NORTH-HOLLAND

New Product Launch

Marketing Action and Launch Tactics for High-Technology Products

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The new product launch is a critical stage of any new product development process. The success of the product is likely to depend heavily on how well marketing managers deal with the launch. Very little has been written on the kinds of tactics marketers use to launch their products. This article aims to rectify this by presenting the results of a detailed investigation into the actions and tactics marketers employ to launch high-technology products. A framework of 22 tactics, based upon 103 different marketing actions, is presented. The circumstances in which the tactics are used are described in terms of technological maturity. The results show that for revolutionary innovations, marketers tend to emphasize the technological component of their products and concentrate more on positioning and attack tactics than on market preparation or targeting.

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INTRODUCTION

This article looks at an important product management activity, the commercialization or launch stage. This stage is often neglected in the literature on new product development, innovation, and high-tech marketing. The focus of the study is on high-technology products, as it is typically in this area that innovation burns brightest—this is where technological virtuosity looks to marketing to carry its torch into the marketplace.

Commercialization is typically the most costly stage of the new product development process. Its costs will often exceed the combined cost of all previous development stages [10, 30]. Even for well-managed new product development processes, there is still an expected failure rate of 30% for new products at launch [30].

For high-tech products, the commercialization stage offers only a brief opportunity during which the product must be introduced and established. Development cycles for advanced technologies have always been short and are apparently becoming even shorter. Consultants have reported periods of less than 9 months during which the producer

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Licensing encourages the creation of technological standards . . . increasing adoption.

must develop, launch, and establish a new technology generation [2, 9]. In this rapidly changing environment, technology strategy and marketing strategy should coexist as one. There is usually one shot at the market, and this makes the launch stage critical. Failure at this point can have consequences that go beyond the immediate launch. Even where development cycles are less severe, success in the short-term is associated with success in the long-term. A product that is successful during the first 12 months is more likely to nurture an entire product group some years later [31].

High-tech markets are characterized as fast-moving, expensive, risky, and entrepreneurial. The product launch brings the producer face-to-face with the customer. In high-tech markets this can sometimes be for the first time, yet the producer rarely has a second opportunity. However, it is in this world that the marketer has to plan the new product launch strategy. This article asks how marketers operate in this environment and seeks to describe the actions taken to commercialize new high-tech products. In particular it attempts to provide as comprehensive as possible a listing of the actions that are available to the marketer, and from which the marketer chooses. It also attempts to understand the circumstances in which one set of actions may be preferred over another.

First, some background on what is currently understood about the high-tech marketing environment. A major contributor to a company's competitive advantage is the speed at which it is able to bring the next technological generation to market. Bourgeois and Eisenhardt [6] have described as the "Living Dead" Silicon Valley companies that are declining due to their inability to bring the next generation of previously successful technology to market quickly enough. Perhaps as a consequence, large technology producers have been investing a considerable amount of effort into shortening their product development times [8, 29].

The increasing speed with which one generation of a technology can supersede the previous generation leads to customer confusion [20], as does an increasing complexity of the technology. Barriers to adoption are created [28], and these must be overcome by strategies sensitive to the uncertainty experienced by the customer.

The literature also provides insight into some strategic approaches high-tech producers take in the face of these variables. High-tech ventures tend to have a more entrepreneurial outlook [27]. The successful ones are inclined to be small, highly focused, and flexible [19]. The need to retain a technological advantage, combined with the rapid rates of change in high-tech markets lead to an empirical form of marketing in which new products are put into the marketplace swiftly with the intention of refining the product as it is marketed [3].

The strategic approaches in the high-tech environment can be distinctly ad hoc [21], especially when small firms are marketing very advanced technologies [3]. Such approaches have also been described as entrepreneurial, proactive, and technology-driven [27]. There appears to be little or no attention paid to planning. Gilbert and Strebel [15] observe that success in high-tech markets does not seem to be related to any conventional idea of strategy, but to the marketer's ability to modify the product mix as the product is marketed. Nystrom [23] has argued that new technology tends to be marketed not on the basis of specific products, but on the basis of a vision of a technological future communicated to an informed marketplace, encompassing many products based in both the present and future.

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Producers who can't convincingly use a "safe bet" image may use an image of exclusivity instead.

There is some debate over whether or not high-tech marketing can be considered as a special case within marketing. Moriarty and Kosnik [22] conclude that the high-tech marketing environment is characterized by the presence of high uncertainty for both supplier and customer, a viewpoint shared in this article. We would also add that the rapid rate of change characteristic of both the technology and the market in the high-tech world leads to a situation in which technological vision and marketing tactics take precedence over business strategy.

The implications of this view lead to a marketing approach that is technology-led rather than market-led, proactive rather than reactive, and requires considerable flexibility and speed of response for both the technical and marketing functions of the firm.

This article is concerned with the operation of the marketing function. Specifically, we see marketing actions and tactics as the focus of marketing activity for the launch of high-tech products. We intend to describe the tactics used, and to understand when they are used.

METHOD OF INVESTIGATION

The methodology adopted for this study assumes an operational approach to marketing. The process begins at the very basic level of numerous actions (i.e., developing a beta test site, holding a conference, working with trade journalists) that marketing managers undertake to launch a new product. These marketing actions can be grouped into *tactics*, with each tactic supporting an objective to be achieved by the marketer [4]. As an example, it may be that in implementing a strategy to reach the high-income end of a market, the marketer's tactic is to emphasize the exclusivity of a new product. This tactic could be implemented by a combination of a number of actions, examples of which could be: communication of the quality of the product, communication with higher income individuals, or concentration on the appearance of the product.

The first stage of the investigation therefore sought to identify marketing actions used in launching new high-tech products. This was achieved by means of interviews with 15 senior marketing managers, all working for U.K. companies recognized as leading marketers of high-tech products and processes. The managers were asked to select a major product or process that their company had recently introduced and to describe the actions they had taken to launch it and why. Each interview lasted between 1 and 2 hours and was recorded for transcription.

The transcripts were analyzed by means of a content analysis described in Beard and Easingwood [4]. The result was a generalized framework of 22 tactics, classifying a total of 101 different marketing actions undertaken to launch new high-tech products. This framework, reported in a preliminary form in Easingwood and Beard [12], together with the more general content of the interviews provided a sound basis to conduct the second stage, a survey.

The survey sought to extend the study in two ways: to validate the actions/tactics classifications and to investigate the use of these launch strategies under varying conditions of technological and market maturity.

A questionnaire was designed with these objectives and sent to 750 marketing managers in high-tech sectors (computer, telecommunications, automation, pharmaceutical, and chemical industries). They were asked to respond only if they met the following criteria:

- They had been responsible for the launch of a product with the previous 2 years
- The product was manufactured by their company
- The product embodied a primary technology that had been developed by their company.

This resulted in 123 usable questionnaires, each one representing a new product launch for a different company. For each product launch, managers were asked to indicate the importance of each of the marketing actions identified in the interview stage of the research. They were also asked

Market education can be more concerned with communicating the vision than with the nature of the technology.

to provide information relating to the maturity of the market for the product and its primary technology.

RESULTS

Marketing Action and Launch Tactics

The questionnaire provided data on the perceived significance, measured on a scale of 1 to 5, of 101 different marketing actions or operations that could have been used to launch a new product. Most of these are listed in Tables 1 to 4, together with their mean scores, where a 1 indicate the operation was perceived as insignificant, and a 5 indicates the operation was perceived as highly significant in the new product launch.

The results in Tables 1 to 4 provide a framework of 22 different tactics used by marketing managers and clearly specified in terms of the marketing operations that can be used to implement them.[1] Furthermore, all of the stated operations are firmly grounded in management practice, as each one was derived from the interview studies performed with marketing managers.

The interview stage of the research revealed that marketers tend to develop tactics for the launch based upon the process shown in Figure 1. The first step of the launch was generally to take some action over preparing the market. Very often this action would be taken while the product was in its development stages. At the same time, or shortly after this, tactics were put into motion that were aimed at targeting the product. Using information about the target market, marketers may also seek to position the product on the basis of what they understand the competitive situation to be. The final stage of the process was then to develop and implement tactics aimed at attacking the market. Attack tactics were usually the most visible part of the launch, taken to achieve specific results.

