



Early Adoption - Strategic Commercialization for Small Tech Companies

The role of strategic management in the commercialization of emerging and disruptive technologies has seen radical shifts.

There have been many papers published and presentations given on the commercialization of small technology. The vast majority address the importance of intellectual property protection, business plan creation or funding strategies. Unfortunately, not much emphasis has been placed on the importance of understanding the required marketing strategies that will enable your product innovations to reach their intended audience.

Since its creation in 1998 at the Hilton Head Conference, the M3 Commercial Report Card has provided a guide as to how well the industry as a whole is meeting the demands of commercializing small technology. The Report Card measures 12 key elements, ranging from R&D to profitability, and annually monitors marketing, market research, and management expertise as well. One unusual note is that throughout the seven years the report has been published, the grade for Marketing has remained within the 'C' range, basically unchanged and unimproved. The aim of this paper is to highlight marketing strategies and tactics that are particularly effective to the introduction of innovative technologies, especially for start-up organizations. Awareness of the unique obstacles that face emerging technology companies will allow for better planning. And, a better understanding of the crucial importance of focused marketing will help to improve industry performance in marketing.



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Marketing technology

What is so unique about commercializing innovative, disruptive technologies? First, innovations are often the result of technology advancements, not a response to a specific customer need. As a result, emerging technologies frequently have to “search for a market.” This is particularly true if the innovation is a platform technology that may have multiple applications, but may not yet address clearly defined customer needs and wants.

The second unique challenge is the time it takes for an innovative product to become accepted by the market, and for the technology to diffuse throughout its intended target sector. Diffusion research has been extensively conducted since the turn of the last century, when French sociologist Gabriel Tarde plotted the original S-shaped diffusion curve. Interestingly, the rate of adoption, for almost any innovation, generally follows an S-shaped curve, the variance simply lies in the slope of the curve. For example, some new innovations diffuse very rapidly resulting in a steep S-curve, while others have a much slower rate of adoption that leads to a more gradual slope. The technology adoption process continued to be extensively researched, with a significant advance from researchers Ryan & Gross studying the rate of diffusion of new hybrid seed technologies among Iowa farmers. Ryan and Gross were the first to classify the segments of an end-use adopting population based upon their technology adopting behaviors over time. Further refinements to this model came in 1963 by Everett M. Rogers in his landmark study, “Diffusion of Innovations.” Rogers defined the innovation diffusion process as “the spread of a new idea from its source of invention or creation to its ultimate users or adopters.”

Strategic marketing plans

What all of the above information tells us is that focus is the key to success. And the best way to bring focus to your marketing efforts is to create a strategic marketing plan. Much like generating a written business plan, the process of outlining a marketing strategy forces decision-making—and concept validation—in some very crucial areas. Who is your target customer? Why will they change what they are currently doing to use your product? What product launch strategies will be most effective in introducing your product to your target audience? And, considering this particular audience, what is the most effective way to gain market acceptance?

In a very diverse market such as small tech, creating a strategic marketing plan brings focus to your efforts. The process of creating the plan is just as beneficial, and in some ways even more valuable, than the resulting document. As you outline your marketing roadmap, each decision helps to clarify your direction, bring into focus the resources required and highlights possible obstacles so that the organization can be prepared. Don't be concerned that you don't have all the answers, or that you may have to change direction. Your marketing plan is a living document that should be adjusted and updated as you gain additional information. It should be constantly reviewed, calibrated against, and challenged.

Analytical models

Why use models? First of all, they provide a structured methodology in which to constantly test your assumptions, and update the intelligence, which is vital to product development, and launch. Secondly, they simply provide an organizational framework for what may look like disparate pieces of information.

Models help to identify what you don't know, and what additional information you need to gather. They may point to a specific strength or weakness that can identify a path forward or a course correction, and they provide a perspective and a focus for the entire project / company. In this case, there are four analytical models which are particularly relevant and integral to any strategic marketing plan for emerging technologies and innovations: Industry analysis (Porter's Five Forces of Competition), company analysis (SWOT), product life cycle modeling, and the technology adoption curve.

Each of these analytical models provides a key element of intelligence within a more complete, integrated view of the product offering or technology.

Identifying opportunities

Identifying a target audience is the first step in bringing focus to your marketing efforts, and prioritizing your growth opportunities. As an emerging technology company, you should select possible market segments where your products will provide a clear unique benefit, such as faster, cheaper or better. You should evaluate each identified market segment for size and growth rates, and determine what potential competitive advantage your product may have in this segment, such as a first-mover advantage, or any unique ability to overcome barriers to entry.

Secondly, you should ascertain whether or not the possible target segments meet the company's long-term objectives and that the company's resources and key competencies are adequate to meet the market demands. A SWOT analysis is valuable for answering these questions.

Once you have identified one or two key target market segments, do a thorough investigation to truly understand the current market dynamics. This is where Porter's Five Forces model becomes critical. What are the existing technologies and what improvements will likely be introduced in the future? Don't assume that the companies with incumbent technologies will be standing still while you develop and introduce your product to their audience. Also look at competitive and possible substitute products to the one you will be introducing. You want to recognize and thoroughly quantify the advantages and disadvantages so that you can position your product appropriately. Positioning is how you want your target audience to think about your product. One of the best ways to communicate this message is by

writing a value proposition statement that is appropriate for a particular adopting segment. This is where an understanding of diffusion theory is helpful, and your value proposition statement can be modified depending upon the segment you are trying to reach. During your target market analysis, you will identify gaps between what is needed and what current technologies provide. Your value proposition statement should highlight how the distinctive features of your product and the resulting customer benefits satisfy this existing gap. A clear and concise statement can communicate how your product will create value for the customer.

