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Bootstrap Marketing

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Bootstrap Marketing

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Bootstrap Marketing

Abstract

Bootstrap Marketing is a simple analytical technique which can be used to define market opportunities quickly and reliably. Combining a structured brainstorming approach with a logical framework for market analysis, Bootstrap Marketing rationalizes the development of features and marketing mix elements, and greatly improves the probability of commercial success.

Bootstrap Marketing

Background

Of the twelve years I spent at AT&T, eight of them were with the fledgling -- and highly successful -- marketing organization of the former Western Electric Company, the manufacturing arm of the old Bell System. Hired by the Corporate Engineering group, I was alleged to have been the first employee in Western Electric to have the word "Market" in my title (which required special dispensation from the Legal Department,) and to have been hired to do a legitimate marketing job, which broke a policy that had been in place since the 1956 Consent Decree.

That marketing was anathema to Western Electric was deeply ingrained. Western Electric, as the captive supplier of equipment for the Bell System, had been assumed not only to have no need for marketing because of a guaranteed demand for its products from the Bell Operating Companies, but was actually proscribed from marketing its products outside the Bell System for fear that it might exercise monopoly power over the technology it was producing. In addition, it was assumed that with Bell Laboratories, the leading R&D organization in the world, speaking directly with the Telephone Companies (the "distribution channel" for services based on the Labs' technology,) there was no need for marketing to act as an intermediary between the producer and consumer of the products and services to either characterize the market's requirements or to encourage usage. Conventional marketing appeared to have no place.

In spite of a compelling legal and structural environment, Western Electric management recognized some serious flaws in the company's operation. First, while the product development process historically involved an assessment of the affiliated Bell Operating Companies' needs in order to justify production, frequently the intensity of the need was either overstated (by the AT&T General Departments) or incorrect, resulting in the production of considerable unsold product. It was also argued that many technologies were produced by Bell Laboratories for reasons that were somewhat less rigorously critiqued than would have been the case if the manufacturer had an investor's stake in them. In addition, and this had been more widely reported in the press at the time than perhaps had been warranted, some technologies were not commercialized because of concerns over their impact on the integrity of the network, and reportedly to avoid competitive interconnection. However, in most cases these technologies were simply just not directly developed by Bell Labs, but were introduced as potential network improvements by third parties including, notably, Western Electric -- seeking a commercial outlet for its "home-grown" technology.

Worse, though, from Western Electric's perspective, was what occurred in the mid-seventies when the recession forced down Telephone Company construction spending far faster than Western Electric could absorb the cuts with natural attrition. Over seventy-five thousand people were layed-off between 1974 and 1976 in one of the biggest layoffs in the company's history. The fact was that for the luxury of not having to compete for business, Western Electric was forced to absorb the pain of wild swings in demand, both upward and downward. And while the structure of the Bell System protected consumers and investors from these conditions, Western Electric clearly felt the brunt of it.

Thus, two broad reasons gave birth to the marketing function at Western; both within the letter and spirit of the law, but with enormous implications for the company. The first was to provide an advocacy function for the commercialization of Western Electric's proprietary technology and applications within the Bell System. The second was to provide a forecasting function to develop an independent view of market demand for Western's products that would reduce the financial impact of theretofore inaccurate forecasts available from the AT&T General Departments. With the breakup of the Bell System in 1984, these two functions grew to require an organization of over 300 people.

Bootstrap Marketing was the technique I initially developed prior to arriving at Western Electric and used, while there, to help identify a number of major market opportunities for the company including Local Area Networks, Fiber Optics, ISDN, and video; technologies which have had -- and will have -- an enormous impact on both the telecommunications business and society.

Using Bootstrap Marketing, I was able to evaluate many of the technologies coming out of Bell Laboratories and Western's own development organizations, and examine a broad expanse of the market for potential needs quickly and efficiently. With it I was far better able to provide executive management with the objective information necessary to make sound investment decisions than without. And later, in my consulting practice, the Bootstrap Marketing techniques became not only the key to effective problem definition at the start of a project, but it consistently serves to drive the development of successful marketing strategies for clients interested in revenue growth.

This is because Bootstrap Marketing solves a fundamental marketing problem from a practical perspective: How do you define a market?