Market Preparation Tactics

This category of launch tactics describes the activities undertaken to prepare the market for launch. In many cases, the way in which the marketer chose to set up the market prior to the launch was crucial. There are four market preparation tactics formed from 16 marketing actions (see Table 1).

Licensing the technology is a tactic that has been used to increase the usage of a new technological format. Pilkington used this tactic to spread the use of their floating glass technology on a global basis. This is a tactic that is becoming increasingly popular as the need to reach global markets rapidly intensifies. A current example is Apple's decision to license the handwriting recognition technology used in the Newton as a way of quickly developing an emerging market for personal digital assistants. Licensing encourages the creation of technological standards, which can substantially increase adoption [1]. Licensing can also reduce the risk of "going it alone" by raising the up-front revenue required to cover the R&D investment in the technology [7].

A half-way route between sole marketing and licensing has been to sell to other equipment manufacturers (OEMs). In the late 1980s NCR maintained its strategic focus on its core niche markets, while at the same time increasing its production volume by selling its own manufactured personal computers through OEMs operating in noncompeting market segments. This market preparation tactic enables the producer to retain full ownership of its technology while at the same time expanding market potential beyond its own marketing capacity, albeit at a reduced margin.

The type of information released before launch, and the manner in which it is delivered, can be a key tactical deci-

[1] The appropriateness of assigning actions to tactics was tested by calculating the Cronbach alpha measures of internal consistency, for each tactic. If the inclusion of an action caused the value of the Cronbach alpha to drop below 0.4 it was removed from the scale, resulting in the removal of 11 actions.

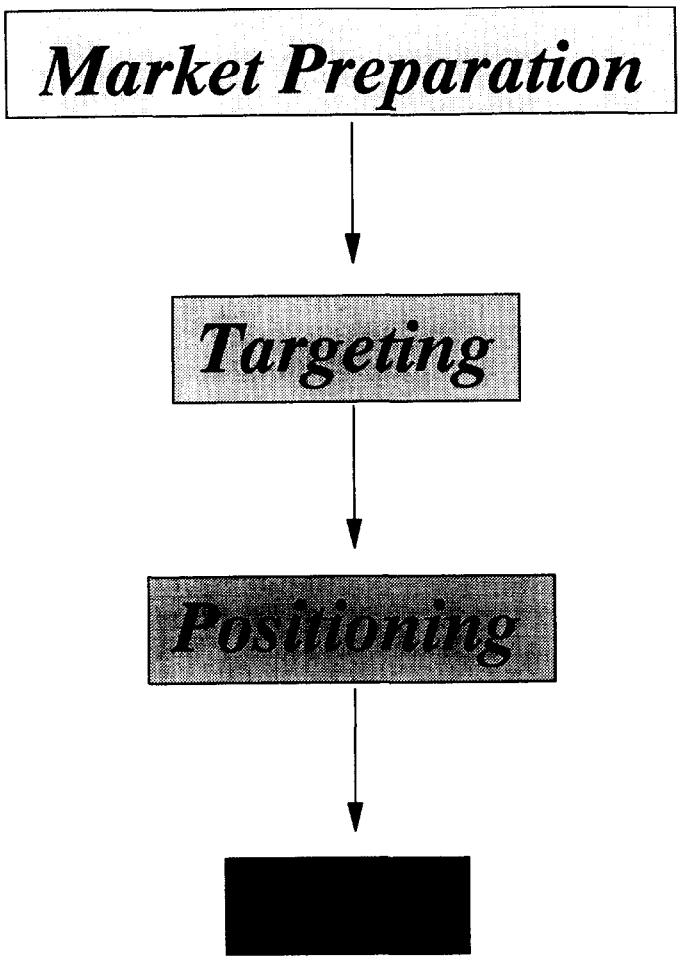


FIGURE 1. Process of launch tactic development.

sion in the product launch. Those who typically need to be informed before the launch are the distribution network, service suppliers (e.g., software houses), and the media. A recent lawsuit taken out by a word-processing software company against another software supplier for failing to reveal the full specifications of their product for competitive reasons illustrates how important this tactic can be. More generally, attention must be given to precisely what information should be released to the market so that sufficient interest in the new product can be aroused without losing a competitive edge in a market where imitation can appear instantaneously. A careful balance needs to be drawn between the need to have influential components of the market's infrastructure informed, without giving a technological lead away to competitors.

Finally, it may be that the new technology is to be launched into a new market or new market position, which may require special distribution arrangements to be made.

TABLE 1
Market Preparation Tactics[a]

Tactic	Associated Actions/Operations	Mean
Licensing the product technology	Licensing to inaccessible markets	1.55
	Licensing to create a standard	1.47
	Licensing to create a national image	1.41
	Licensing to reach an unfamiliar market	1.43
Supply to other equipment manufacturers (OEMs)	Supplying only OEMs	1.57
	Supplying OEMs to increase sales volume	2.20
	Supplying OEMs to access new markets	2.21
	Supplying OEMs to create a national image	1.76
Provide prelaunch information	Give technical information to media before the launch	2.99
	Give prelaunch demonstrations of the product	3.33
	Give technical information to some support industries	2.48
	Hold conferences on future technology directions	2.51
Create special distribution arrangements	Look for new dealers in new markets	2.61
	Form a joint venture with another producer	1.72
	Give distribution rights to competitors in new markets	1.80
	Create new dealerships in existing markets	2.25

[a] Cronbach alphas (measures of internal consistency) for the four tactics are 0.87, 0.90, 0.78, and 0.78, respectively.

Table 1 shows a variety of ways in which these arrangements can be made. An increasingly popular means of creating new distribution is through a joint venture, possibly involving collaborative development of the technology [17]. Dramatic examples of large mergers and buy-outs, such as that recently completed between Viacom and Paramount, find a large part of their justification in the need to develop new forms of distribution for entertainment products.

Targeting Tactics

Adoption is likely to be faster if the marketing strategy is compatible with the segment targeted [13]. In a study of telecommunications products, it has been shown that clearly targeted products diffuse more rapidly than non-targeted products [11]. Nearly all marketers in the interview stage had defined their target market in some form. Interestingly, target markets were often found to be defined in terms of the groups that adopt at different stages of the product life cycle (see Table 2).

Targeting innovators is an appropriate tactic for very new technologies. Innovators are highly responsive to the benefits

TABLE 2
Targeting Tactics[a]

Tactic	Associated Actions/Operations	Mean
Target innovators	Use experience to identify innovators	3.00
	Do market research to identify innovators	2.43
	Target customers quick to adopt new products	3.13
	Tailor advertising to the innovator profile	2.74
Target early adopters	Direct marketing effort at large organizations	3.36
	Run conferences on the future of the technology	2.21
	Concentrate on good product support services	4.21
	Meet the needs of large customers	3.86
	Delay launch while awareness increases	3.16
Target late adopters	Research market expectations of the product	3.15
	Use commodity marketing techniques	1.58
	Distribute the product as widely as possible	3.08
Target existing customers	Run seminars for existing customers	2.72
	Meet the needs of existing customers	3.82
	Use customer records	3.22
	Offer price discounts to existing customers	2.26
	Offer special support to existing customers	2.65
Target competitors' customers	Emphasize improvements over competitors' products	3.58
	Emphasize improvements on own product	3.36
	Directly compare own product with competitors'	3.16
	Offer a trade-in for the old product	1.49

[a] Cronbach alphas for the five tactics are 0.47, 0.52, 0.47, 0.60, and 0.61, respectively.

of a new technology, and they also influence others. This small segment of the potential market can be extremely difficult to identify, however. Identification often relies on the insights of the salesforce, and sometimes on the use of marketing research. For small firms without relevant experience or resources, promotions tailored to the innovator profile are sometimes used. For example, a small French producer of notebook computers, at the time when this technology was emergent, focused its entire U.K. promotion budget on advertising in an up-market Sunday newspaper on the belief that innovators were readers of this newspaper.