Cross-functional Initiatives

Internal alignment is perhaps the single most important element for the successful launch of any innovative product or technology. Cross-functional teams often determine the success or failure of the project simply because they often generate the roadmap: The quality and integrity of the roadmap is often determined by the quality and integrity of the group's internal communications.

To obtain vetted and meaningful information for the modeling mentioned in the previous section, it's essential to have good communication within the team. If the organization has fostered a culture of 'informed dissent', and members within the cross-functional team are able to truly and freely express their opinions and challenge previously accepted observations, the odds for better product quality, and real market success are greatly improved. In fact, recent studies have shown that among a team's characteristics, the ability of the group to integrate information across individual members is directly proportional to higher quality products and more successful launches.

Conversely, there have been numerous recent examples of solid technology platforms, with broad-ranging target markets & opportunities, which have crashed and burned simply because communication and information flow had been stifled between functional groups.

Key relationships

The above discussion on cross-functional teams also dovetails into the importance of relationship building in the market during the early stages of product development. During this period it is vital to consider additional relationships that will be valuable as you move forward. In fast moving, high technology markets it is highly unlikely that a small, start-up company will have all of the resources necessary to successfully execute its strategy. Identify in advance key collaborators that will help to fill in the gaps when necessary.

Partnerships & alliances

There is a wide array of partner/relationship models especially relevant to small tech companies, including vertical/horizontal alliances, as well as competitive collaborations (also known as co-opetition). The most obvious relationships are those with suppliers, distributors and complementors (companies that provide jointly used or complementary products). Establishing a relationship early during the product planning and development stage allows enough time to define the relationship and to work out the details well in advance of implementation.

In addition, consider other key relationships that will give you access to resources and/or skills that may be too time consuming or costly to develop internally. Just as you looked outside for help with Intellectual Property issues, in an environment populated with highly technical employees you may need to seek outside help in outlining your strategic marketing plan, particularly in understanding the competitive landscape and identifying the appropriate marketing position for your product.

Networks

Beyond formalized partnerships as mentioned above, there is a growing array of organizations dedicated to the exchange of information within the small tech community. Organizations and consortia all provide conferences, symposia and educational opportunities focused on M3 and nanotech. In addition, all of these represent a unique forum and a valuable opportunity for small tech companies and entrepreneurs to interact with others within their community, potential end-users, and possible alliance partners.

Active membership in organizations such as these should be a key element within your overall marketing plan. These all represent

valuable opportunities for your cross-functional team to promote, interact, and test your product's value proposition within a motivating and educational environment.

Product launch tactics

In the course of conducting your target market research, you will identify key customers or opinion leaders that will be instrumental to you in gaining marketing acceptance. Seek out those early adopters that are interested in new approaches and are willing to work with you to solve problems and provide product-shaping feedback.

Customer visits are an extremely important element for emerging-tech solution providers and small-to-medium enterprises (SME's). The above-mentioned focus on key customers illustrates the importance of relationship building in the market during the early stages of product development. In fact, customer listening, and an organized approach for capturing customer feedback/observations/opinions can help to create consensus between the functional groups of your organization, and can lead to an improved response to customer needs.

Customer visits should be part of a structured program, and metrics for gathering the information and assimilating the data must be established in order to get the full utility from the visits, which can be a considerable expense for the organization. Beta sites are also an excellent way to gain information about the strength of your product and the responsiveness of your company. In addition to getting actual product use information, beta sites provide the first opportunity to measure the performance of your company in relation to the customer.

White papers are a very effective marketing tool used by many in high technology industries to introduce innovative products. Somewhere between a technical paper and a product advertisement, the purpose of a white paper is to introduce the target audience to your product by identifying problems and concerns commonly encountered by the target customer and then highlighting the solution provided by your product. As opposed to a product bulletin or data sheet that focuses exclusively on the features and benefits of the product, white papers focus on the needs of the customer

Expeditionary marketing refers to tactics by high-tech companies to better manage their risk, and increase the dexterity and response of their product development teams. Since creating markets in advance of your competitors generates so much risk—the market may not develop, may develop differently, or it may develop more slowly than expected—you may want to look at methods by which you can hedge your bets.

One typical approach is to “swing for the fence” by precisely tailoring the product in terms of functionality, price and performance for a specific market application and/or sector.

The other method, especially effective in the burgeoning nanomaterials arena, is to use a “base-hits” approach by having a series of smaller, sequential product launches and introductions. The products are modified/improved in smaller increments, and the tactic becomes a low-cost, high learning exercise for the company.

Conclusions

Some of the most interesting dynamics in high tech marketing are the many challenges that face companies and solution providers in commercializing new technology products. According to Jakki Mohr in her recent book, *Marketing of High-Technology Products and Innovations*, high technology industries share three common characteristics: Market uncertainty, technological uncertainty and competitive volatility.

These characteristics are widely exhibited in both the M3 and emerging nanotechnology sectors - much the same as both the biotech and IT transformations from the last 20 years. Yet, despite some real advances in the field of strategic marketing, the M3 Industry Report Card has graded marketing as a stagnant “C +/-” for the last seven years straight.

Achieving commercial success in an environment of such unpredictability requires focus, planning, and a thorough understanding of your potential customers and their needs. To realize this success, stage-gate procedures, strategic marketing, and methodical product launch planning must be integrated parts of your combined business development process. Your strategic marketing efforts must be given consideration equal to that of R&D planning. Good ideas and a solid technology alone are simply insufficient.

It is our hope that once armed with a better understanding of the unique challenges that face emerging technologies, and an improved knowledge of strategies and tactics that are proven to work in high tech markets, the M3 / nanotech communities will actually embrace these best practices. There is every reason to believe that we could finally see a major improvement in the Marketing Grade in the M3 Industry Commercial Report Card over the next couple of years.

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