It should be understood at the outset that I can take no credit for the engineering development of the technologies that were involved at Western Electric. In fact, most of the technologies involved at the time were laying dormant in Bell Labs -- sometimes for years -- somewhere amidst a plethora of other technology. What Bootstrap Marketing did was enable me to combine the intimation of

a market opportunity with the potential for a viable technology to come up with a business opportunity.

When it resulted in development, applications, and production funding, it worked superbly, and the Bootstrap Marketing technique should certainly be considered in similar circumstances, as well as as a basic framework for understanding marketing for students of the discipline. And while the spectacular success of AT&T in the post-divestiture environment should not be traced to any single piece of work, the successful application of Bootstrap Marketing was arguably the linchpin in a number of substantial commercial successes.

Of course, from today's perspective one could argue that with so much technology available, and such a dynamic business environment as existed at AT&T, it is hard to see how any technique could fail; but, in fact, it is only in hindsight that it looks easy. The technology for ISDN was developed in 1975, but it didn't make it to the market until 1987. The concept of Picturephone appeared at the 1965 World's Fair, and notwithstanding the ridicule taken in resurrecting it, it was only commercialized by AT&T in 1992. The Telephone Companies had lost their ability to provide video services in the 1986 Cable Act, but ADSL-based video services will be introduced by Bell Atlantic this year. Local Area Networks became viable only after we recognized the market potential for miniaturized and cost-reduced, but old, network transmission equipment. And while Fiber Optics was relatively new when we first looked at it, what motivated Western Electric's investment in manufacturing capacity was not the limited toll market for fiber that came from the conventional wisdom, but the virtually unlimited market for Fiber-in-the-Loop whose market justification came from Bootstrap Marketing.

Combined with high quality standards for market research, and the use of many other classical marketing techniques, we were able to turn a traditional manufacturing company into a market-oriented company in a matter of a few years; and bridged the gap to what is now a very successful business unit structure. I believe that this work played a significant part in that process, not only for the direct revenue impact of the developments it supported -- which was enormous -- but also for the perceptual change it had on the leadership of the company, the competitors, the market, the political interests, and the general public regarding both the technologies and AT&T's Network Systems Group (the successor to the Western Electric Company) role in delivering them.

More importantly for our purposes, however, is the technique itself. Bootstrap Marketing has proven to be very useful in an environment where technology is plentiful, (which, from the perspective of both my experience at AT&T and my consulting practice, appears to be universally the case,) but where an inability to focus on the challenges of commercialization carries

a high price. It is also extremely helpful where the need to communicate about opportunities to a diverse group of engineers, investors, and executives, who often have their own vocabularies and agendas, is key.

Bootstrap Marketing, in addition to solving some fundamental problems of technique, also resolves some definitional questions, as well as better defining the relationship between some key marketing tools and concepts. And finally, Bootstrap Marketing is an important technique, not just for its simple utility, but also from an historical perspective: several of today's most important technologies were commercialized based on this analytical technique, and they may not have been, or been so successfully, without it.

Bootstrap Marketing

Introduction

Bootstrap Marketing is a simple analytical technique developed and employed successfully over a period of more than 15 years which can be used to define market opportunities quickly and reliably. Developed as a disciplined approach to market opportunity identification, Bootstrap Marketing provides a practical and usable framework for relating needs, product concepts, and customers in such a way as to enable both marketing personnel (including marketing and sales managers, advertising and promotions personnel, market research teams, and product managers,) and product-oriented staff (such as R&D, engineering, and service and support personnel,) to more effectively focus their efforts on the commercial success of an opportunity.

In addition to the benefits of the technique in new product development, for the marketing manager with the responsibility for new opportunity identification, Bootstrap Marketing also offers a structure for defining a variety of marketing activities, such as market segmentation and target marketing, so as to prescribe the most appropriate and cost effective marketing mix.

The technique of Bootstrap Marketing has been applied to the development of numerous market opportunities from "high tech" cases like fiber optics and local area networks, to consumer products like living wills and housing projects. It has been applied successfully to business services such as consulting, and to retail problems with equal success. Bootstrap Marketing, however, is not a high-tech, statistically complex, "rocket science" type of technique. Rather it is a very simple and practical structure for understanding the fundamentals about a market which enables specific marketing decisions and activities to take place.