For producers that do not have or want a technological lead, targeting early adopters can be used. Early adopters are often large organizations with a clear need to adopt new technologies to retain or improve competitiveness. However, this makes them risk averse, because the anticipated investment may be high. The rise of Compaq Computer in the early 1980s was based upon a deliberate targeting of the early adopter profile. This tactic is particularly appropriate for discontinuous technologies, where the perceived risk of adoption is often higher than for more continuous forms of innovation [31].

By definition, targeting late adopters is a tactic used to launch new products into a market that has already absorbed and accepted a new technology to a large degree. Often producers that are successful in reaching the very large late adopter portion of the marketplace are quite different from those that have successfully reached the innovator and early adopter sections. An example of this happening in dramatic fashion was Amstrad taking 20% of the U.K. personal computer market in its first year; later Dell made a similarly dramatic entrance to the market in the same way. This was largely achieved by growing the market through reaching the large, dormant late adopter part of the market. Amstrad was able to take advantage of its extensive consumer audio distribution networks and Far East production facilities to produce a product well suited to this part of the market and capable of being marketed in large quantities.

The phenomenon of late entrants coming to dominate the large and often profitable late adopter part of the market is also well illustrated in Rosenbloom and Cusamano's [26] description of how JVC, Sony, and Matsushita came to dominate the VCR market—this after Ampex and RCA had established themselves as technological leaders. The VCR story shows dramatically that establishing a technological lead alone is not enough to realize the full commercial potential of a technological breakthrough; technological development must continue with clear strategic intent, in this case to reach the consumer market. It seems targeting late adopters is a tactic that could be easily forgotten in the excitement of an initial breakthrough, possibly to the eventual detriment of the innovating company—an observation that could prove relevant to technological pioneers in the currently emerging virtual reality market.

Targeting existing customers is a tactic particularly appropriate to rapidly changing advanced technologies. One of the reasons the U.K. computer firm Apricot survived through the 1980s, despite its very small market share and adherence to its own processor architecture, was because of the open and collaborative relationships, or "vertical coordination" [13], Apricot created with existing government customers. This tactic is also particularly relevant to complex technologies where the decision to adopt often relies upon a high degree of technical expertise [24] and mutual trust between buyer and supplier.

Targeting competitors' customers is an aggressive tactic aimed at urging the customer to adopt on the basis of what is usually described as a superior price/value combination. For very new technologies, many marketers believe this tactic is counterproductive. Aggressive competitive tactics can be seen as undermining the credibility of the entire technology, rather than the competitor's product as may have been intended.

Positioning Tactics

For some new technologies, the initial market is so new, small, and esoteric that targeting and positioning tactics are unnecessary or inappropriate. This can be the case for specialized industrial products such as switching devices or custom application semiconductors. For other technologies, the potential benefits and applications of the new technology are so wideranging that product positioning is essential, as will quickly become apparent as the multimedia market develops. Market positioning can be based upon tangible (i.e., technological) or intangible (e.g., image) characteristics. In highly technological industrial markets, positioning was seen to be mostly on the basis of tangible (technological) rather than intangible characteristics. Where the market was not so technologically informed or the benefits of the new technology not easily differentiated from competitors, positioning characteristics tended to be more intangible. Table 3 shows the tactics and marketing actions used to position a new product.

A tactic often used by small firms is to position their product for organizations likely to be heavy users. It is believed that limited marketing resources, concentrated on a few potentially heavy users is a tactic likely to succeed in bringing increased sales volumes. Qualities such as product reliability and durability, service, and cost efficiency are emphasized. Small firms in the study that used this tactic often found themselves tied in knots by their potentially heavy using prospects: their heavy users just became heavy. Heavy use means high investment by the customer and major consequences if the purchase is a bad one. This results in an endless request for more information, more and more people being brought into the decision-making process by the customer, and often substantial quantities of trial stock being assessed for long periods of time. Small firms be warned.

Low price appears to be a major preoccupation for many technology producers, as found in a previous study where the balance between price and technical performance was seen as the primary form of competitive advantage by the largest (27%) group of respondents [5]. This study included one interview in which a producer focused on a price in a market still in its infancy, promising to deliver "the latest technology at the lowest prices." This did not work for the producer, and there was no other evidence in either the interviews or the survey of other producers trying to adopt this position in a new market. The maxim that price should reflect market expectations rather than technical excellence is worth bearing in mind when considering the use of this tactic.

Emphasizing the technological superiority of a new high-tech product is perhaps the most common position for high-tech products [5]. When technology is changing rapidly

TABLE 3
Positioning Tactics[a]

Tactic	Associated Actions/Operations	Mean
Appeal to heavy users	Concentrate on the largest companies	3.12
	Concentrate on the needs of heavy users	3.64
	Work a long time with each customer	3.22
Emphasize exclusivity	Concentrate on the quality of the product	4.29
	Concentrate on the engineering of the product	3.93
	Appeal to higher income individuals	1.55
	Concentrate on the appearance of the product	3.07
Emphasize a low price	Price the product below average	1.82
	Undercut the dominant competitor's price	2.27
	Offer a usually expensive technology at a low price	2.13
	Concentrate on reducing the cost-price margin	2.04
Emphasize technological superiority	Emphasize the new technology in the product	3.64
	Emphasize mainly technological features	3.32
	Be first to introduce a new technology	3.00
	Create an image as a technological leader	3.75
Emphasize a special application	Tailor the product to one application	2.23
	Research the needs of one application	2.46
	Tailor product development to one application	2.33
Emphasize a safe bet (customer protection)	Keep specification to established standards	3.66
	Stress the credibility of the company	4.11
	Provide special product support schemes	3.08
	Make it easy to move onto the next generation	3.03
	Guarantee compatibility with future technology	3.37

[a] Cronbach alphas for the six tactics are 0.54, 0.46, 0.81, 0.78, 0.84, and 0.72, respectively.

and often radically, it would seem that positioning the product on the basis of all the latest technology built into the product should reflect the product's true raison d'être. Whereas such a position is likely to be both common and reasonable, emphasizing technological superiority has its drawbacks. First, by stressing technological features, the marketer is assuming a certain level of technological knowledge that may not be present within at least part of the target market. Secondly, the preoccupation with technological specifications may cloud the genuine benefits customers could realize from the technology. Given that many high-tech buying decisions involve several people, not all of whom are specialist engineers capable of translating technical specifications into everyday benefits, a more benefit-specific positioning tactic may prove to be more successful.

A more benefit-specific alternative is to emphasize a special application. Here the technology is made comprehensible to the market by demonstrating the benefits it can give in the customer's own environment. When Kodak was launching its new imaging technology in the mid 1980s, this form of positioning was chosen as a way of introducing a powerful new technology in a way that customers would understand. Imaging applications were intensively researched. The product was then tailored to the application and all promotional communications then related to it. In this way the product could be positioned on benefits rather than features. Multimedia software developers are well aware of this tactic, and are still looking for that "killer application." This is a tactic well suited to a complex technology selling to nontechnical customers where the technology offers a wide range of possible applications.

Another way of overcoming customer uncertainty is to position the product as a "safe bet." This is positioning the product as "the one you won't get fired for ordering." For well-established producers with a good reputation, this is a powerful form of position, one which served IBM well during the early 1980s. Dell worked hard with this tactic when developing its corporate market, heavily emphasizing reliability and service in its promotions. Producers that do not have the benefit of a sound market presence may have to use other methods such as service agreements, guarantees, etc., to position the product in this way, although the Dell example illustrates that this tactic can be used to develop new market share.

Producers that are not sufficiently well established to draw convincingly upon a safe bet image may use an image of exclusivity instead. This is a tactic commonly used by small high-tech firms needing a premium price to justify low levels of production. With this tactic the product is typically carefully designed to be visually appealing, and great emphasis is placed upon the quality of the engineering. Although this is a tactic frequently used by small, new-to-market producers, it is a position that cannot be rapidly established.

