notion of "disruptive technology" is very often associated with technological newness. Many companies, particularly large ones, are hesitant to invest in this type of technology since it is difficult to provide sound economic support for the

venture. At early stages the market is small, existing customers' readiness to adopt low, and the whole market is very uncertain. The capability of the new technology is usually limited at the early stages. At times, this type of technology could lead to failure by major corporations.

2. Complementary systems.

The success of many projects of new technology depends on a coalition of different firms. There is no demand for hardware without complementary software. The hardware and software could be the output of very different firms and technologies. When the new product's success depends on a combined effort of different firms, the product strategy and the development process should take that into account at an early stage.

3. Innovation Strategies

In this paper, five different strategies, within three classes, are distinguished:

1. Leadership strategies
 - 1A Aggressive leadership
 - 1B Solid leadership
2. Imitation strategies
 - 2A Creative imitation
 - 2B Efficient imitation
3. Niche strategies

3.1. Aggressive Leadership

The objective of this strategy is long-term market dominance. There is an implied assumption that this objective will lead to profit maximization in the long run. The strategy is characterized by the willingness to give up short-term benefits for a more dominant position in the long term.

Specific actions, which characterize this aggressiveness, can be found in such areas as pricing, market expansion and alliances. A typical pricing strategy with an aggressive orientation is Penetration Pricing. Under this approach the new product is being introduced with very low pricing, which are frequently below operating costs at the early stages of penetration.

An aggressive market expansion is a diversified strategy in which new markets are penetrated very quickly, without the need for economic justification in the near term. Being first in a market is considered a strategic key to long-term success.

A third example of an aggressive strategy is based on an open product platform where the firm is sharing technological information with other firms. This approach creates a semi cooperative semi competitive environment in which the open platform has a good chance to become the norm in the industry. It is a typical example where short term benefits based on unique knowledge, are being sacrificed for the long term chances to influence and lead the industry norm.

Aggressive leadership is a risky strategy since competitive and technological conditions in the long term are difficult to predict. The strategy requires concentration of effort, without many deviations over time.

What are the conditions of the innovation profile, for a successful implementation of this strategy?

1. Customer readiness is relatively high, so that the company can expect a response to aggressive efforts.
2. Market barriers cannot be too high.
3. The firm should have a clear competitive advantage.
4. Corporate readiness must be high so that management and stockholders are willing to wait for returns in the long term.
5. Technological newness has to be moderate-to-high to sustain a leadership position.

Adobe systems gave an example of aggressive leadership behavior by giving its Acrobat Reader for free, by creating an alliance with AOL and by establishing relationships with Compaq, Dell and Sony to preload their product on PC's they sold.

3.2. Solid Leadership

The objective of this strategy is to capitalize on the leadership position in order to increase profits in the short term. Following a period of R&D investment the firm would like to expedite the return on the investment. The typical assumption of the firm is that long-term position could be maintained as a result of a stronger financial position and sufficient flexibility to adjust the strategy to changing conditions. Since many companies give priority to short term profits this strategy is quite common.

The emphasis on short-term profitability is usually manifested in skimming pricing directed at selected segments of the market. Prices are gradually adjusted downward as new segments are being penetrated.

Market expansion is another area affected by the solid strategy. Concentrated and gradual expansion is much more likely, as new markets are penetrated after careful analysis of potential profits and market potential in the short term.

This strategy is also less likely to share unique technology with competitors. The firm usually prefers to exploit their competitive advantage as long as this advantage can last.

The conditions for a successful implementation of this strategy are:

1. Customer readiness is high only in selected segments while readiness in the main markets is limited. Customers in the large potential market are not expected to respond favorably to a low price.
2. Market barriers can be quite high.
3. The firm should have a clear competitive advantage, most likely with an exclusive patent or a monopoly position.
4. Corporate readiness to continue to invest heavily on the project, for the long term, is limited.
5. Technological newness has to be moderate-to-high to sustain a leadership position.

New ethical drugs are usually introduced with a solid strategy. These firms usually spend very large amounts on R&D and on testing and approval procedures, before they are able to market their product. In view of the conditions listed above, most pharmaceutical companies prefer a solid strategy.

3.3. Creative Imitation

The purpose of this strategy is to achieve market dominance and profitability by improving the performance of the leader. The strategy has the advantage of reduced uncertainty. Entry time could be as soon as possible, after it is clear that the new technological product is feasible. It is more likely that the strategy would be implemented at the point that customers' readiness is evident and there is a sufficient and growing market to justify the venture.

This strategy is responding to existing demand without the need to concentrate on basic education of customers. The research part of the R&D function has been demonstrated by the leader and therefore there is more attention to product development with improved features. Creative imitation can usually benefit from a more objective assessment of the leader's weaknesses. While the early entrant is typically a technological leader, the creative imitator is more likely to be customer and market oriented. The successful follower must be able to respond quickly with a concentration of effort, since it is very likely that there will be additional firms that are trying to follow the leader's successful entry.