Bootstrap Marketing is also extremely cost effective because it saves money in two ways. First, because it focuses very quickly on the marketable core of an opportunity it enables the avoidance of expensive research and development into ideas with a low probability of success. Second, the technique itself is fundamentally free. It adds no cost to the market development process, rather applying a discipline that improves the efficiency of market research, the development of market plans, and the implementation of marketing programs. And while I have alleged that marketing is not rocket science, (marketing is much more expensive,) Bootstrap Marketing is the simplest and most cost-effective tool I know of when it comes to explaining market opportunities to product teams, funding committees, decision makers, and implementation staff.

In my marketing work I have frequently encountered situations where the lack of precedent regarding a market opportunity could (and often, would,) seriously impede one's ability to capitalize on it. This problem can severely undermine the planner's success, and includes such situations as:

- when a new product doesn't fit neatly into the conventional market structure (such as in cross-Business Unit planning,)
- when competitive attacks lack a viable response mechanism (such as with the introduction of a new technology with radically different economics,)
- when one attempts to identify new market opportunities in a mature market (such as when a market is saturated or declining,)
- when one has pulled together a creative (or venture) team with no pre-ordained product ideas, or
- when too many opportunities are possible (such as when planning for new technology.)

Bootstrap Marketing allows the analyst (or more appropriately, the team,) to efficiently and effectively develop a viable "conceptual offering" out of disorganized market and product information. Such a concept then can become the basis for feature development for engineers, as well as the foundation for successful marketing and sales planning programs.

On the other hand, Bootstrap Marketing is probably not worthwhile when considering product line extensions, or when sales and marketing programs are already working effectively. Rather, when the process is "broken," this is a tool that can quickly have a very positive effect.

Bootstrap Marketing was so-named because it allows the definition of a market opportunity using no pre-defined or exogenous structure, and as well, because it employs brainstorming techniques where considerable intelligence can be derived from extremely little information. It is, therefore, a very good technique for "getting started" in a problem solving exercise. And while it is recognized that market research is the ultimate solution to the data-void, to date there has been no elegant intellectual framework for structuring the problem definition and initial opportunity identification so that the research and planning forays are as efficient and effective.

The Cornerstones of Bootstrap Marketing

At its roots, Bootstrap Marketing posits that there are only three things necessary to define a market: a Product Concept, Customers, and Needs, which is illustrated in figure 1. While each of these concepts and their inter-relationships will be explored in greater detail later, the remainder of this section will be devoted to an overview of the general concepts of Bootstrap Marketing.

- **A Product Concept** is anything which describes the product or service in question, and can conveniently be visualized as a list of features or attributes. It can include physical attributes, supporting materials, features, associated services, or anything else which can be projected as being included in or associated with the product.

- **Customers** are lists of present or potential customers, their demographics, and any other characteristics which describe them.

- **Needs** are problems which the customers have which could be solved by the product.

Bootstrap Marketing is a four-step process which: 1) defines these elements, 2) relates them, 3) improves them, and 4) builds the appropriate marketing mix on them, using qualitative and/or quantitative data.

Step 1: List the Product Concepts, Customers, and Needs

The first and most important step in Bootstrap Marketing is to draw up lists of the real or potential product attributes, the real or potential customers, and the real or potential needs. This step, if done well -- by which is meant to draw up fairly comprehensive lists -- is the key, not just to a successful analysis, but ultimately to a successful venture. It is sometimes helpful to segregate the real from the potential on the lists.

The best method I have found for this exercise is to conduct a brainstorming session, using flip-chart paper to document the lists and comments for the group. (The technique can be done without a group, but it is far less effective.) By focusing on only these three areas initially (that is, customers, needs, and product concepts,) the brainstorming session can be both disciplined (i.e. structured,) and productive (i.e. because it has a discrete agenda.) This approach also contributes to establishing a common set of assumptions for the group, and laying the foundation for effective teamwork early in the process. What should result is three comprehensive lists: potential product concepts, potential customers, and potential needs.

Example 1: Fiber Optics

When a major telecommunications equipment manufacturer first considered making fiber optics, there were several kinds of lightwave systems that could be made, including those using single mode or multi-mode fiber, those using different wavelengths of lasers, and those with different structures of cladding, to name just a few of the options. A list of product concepts developed in Step 1 showed a sample of the possible alternatives, and is shown in table 1. Such a table could also have shown the advantages and benefits of each feature, as well.