Market Attack Tactics

The attack tactics used depend on the objectives of the launch itself. The objectives depend on the state of technology, and the awareness the market has of that technology. For a very new technology, which the market is unaware of, attack tactics will tend to focus on conveying the generic benefits of the technology, sometimes to the point when promotional efforts include little or no mention of brand or company name. At the other extreme, where the technology is well-known to the market, the launch objectives will focus more on establishing a brand name and establishing competitive advantage (see Table 4).

An effective way of harnessing word-of-mouth communications is to use opinion leaders. Celebrities can be featured in advertising or make appearances at company seminars. The opinion leaders themselves have usually been industry, rather than public, celebrities. Opinion leaders can also be experienced users.

Where awareness of the technology has been developed to a point where a customer is interested in a particular product or company, reference sites are the most common means of acquainting the customer with product benefits. Reference sites usually develop from beta test sites, where a customer has agreed to take the new technology on favorable terms in return for putting up with the inevitable initial bug and also agreeing to provide feedback. Reference sites greatly increase the trialability of the product for systems-type products, a factor positively associated with innovation adoption [25].

Market education is a tactic that takes the most generic approach to attacking the market and is most appropriate when the market is unaware of the existence of the technology and, more importantly, the benefits it can bring. With this tactic marketing resources are mostly concentrated on PR activities aimed at educating the market about the technology and its possibilities. Lectures, seminars, and roadshows are used to build awareness. The strategy behind the educating tactic goes beyond raising awareness of the technology, however. A breakthrough technology often has a vision of the future associated with it [16]. The technology behind mobile communications, although representing many technological breakthroughs, has the more

TABLE 4
Market Attack Tactics[a]

Tactic	Associated Actions/Operations	Mean
Use opinion leaders	Put high profile stories in the trade press	3.51
	Advertise support from influencers in the industry	2.06
	Advertise adoption by influencers in the industry	2.09
	Use important journalists in the trade press	3.12
	Use influencers to give seminars	1.96
Use reference sites	Use beta test sites as reference sites	2.37
	Use only large organisations as reference sites	2.32
	Look for new reference sites	2.66
Use educating methods	Give lecturers on the product technology	2.50
	Run a roadshow for the product	2.84
	Create awareness of the product technology	3.53
	Run a corporate program for the technology	2.47
	Run seminars on the product technology	3.12
Use a winner image	Give the product a big prestigious launch	2.92
	Put the product in for competitions	1.72
	Promote the success of the company	3.34
	Follow up the launch with a report on its success	3.20
	Associate the product with achievement	3.10
Promote the product to dealers	Do a launch promotion for dealers only	1.92
	Distribute the product through dealers only	2.03
	Give assistance to dealers with presentations	2.55
	Provide a promotional package for dealers	2.47
Lend or lease the product	Offer to rent the product	1.56
	Lend the product for trial	2.96
	Earn revenue only from product services	1.41
	Give a money back guarantee	1.59
Promote to one special customer	Sell only through the sales service	2.00
	Persuade certain influential customers to adopt	3.44
	Get a customer involved in product development	2.74
	Make the product part of a customer's product	1.67

[a] Cronbach alphas for the seven tactics are 0.80, 0.73, 0.81, 0.76, 0.87, 0.43, and 0.57, respectively.

significant notion of a future in which individuals have personal communications that are no longer tied to a physical telecommunications network. Market education can therefore be more concerned with communicating the vision than with the nature of the technology.

Another aspect of this "educating" activity is in networking. McKenna [20] emphasizes the importance of communicating with the industry's service and media infrastructure to build credibility and acceptance. This tactic concentrates on developing the most powerful force in diffusing innovations, word of mouth [25].

A totally company/product-focused attack tactic is to create a "winner" reputation. This is the shotgun approach to establishing a new product. Large resources are devoted to a big media splash aimed at communicating the (preordained) success of the new product. This was a technique used by Compaq to create the IBM/Compaq 386 media clash of the late 1980s. It was also used by Apple to launch the Apple Macintosh. Nearly all interviewed managers made reference to this tactic and felt it was the most appropriate way of launching a new technology, if the resources were available to implement it. The tactic addresses several customer uncertainties at the same time. The emphasis on success builds credibility; the wide exposure creates awareness. The frequently large PR events establish word-of-mouth communication among users, intermediaries, media commentators, and the producer. To successfully implement this tactic, the producer must give the development of image a high priority, possibly even higher than the development of a superior technology.

Some technology producers seek to gain a firm foothold in the market by developing a strong dealer focus. This usually means giving up the right to direct distribution and devolving it to the dealer network. The bulk of sales and promotional efforts is managed by the dealers themselves. This is a particularly appropriate tactic when marketing technologically complex products on a large scale, where service support is an important element of the mix. By pursuing a dealer focus, suppliers can guarantee each dealer sole rights over their area, and thus attract dealerships of sufficient quality that they are capable of offering fully competent service support.

Another means of creating trialability is to make the product available on a lend or lease arrangement. The survey indicated that very few firms lease their products. Reasons given in the interview stage suggest that the administration cost prohibited the use of this tactic. In its favor, the producers who did use this tactic claimed it helped reduce resistance to adoption based upon an expectation that there would be a rapid change in technology making any permanent investment in technology redundant. In process innovation, leasing was used as a tactic by a solar power plant company. The producer agreed to build the power plant and then leased it by selling power to the customer.

Leasing is increasingly used as a means of encouraging a beneficial change in behavior, where a new technology requires a different way of doing things. An example of

Attack tactics for new markets focus on using opinion leaders, reference sites, educating methods, and lending or leasing.

this is Canon's promotion of a leasing price for its electronic filing systems. Electronic filing represents a dramatic change in office practice, and the leasing offer allows customers to try out the new system before committing the entire office to it. For consumers, many video outlets are beginning to lease interactive CD systems for the same reasons. Lending is an approach typically used by small firms with little or no track record in the industry. This tactic was generally used more by necessity than design, the advantage of trialability generally being outweighed by the disadvantages of increased inventory and of extended decision cycles due to the lending periods of many months.

Finally, concentrating on a single customer is a tactic designed to build credibility in the marketplace. When the cable manufacturer BICC started developing optical fiber technology, it had a strong presence in the mature market for conventional metal cabling, but none at all in the optical fiber market. To establish a position within this market, BICC focused on ICL, the (then) U.K. mainframe computer manufacturer, who they knew to be developing the use of optical fiber as bus lines in their mainframes. All of BICC's optical fiber marketing resources were devoted to ICL to persuade them to use their product. When ICL eventually did adopt the BICC technology, BICC were then able to attract new orders on the strength of this. This is an especially useful tactic for small technology producers. By strategically selecting special customers in "guerrilla fashion," and the judicious use of PR in the relevant media, a small company can quite quickly build credibility in the marketplace.

USE OF LAUNCH TACTICS

When do marketers use these tactics? It was suspected that this might depend on the newness of the market and the degree of technological maturity. Market newness was assessed by asking each manager to indicate whether the product was launched into an established market or a new market. There were 28 new market launches and 93 established market launches in the sample. Technological maturity was measured on a scale ranging from less than 3 months old to more than 5 years. A technology was classified as new if the primary technology was considered less than 1 year old, and established if more than 3 years old. Of the 123 launches in the sample, 34 had new primary technologies, 14 had established technologies.

Tactic scores were created by averaging the constituent marketing actions, as identified in Tables 1–4. The tactic variables were then converted to standard Z-values, with mean 0 and standard deviation 1. The results are shown in Figures 2–4.