The conditions for a successful implementation of this strategy are:

1. Customer readiness is relatively high and there is a growing demand.
2. Market barriers are not too high and there are clear profit opportunities.
3. The firm has a competitive advantage in marketing.
4. Corporate readiness is moderately high.
5. Technological newness has to be sufficient to be able to offer improvement in features or performance.

Creative imitation is common in two types of firms: large firms that have an established infrastructure with strong marketing capability, and small firms with creative talents, but without the ability to take the leadership risks. The large firms usually prefer to delay their entry until they are convinced that there is a substantial market potential.

Lotus was able to capture the leadership position in the spreadsheet business as a creative imitator with a strong marketing approach. Other successful creative imitators include: Microsoft's Windows, Johnson & Johnson's Tylenol, Nokia's cellular, and Japan's Matsushita which had a reputation as a fast follower.

3.4. Efficient Imitation

The purpose of this strategy is to achieve a high market share and profitability by cost-based competition. This strategy can be particularly effective against leaders with solid strategy who follow skimming pricing.

In similarity with creative imitation there is less technological and market uncertainty. The R&D effort is concentrated on process innovations in order to be able to manufacture the leader's product at lower costs. The strategy requires concentration on efficient operations and low overhead. The focus is on satisfying existing demand con-

centrating on large market segments that are price sensitive. Entry timing is usually in the growth stage of the life cycle, but entry with cost-based competition can also be successful at the maturity stage.

The conditions for a successful implementation of this strategy are:

1. Customer readiness is relatively high and there is a growing demand that is price sensitive.
2. Market barriers are not too high and there are clear profit opportunities.
3. The firm has a competitive advantage in process R&D and in efficient production and marketing.
4. Corporate readiness has to be moderately high particularly with respect to the low overhead implications of this strategy.
5. Technological capability has to be sufficient to be able to offer comparable quality products at a lower price.

There are many examples of efficient imitators including PC clones, generic drugs, Pioneer in stereo systems and calculator companies. Cellcom in Israel was able to take the leadership position in the cellular business through aggressive pricing, against a solid strategy by the early leader Motorola.

3.5. Niche Strategy

The purpose of a niche strategy is to dominate a market segment that can satisfy the profit needs of the company. The strategy aims for an early entry into a market segment that is not served by competitors. The ideal segment is large enough to satisfy the needs of the company, but sufficiently small to be unattractive for additional competitors. The entry time could be at different stages of the adoption process in the general market. The strategy requires concentration and specialization in responding to the specific needs of the chosen segment. The R&D must be adapted to the niche requirements.

The typical conditions for this strategy are:

1. Limited customers' readiness in the general market, or
2. High barriers of entry in the general market, or
3. Weak relative competitive position.
4. High customers' readiness and low market barriers in a unique segment.
4. Moderate degree of corporate readiness to concentrate on a niche market.
5. Technological ability to satisfy the needs of the chosen segment.

At an early point in its history AOL had a niche strategy by teaming with the Chicago Tribune to concentrate in the Chicago area as a niche. The advertising power of the newspaper with its vast content and local information, made it possible for AOL to achieve breakeven against the national competitors with heavy resources: Prodigy and CompuServe, which were losing money.

4. New Product Development (Npd) Processes

There is strong tendency in the literature and in practice to view product development process in a single "correct" format. The practice of having a set process and procedures is considered more efficient in many business firms. The historical evidence of a very high failure rate with new products, lends support to a process that appears to reduce this risk. In recent years there are stronger voices which call for different treatments under different conditions and particularly for disruptive technology.

In this paper we outline four alternative NPD processes. Each of this process can be justified under a different set of conditions that were discussed in the innovation profile section. There are some circumstances that a combination of these processes could also be justified.

1. Structured stage-gate approach.
2. Breakthrough innovation.
3. Extended enterprise approach.
4. Incremental approach.

4.1. Structured Stage-Gate Approach

This general approach appears to be the most common procedure in the literature and in practice. The essence of the approach is a set of predetermined stages that a new product must go through.

Following each stage there is a review process, or a gate, that requires a go ahead for the process to be continued. A simplified version of this process is captured by the following stages:

1. Idea generation and screening.
2. Preliminary investigation – first cut.
3. Detailed investigation with specific product and market definition.
4. Development of product, production and marketing plans.
5. Testing and validation of product, production and marketing.
6. Full scale product launch.

The structured approach is associated with clear and precise time table, budgets, responsibilities and formal plans.

The conditions for the successful implementation of this approach are:

1. High readiness of existing customers. This readiness helps the company to define the product and the marketing plan and to get approval for the project.
2. Market and profit opportunities without significant market barriers.
3. Moderate competitive advantage is sufficient.
4. Moderate degree of technological newness.
5. High corporate readiness to support the new product project.

4.2. Breakthrough Innovation

There is ample evidence that a breakthrough innovation, which is usually a disruptive technology, requires a different approach to successful development and marketing.