In addition to many product concepts, a number of potential customers had also been identified in the brainstorming sessions. These included the telephone companies, the cable TV companies, large businesses, and residential customers, and is shown in table 2. As outrageous as it seemed at the time because of the high cost, it still seemed worthwhile to include end-users (business and residential customers,) as potential customers because of the potentially large market and the possibility for production economies of scale, and because Bootstrap Marketing allows for the consideration of sublime.

Finally, a list of potential problems that could be satisfied or solved by the concept was drawn up, including duct congestion, low quality data transmission, the increasing demand for circuits, the high cost of copper, and the tendency for the performance of metallic facilities to be degraded by electromagnetic interference. Even considered was national security (a major concern in the 1982 cold-war world,) and the problems of the metallic telephone network in the event of a high-altitude nuclear blast. Table 3 shows the list in terms of the problems that were being experienced by potential customers, and the benefits that fiber would offer.

A simplified version of the fiber optics example, overlayed on the Bootstrap Marketing diagram, is shown in figure 2.

Because of the tendency towards "technology push" (as opposed to "market pull,") the fiber optics example started with the product concept. However, it should be pointed out that it doesn't really matter where in the structure one starts. One may begin by drawing up a list of product concepts, customers, or needs; and develop the other two as "information" becomes available. In fact, and this is a fundamental advantage of the technique, one needs to know nothing about any two of the three areas in order to get started. One can conceivably start with nothing more than a potential customer list to develop a market opportunity.

Example 2: On-Line Access to Living Wills

This was the case confronted by a venture group that had solicited over 300 new product ideas for possible investment. Because of the daunting number and variety of ideas available, the group decided to temporarily abandon all of them and choose a target market first; in this case, consumers, based on revenue goals and preferred channels of distribution. The group was then able to select potential products from the list of 300 which they felt best met the needs of the customer group. The list was then further refined to best fit with the team's marketing strengths and preferred channels. And it was ultimately reduced to selecting an offering of on-line access (in particular, by hospital emergency rooms,) to living wills.

Beyond simply starting anywhere on the cycle, it is helpful to be as detailed as possible in filling out the three lists, exploring the seemingly inconsequential as well as the obvious in the early steps of the process. If for no other reason than the dynamics of the brainstorming session, it is key to pull as many ideas from the participants as possible early on. But also, if the lists are kept in front of the team for as long as possible, they may (and usually will,) trigger new ideas and substantial inspiration from the participants that will move the process rapidly forward.

Example 3: ISDN and CLASS

The best example of this is what occurred when working on CLASS and ISDN. CLASS (or Customer Local Area Signalling Services,) and ISDN (or the Integrated Services Digital Network,) are telephone services implementations that can transmit voice, data, image, and signalling services (i.e. information such as the telephone number, billing data, etc.,) digitally over copper wires. These capabilities are among the foundation technologies for the telephone company services that allow, among other things, the user to identify the calling party before the telephone is picked up.

When the opportunity for the technology was initially explored (along with a considerable number of alternative implementations,) the biggest market that was anticipated was for home-data use, such as PC access to banking services. Unfortunately, the early market research wouldn't support an investment in the technologies because the willingness-to-pay and projected take-rates were very low. The discipline of Bootstrap Marketing, however, forced us the identification of all of the product's attributes, including its signalling capabilities (which is the feature that forwards the telephone number,) which turned out to have, by far, the largest market opportunity.

If a reasonably thorough brainstorming session has been conducted, a substantial amount of what might be termed as "preconceived notions" about the market opportunity will appear on the lists in the form of customers, needs, and product concepts. And although the example shown in figure 2 is a condensed version of what might normally result from the process, these lists are the important starting points for an interative, interactive process which will enable the planner to not only develop good marketing ideas, but to enable their further development and implementation, as well. Then, using the optimization techniques of Bootstrap Marketing, these ideas can then be rigorously tested and improved until their commercial success can be reasonably expected.

As a side benefit, it almost always turns out that because of the inclusive nature of the process, teams almost always develop some cohesion around the concept at this stage, and begin to develop a common agenda.