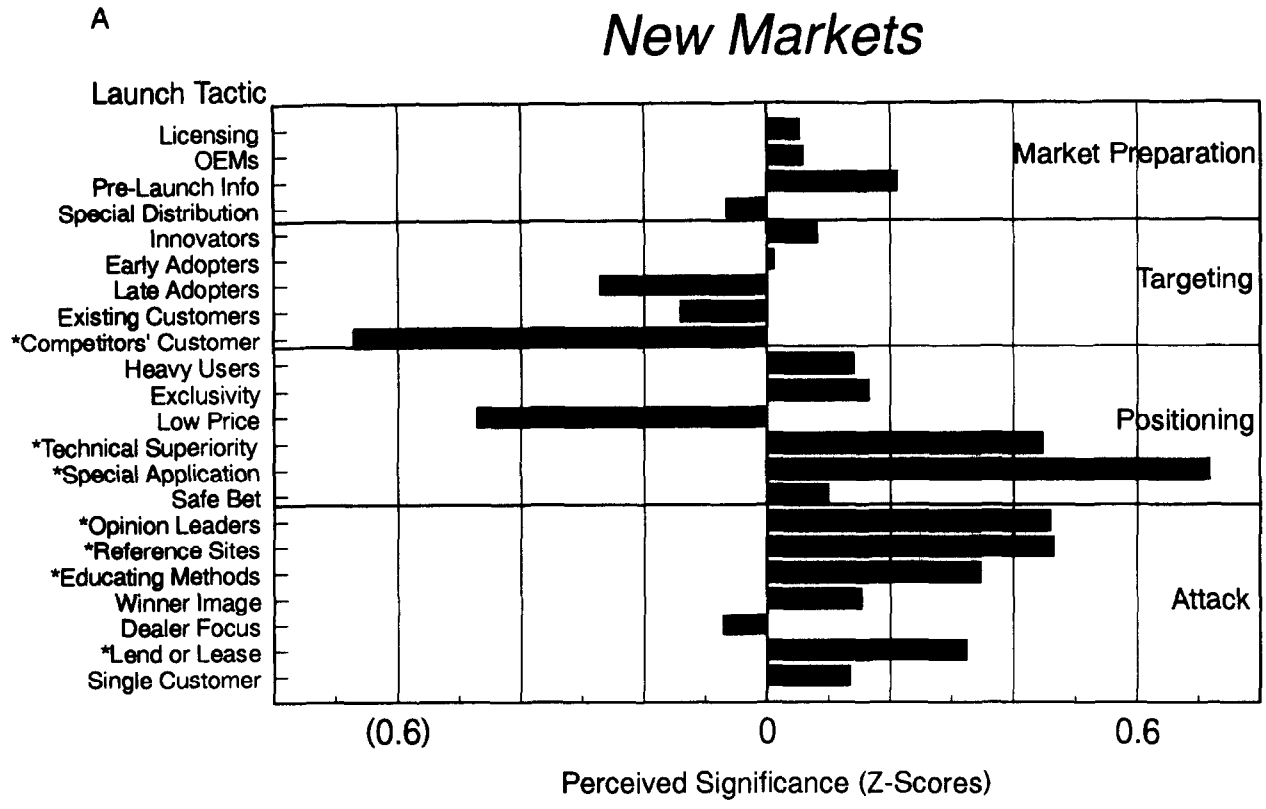
Market Maturity

Figure 2 charts the mean scores for each launch tactic, Figure 2A for those managers who considered their products to be launched into new markets and Figure 2B for those who considered them to be launched into established markets.

Most striking about these two figures is the considerably higher levels of significance attached to the launch tactics for new markets. This shows that most of the tactics included in the study are particularly appropriate for new market situations.

New Markets

Despite the strong positive significance attached to many of the launch tactics, the initial stages are emphasized less and the targeting stage contains several tactics used considerably less than in established markets. This suggests



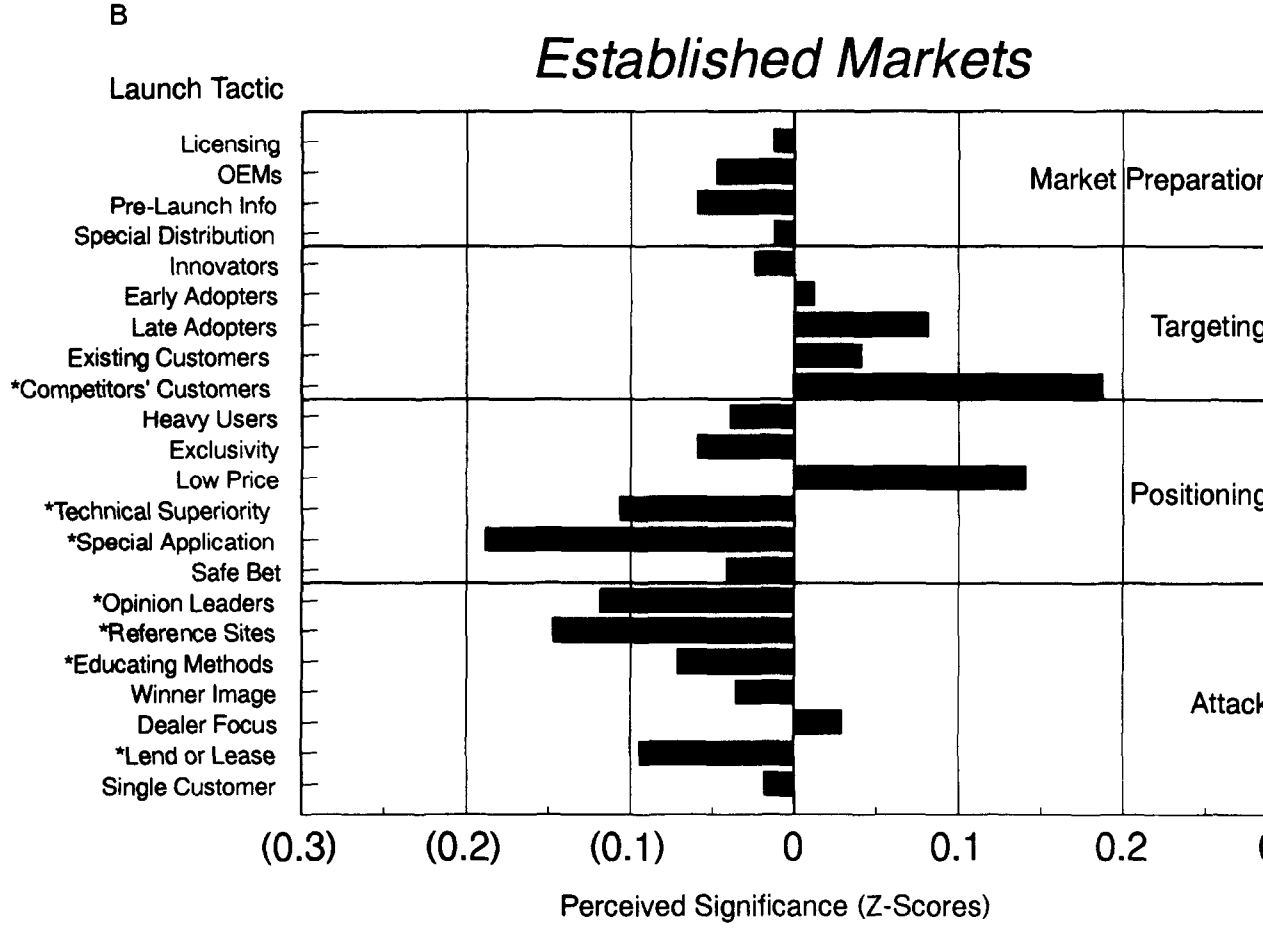


FIGURE 2. Market maturity and the perceived significance of launch tactics. Highlighted tactics show a significant difference between new and established markets at the 90% level.

that compared to established markets, marketers either use other forms of preparation and targeting or pay less attention to preparation and targeting.

By contrast, the positioning attack tactics show a very strong importance to the launch. Of the positioning tactics, the emphasizing of technological superiority and a special application figure very strongly. This suggests marketers tend to use an approach akin to fishing, in which the hook is baited with a technology that is then cast into a part of the lake that appears to have the most fish for which the bait is appropriate.

The attack tactics for new markets focus on using opinion leaders, reference sites, educating methods, and lending or leasing. All of these require heavy salesforce involvement, highlighting the importance of interpersonal contact between supplier and buyer in new markets.

Established Markets

The use of the launch tactics for established markets, in comparison with new markets, tend to be weak and slightly on the negative side. This suggests the tactics measured in this study tend to be used less in established markets than in new markets.