The breakthrough innovation is usually a long-term

project, which is often associated with the development of a new market. It does not solve the short-term needs of line managers responsible for profit and loss. There is also a high degree of technological and marketing uncertainty, which makes it difficult to prepare precise time and budget plan. This uncertainty will also make it impossible to pass rigid stage-gate tests. The process of new product development requires a detachment from current business activity and a high degree in flexibility and vision.

The conditions for a successful implementation of this process will further clarify the differences between the structured approach and the breakthrough innovation.

1. Customer readiness is frequently limited with existing customers, but there are some segments in the market, which exhibit readiness to adopt the breakthrough innovation. These could be emerging segments, which are different from existing customers. It is therefore critical to carefully choose the customers who may provide relevant feedback for the new product. Existing customers could give the wrong signal.

2. Market barriers and opportunities are often unclear. The existing distribution network may present a barrier, but it may not be the right channels for the innovative product. The market and profit opportunities are usually difficult to assess and major errors are likely with respect to timing and impact.

3. The competitive advantage is high, particularly the technological advantage. Marketing advantages may have to be created or developed.

4. Technological newness is high.

5. Corporate readiness is frequently divided. Line managers, with a short-term horizon are not likely to support a diversion of resources for an uncertain future. Marketing and R&D staffs, with a natural preference for the longer term are more likely to lead and support the project

4.3. Extended Enterprise NPD Process

There are many situations in the evolving high - technology environment in which a new product development process cannot remain within the firm boundaries. Some of these situations have been outlined in the discussion of innovation profile.

The typical conditions for an extended enterprise NPD process are:

1. The nature of the technology requires complementary systems in order to succeed. Typically this is associated with a combination of hardware and software. A successful development of one without the other will most likely lead to failure.

2. The level of the investment and risk are such that a single medium-size company, and sometimes even a large multinational, cannot justify the effort.

3. Corporate readiness, particularly with respect to capability and or resource readiness, requires extensive knowledge inputs from outside sources.

Some elements, which characterize extended enterprise NPD process are:

1. There is a need to develop a common vision with the partner, or partners, and to clarify expectations.

2. Clear stages must be set for allocation of work, building on the strength of each partner.

3. A successful project requires cultivation and management of networks rather than hierarchies.

4. Attention should be devoted to the study of differences in perspective and culture.

5. There is a need to develop tolerance for misunderstanding and to support procedures to reduce ambiguity.

An example of a product development approach of this kind, including strengths and limitations, can be seen in Sony's development of its car navigation system with a group of companies (NeviKen), sharing standards and marketing approach. Sony's experience is a reversal of its previous go-it-alone strategy with Beta video system.

4.4. Incremental Approach

The success of the three processes outlined above depends on a positive corporate readiness. With strong internal support, new product champions can concentrate their marketing efforts on external customers. There are however, many situations in which corporate readiness is weak and the NPD process could not proceed on the assumption that a good and detailed plan will be approved. Some neutral, or negative, corporate attitude to a new product project is likely to occur under circumstances such as these:

The requirements for resources are heavy in comparison with current needs.

The venture is considered a high risk.

The new product challenges existing concepts about the market and technology.

There is no support for the project among current customers, the sales force, or distributors.

Capability, or operational readiness, is limited in view of the technological newness.

Most major NPD projects, which challenge the status quo, encounter internal corporate objections. In these cases the NPD champions must direct major efforts to cultivate internal support. The linear structural process, which requires approval at every stage, is not likely to work. As proposed by Quinn, an incremental approach, similar to fermentation, is much more likely to succeed.

The key elements of this approach are:

1. A presentation of a formal plan with clear goals for the new product project is delayed until support has been cultivated and achieved.

2. Experimental moves are an important part of the process.

3. There is a conscious effort to legitimized new viewpoints associated with the project. Special "favorable" committees may be created for this purpose.

4. The project is characterized by structural flexibility and tactical shifts.

5. There is a need to create and manage a coalition of supporters.

6. Different parts of the project and various separate ac-

tions are integrated into a cohesive whole.

7. Implementation is usually in process before the scope and goals of the project are clear to all.

Some of the above elements may exist in most ambitious projects, but in some cases a project could not be implemented without concentration on active internal marketing of this kind. A description of this behavior is presented in the series of cases, which, deals with the successful introduction of innovative orthopedic products to the US market by a Swiss company (Syntex).

5. Conclusion

The major conclusion of this paper is that the choice of strategy and the choice of process for a new product are dependent on the analytical assessment of conditions, which we call the innovation profile. There is a strong tendency in new product ventures, as well as in many policy decisions, to implement processes and strategies that were successful in the past. The relationship between actions and conditions is clarified by the innovation profile and the follow-up discussion of strategies and processes. When this is done carefully, it is more likely that the selection of alternatives will be based on analysis rather than on inertia, or dogma, and the probability of success could increase.

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