TECHNOLOGICAL MATURITY

The relative emphasis given the tactics for products based on new technologies is contrasted with products based on established technologies in Figures 3A and 3B. It is noticeable that there are more pronounced differences than for Figures 2A and 2B.

New Technologies

The new technology situation differs from the new market situation by more relative emphasis being placed on targeting. Innovators and early adopters are targeted, whereas late adopters are avoided. The market is prepared by releasing prelaunch information on the product, to give the market time to absorb the new benefits gained by adopting the new technology.

As with new markets, new technologies are positioned heavily on the basis of their technological superiority, with some emphasis being placed upon special applications, and (interestingly) a safe bet image. All but two of the attack tactics play a positive role in the launch of a new technology, especially the use of educating methods. This is consistent with the view that marketers need to pay attention to making the market aware of the new technology and its benefits before attempting to sell.

Also interesting are some of the tactics that do not show a positive significance in the launch. Sharing the technology through licensing or OEMs is not considered important as a part of the launch, this despite the high risk most producers carry having developed a new technology. Distribution generally receives little attention in the launch. It would appear that producers prefer to carry most of the responsibility for establishing a new technology themselves.

Established Technologies

The chart for established technologies shows what is not done when launching a new product with a primary technology more than 3 years old. With new technology launches marketers tend not to (1) target innovators, early adopters, or even late adopters; or (2) try to make their products exclusive, technologically superior or aim at a special application; or (3) use opinion leaders, reference sites, educating methods, or even a winner image. Marketers of established technologies will place much more emphasis on targeting their competitors' customers than marketers of new technologies, however.

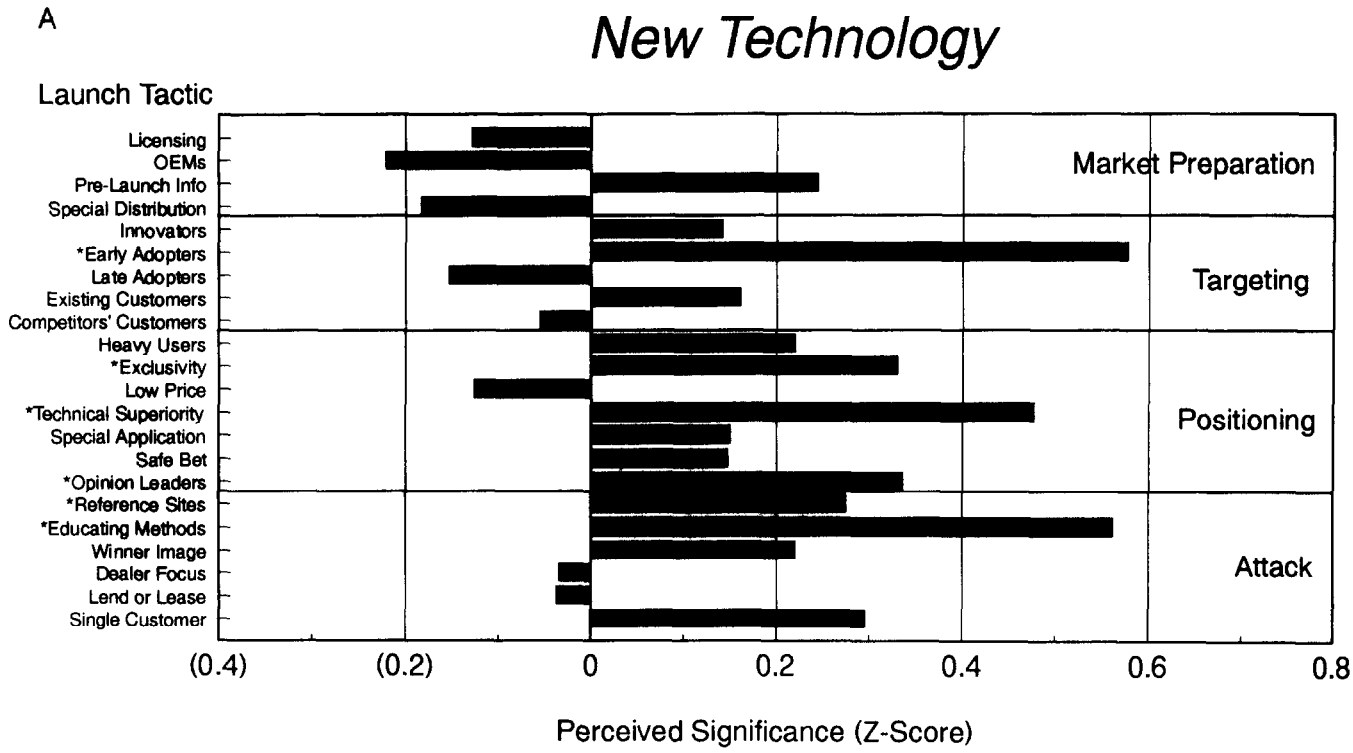
MARKET AND TECHNOLOGICAL MATURITY

The use of tactics can be illustrated by plotting their positions on a market-technology matrix (see Figure 4). The x-coordinate (market maturity) for each tactic was calculated by first dividing the sample into two groups—products launched into new markets and products launched into established markets. The mean Z-value for the perceived significance score of a tactic to launch in the new markets group was then subtracted from the mean score for the tactic in the established markets group. The result gave the x value that is plotted in Figure 4. The same procedure was performed using new and established technology groups to produce the value of the y-coordinate for a tactic.

The four quadrants of the matrix have been labeled as four types of innovation: normal innovation, technology innovation, market innovation, and revolutionary innovation.

Normal Innovation

The nature of the innovation in this environment tends to focus on incremental extensions of the marketing and technological possibilities, such as the improvement of process technology to reduce costs, the addition of features to the product, or subsegmentation of the market.



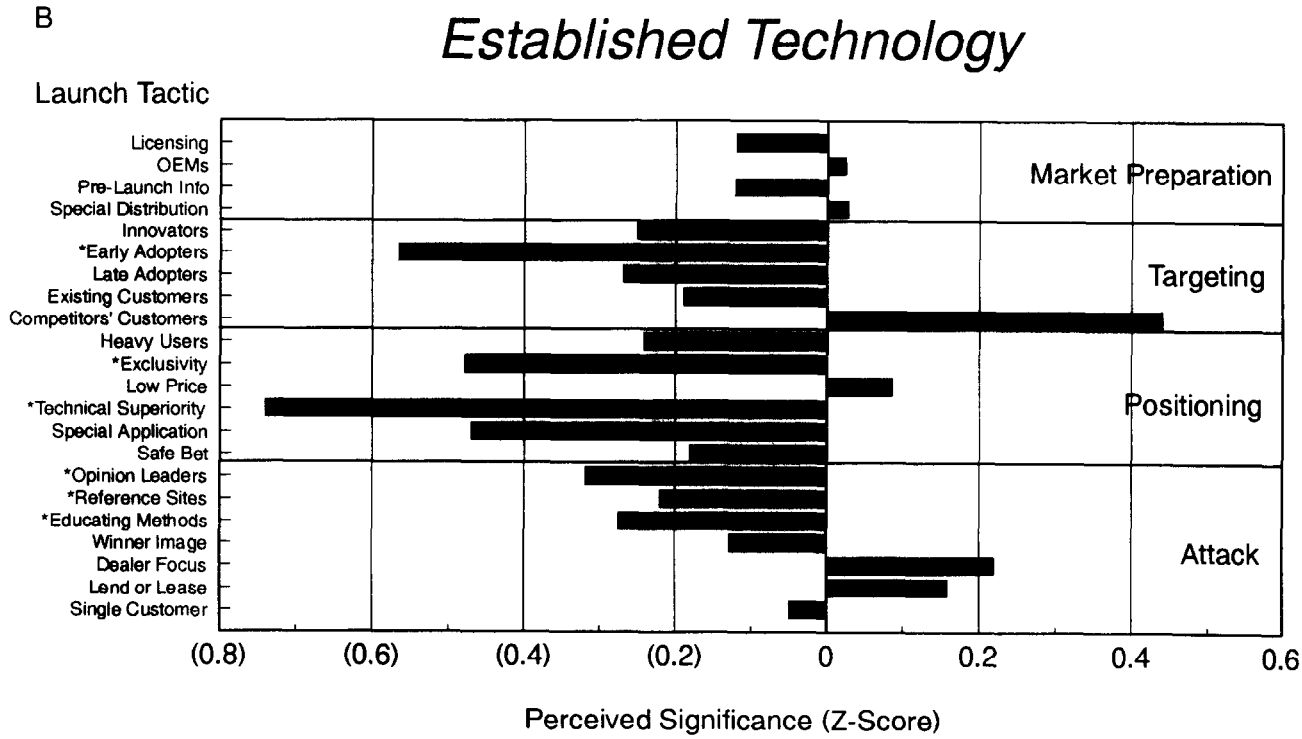


FIGURE 3. Technological maturity and the perceived significance of launch tactics. Highlighted tactics show a significant difference between new and established technologies at the 90% level.

From the diagram we can see products that fall into this category are marketed on the basis of competing for share and on price, as would be expected for established markets and technologies. What is a little surprising is that the two tactics relating to distribution are in this category. For new technologies, distribution can be a powerful force in establishing awareness of the technology or a new market. Good distribution can also be a persuasive entry barrier when the inevitable market followers begin to emerge.

Technology Innovation

Technology innovation has occurred when a new technology has been introduced to an established market. The way in which producers see their technology may change dramatically, but the need customers perceive for the technology does not change. The boundaries of the market are still applicable to industry suppliers, but something has happened to the primary product technology to increase uncertainty for suppliers of the technology.

The two tactics in this category summarize the strategic priorities of an established market with a changing technology well. Existing customers are targeted with new technology, because that is necessary to keep them from being lost to the competition. Late adopters are targeted to generate new sales. The strategy is to migrate your customers to the new technology without requiring a change in behavior or usage from the market. The rapidly increasing processing power of personal computers is a typical example of technology innovation.

Market Innovation

Here the technology is well understood. The supplier knows its possibilities and limitations well. This experience will have already been gained from marketing the technology in a familiar market. Now the technology is introduced to a new market. The customers are not familiar with the technology even though the suppliers are. This creates a completely different marketing problem to that of technology innovation. Rather than marketing the product in a way that is responding to technological uncertainties such as development costs or unpredictable changes in technology, it is marketed in a way that responds to customer uncertainties such as confusion over the benefits offered or lack of information. An example is the introduction of computers to the professional services sector.

The tactics identified here are concerned with market preparation in particular. Licensing and using OEMs are both strategic alliances of different forms. Producers therefore use strategic alliances to take established technologies into new markets. An implication of this is that producers will only engage in a strategic alliance, perhaps for the purpose of reaching global markets, when they consider the technology to have been sufficiently well developed by them so as to present little likelihood of being outdeveloped by their strategic partner.

Revolutionary Innovation

With revolutionary innovation, the industry paradigm is broken. In the extreme case, something happens (not always to do with technology) that creates a new technological agenda for the industry and creates a market with a new need, demanding a different form of consumption. A whole new way of seeing a relationship between technology and the market emerges. There are many historical examples of this happening on a grand scale—the discovery of the structure of DNA for instance, which created its own industry and affected the way we live in many ways. Less far-reaching, perhaps, is the development of the audio tape recorder.

An ANOVA analysis showed that there are six tactics (highlighted on figure 4) used especially for revolutionary innovations. Based on these tactics, we can say that revolutionary type innovations tend to be targeted at the early adopter customer profile, they are positioned to emphasize technological superiority, a special application or some form of exclusivity. Markets for this type of innovation are attacked using educating methods and/or reference sites. The only market preparation tactic classified as a revolutionary innovation tactic is to release prelaunch information on the product.

Taken together, these tactics suggest this type of innovation is marketed on a small-scale basis where the intention is to raise awareness of the new technology and its new applications to a small group of well informed customers.

These tactics are expensive to implement. Early adopters are willing to adopt new ideas, but unlike innovators, tend to insist on high quality evidence of the promised benefits. Positioning to emphasize exclusivity demands an approach to promotion that is also exclusive, and therefore costly. Emphasizing a special application requires detailed research, custom support and promotional materials. There may also be a requirement to customize the product. Running conferences and seminars requires highly qualified sales engineers or specialists to address such meetings. Reference sites can only be used for a limited number of potential customers.

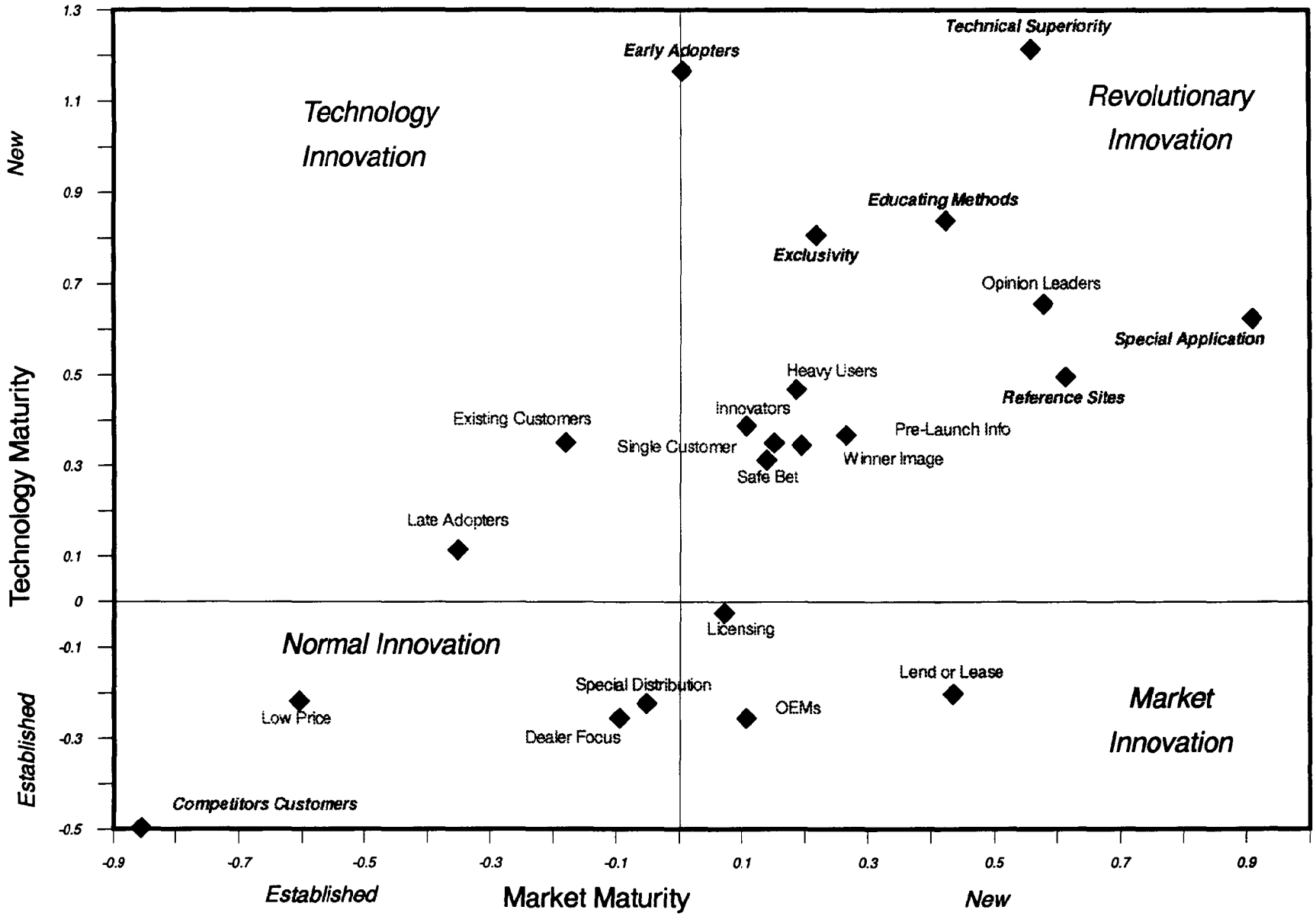


FIGURE 4. **Market and technological maturity and the use of launch tactics. Highlighted tactics have significant ANOVA main effects at the 90% level.**

For slightly more mature markets and technologies, we see tactics aimed at creating a broader appeal. Positioning the product for heavy users is clearly a tactic aimed at expanding the market. Positioning the product as a safe bet is a tactic that is at least anticipating if not responding to the competition that comes with expanding markets. The winner image tactic seeks to attract broad appeal for the new product quickly and dramatically.

CONCLUSIONS

The market launch of an innovative new product is a vital step in the process of bringing new products to market. It represents the culmination of a considerable amount of expense the producer has incurred in research and development. It is the stage in the new product development process when the market experiences the new product for the first time. In the high-tech environment, there is often a small window of opportunity for technology producers to reach their markets. The marketing operations undertaken have to be right first time, this when there are high levels of uncertainty over the new product for both producer and customer. Because of short lead times, rapid technological change, and high levels of uncertainty, we have argued that the key to understanding the market launch is through actions marketers undertake. Although the actions taken may vary according to the industry or even the producer, there are tactical approaches that have been shown through the reliability analysis to be consistently used across a wide range of technology producers and industries.

The tactics developed in the study derive directly from industry practice. All of the actions that formed the basis of the survey instrument were reported to have been used by practising marketing managers in high-tech industries. The analysis has shown that the tactics developed from these actions are strongly associated with new markets and new technologies.

A few generalizations can be made from the investigation into the association of the tactics with market and technological maturity. In new markets there is little significance attached to market preparation and targeting tactics. Instead marketers who launch new products into new markets have concentrated on positioning their products on the basis of technology and application-specific attributes. For new technologies more attention is paid to targeting, and the attack tactics used are aimed at increasing awareness. The tactics most strongly associated with what we have defined as revolutionary innovation reflect an approach that is resource intensive, small-scale, and highly focused on the new technology.

What we have reported is a structured approach to current practice in launching high-tech products. We are left wondering how current practice can be improved to ensure new product success in the future. Some exciting ideas relating to the marketing of high-tech are beginning to emerge in the literature. From the Scandinavian School, Nystrom [23] argues that the role of marketers is to communicate a vision of the future, created by the producer from a blend of technological possibility and marketing opportunity. This is conveyed to both company employees as well as existing and potential customers. Hamel and Prahalad [16] point to the success of Japanese corporations and attribute their success to an ability to pursue visions of the future that people discover they want by means of technological development. The role of interpersonal relations and networking through PR activity has also been stressed [20].

Future research will extend this work by looking at the extent to which the use of these tactics affect the success or failure of new product launches. It will also look at the concept of market and technology vision. How is it manifested in marketing operations? Is it a key to success or just another approach to marketing in an environment where several approaches have an equal chance of success? Also, how can marketers gain credibility quickly in an environment where customer resistance is high? Finally, there is the possibly unresearchable question of the marketing concept. Is it still appropriate to base market launch tactics on known customer needs, when the successful players may be able to manufacture them?

REFERENCES

1. Abernathy, W. J., and Utterback, J. M., Patterns of Industrial Innovations, *Technology Review* **80**, 41-47 (June/July 1978).
2. Baaken, T., Consulting in Technology Marketing, *ISPIM Conference Proceedings* Berlin, (October 1989).
3. Bahrami, H., and Evans, S., Strategy Making in High-Technology Firms, *California Management Review* **31(2)**, 107-128 (Winter 1989).
4. Beard, C. R., and Easingwood, C. J., Improving Grounded Theory Methods and Methodology, Manchester Business School, Working paper #1171 (1988).
5. Beard, Charles R., and Easingwood, Christopher J., Sources of Competitive Advantage in the Marketing of Technology-Intensive Products and Processes, *European Journal of Marketing* **26(12)**, 7-20 (1992).
6. Bourgeois III, I. J., and Eisenhardt, K. M., Decision Processes in Silicon Valley: The Anatomy of the Living Dead, *California Management Review* **30(1)**, 143-159 (Fall 1987).

7. Capon, N., and Glazer, R., Marketing and Technology: A Strategic Coalignment, *Journal of Marketing* **51(3)**, 1-14 (June 1987).

8. Clark, K. B., and Fujimoto, T., Overlapping Problem Solving in Product Development, Harvard Business School, Working paper No. 87-048 (1987).

9. Collinge, P., Marketing in the IT Industry: A Review of the Applicability of Standardized Techniques in a Dynamic Business Environment, Proceedings of a Research Workshop on the Marketing of Information Technology Products and Services, UMIST, Manchester UK (October 1990).

10. Cooper, R. G., and Kleinschmidt, E. J., Resource Allocation and the New Product Process, *Industrial Marketing Management* **17**, 249-262 (1988).

11. Easingwood, Christopher, and Lunn, Simon, Diffusion Paths in a High-Tech Environment: Cluster and Commonalities, *R&D Management* **22(1)**, 69-80 (1992).

12. Easingwood, Christopher, and Beard, Charles, High-Technology Launch Strategies in the U.K., *Industrial Marketing Management* **18(2)**, 125-138 (May 1989).

13. Gatignon, H. A., and Robertson, T. S., A Propositional Inventory for New Diffusion Research, *Journal of Consumer Research* **11(4)**, 849-867 (March, 1985).

14. Gatignon, H. A., and Robertson, T. S., Technology Diffusion: An Empirical Test of Competitive Effects, *Journal of Consumer Research* **53(1)**, 35-49 (January 1989).

15. Gilbert, X., and Strebel, P., From Innovation to Outpacing, *Business Quarterly* 19-22 (Summer 1989).

16. Hamel, G., and Prahalad, C.K., Corporate Imagination and Expeditionary Marketing, *Harvard Business Review* 81-92 (July-Aug 1991).

17. Harrigan, K. R., *Strategies for Joint Ventures*. Lexington Books, Lexington, MA 1985.

18. Kuhn, T. S., *The Structure of Scientific Revolutions*. University of Chicago Press, Chicago, 1962.

19. Maidique, M. A., and Hayes, R. H., The Art of High-Technology Management, *Sloan Management Review* 17-31 (Winter 1984).

20. McKenna, R., *The Regis Touch: Multi-Million Dollar Advice from America's Top Marketing Consultant*. Addison-Wesley, Reading, MA, 1985.

21. Mintzberg, H., and McHugh, A., Strategy Formulation in an Adhocracy, *Administrative Science Quarterly* **30**, 160-197 (1985).

22. Moriarty, R. T., and Kosnik, T. J., High-Tech Marketing: Concepts, Continuity, and Change, *Sloan Management Review* **30(4)**, 7-17 (Summer 1989).

23. Nystrom, H., *Technological and Market Innovation*. John Wiley and Sons, Chichester, U.K., 1990.

24. Pavia, T. M., Product Growth Strategies in Young High-Technology Firms, *Journal of Product Innovation Management* **7(4)**, 297-309 (December 1990).

25. Rogers, E., *The Diffusion of Innovations*. The Free Press, New York, 1984.

26. Rosenbloom, R. S., and Cusamano, M. A., Technological Pioneering and Competitive Advantage: The Birth of the VCR, *California Management Review* **29(4)**, 51-75 (Summer 1987).

27. Shanklin, W. L., and Ryans, J. K., *Marketing High Technology*. D. C Heath and Co., Lexington, MA, 1984.

28. Sheth, J. N., and Ram, S., *Bringing Innovation to Market*, John Wiley & Sons, New York, 1987.

29. Takeuchi, Hirotaka, and Nonaka, Ikujiro, The New Product Development Game, *Harvard Business Review* 137-146 (Jan-Feb 1986).

30. Urban, G. L., and Hauser, *Design and Marketing of New Products*, Prentice Hall, Englewood Cliffs, NJ, 1980.

31. Yoon, E., and Lilien, G. L., New Industrial Product Performance: The Effects of Market Characteristics and Strategy, *Journal of Product Innovation Management* **2(3)**, 134-144 (Sept. 1985).