In sum, the first step in defining a market is to list what is known about its three major components: the product concept, the known or potential customers, and the needs or problems which using that product will solve for those customers.

Step 1a: Adding Data

An optional, but important step that can be taken early in the process is to add data to the three lists, even before one gets into the development of the primary market research program. This can be done as part of the brainstorming session. Alternatively, it can be done after the initial brainstorming session by the analyst, or as a "homework" assignment for the team members.

For the fiber optics example shown in figure 2, one might show the number of telephone lines for each of the telephone companies, the number of subscribers for each of the major cable TV companies, the number of businesses by type, and the number of single or multi-family residences as adjuncts to the customer lists. A sample of this is shown in table 4. For the living will example, one might show the size of the different demographic groups, or their concentration by SMSA, for example.

Data is much easier to collect in this simplified structure because one is looking only for easy-to-acquire demographics, rather than complex market segments. Also, this approach does not necessarily demand statistical accuracy and, in fact, can benefit from the use anecdotal and incomplete data early in the process.

The types of demographics collected to populate the customer lists will become very valuble in later market sizing activities, and can quickly help prioritize opportunities for the team.

Example 4: Environmental Compliance Software

This became very important in introducing a mainframe computer based system for tracking hazardous materials. While many hundreds of companies in the targeted states were required to track hazardous materials, only a few percent had enough chemicals to justify a mainframe-based system to track them. Considering the high cost of a sales call, the lack of cash, and the length of the sell-cycle, it was vital to reduce the number of unqualified leads as much as possible by eliminating companies that had fewer than 1000 chemicals (or MSDSs.) A state-compiled list provided most of the prescreening necessary to avoid wasted contacts.

This approach, borrowed from ordinary territory planning, serves the same purpose in market opportunity identification -- that of not wasting time on inconsequential markets.

In addition to quantifying customer demographics, it is also useful, if the data is available in a cursory fashion, to note the different costs that might be incurred in delivering alternative product features and capabilities, and to use the data to populate the product concepts lists. Development costs for new features provide an excellent gauge on the relative profitability of different strategies, and are usually very easy to acquire in this simplified structure.

Adding data to product lists, for example, might show that it would be more expensive to produce one type of optical fiber versus another, or require a significant breakthrough in technology to make certain services economical. This data is extremely useful in later prioritizing of alternatives by enabling both the benefits and the costs of the alternative strategies to be discussed. A summary of such a list as might be developed in the fiber optics example is shown in table 5.

There is, however, an important caveat.

One of the problems that occurs, particularly with high-tech products, is that the cost of a product is rarely the sum of the costs of the individual features. This is because of the potential for common components and engineering economies, among other things. In spite of this, specifying the costs against the features on the list is still worthwhile because it provides a clear measure of the value of the engineering economies when the packages are later put together, and because it allows marketing to contribute to the formation of the packages (through the application analysis process that will be discussed later,) rather than only on the basis of the engineering benefits.

Finally, the magnitude of customer needs could, and should, also be speculated in this step, and be used to populate the needs lists. And this, too, is relatively easy. The key to quantifying needs is to define them as problems; again, borrowing from classical sales techniques. If a customer has a problem, it usually has a cost, or at least a willingness to pay, and it is usually a simple matter to put a dollar figure on the "pain" or value of the problem. This might be as simple as a marketing consultant speculating that his services are worth a 20% increase in revenues to his prospect, or a mortgage company offering a refinancing package to save its clients $200 per month.

It is also quite helpful to note any quantitative data available about customer needs for later use in value analysis. As was said, the simplest way of doing this is to put dollar estimates on the costs of the problems. So, for example in figure 2, one could easily measure the impact of under or overestimating the future cost of copper in the commodity market, and the savings that would accrue with a stable fiber price. One could also estimate the incremental cost of another duct, if the copper plant were reinforced, versus modernized with fiber. Likewise, one could estimate how many retransmissions are required in a data application, and what their cost might be in terminal equipment quality or connect-charges. types of costs, with a sample from the fiber optics example shown in table 6, are the keys to understanding the willingness-to-pay, and are both simple to accumulate and easy to work with in this way.

In spite, however, of the above assertion of simplicity, many teams appear to have difficulty with quantifying needs in this step, usually because they don't feel comfortable with the concept. One solution is to categorize the needs into one of three groups; as most needs fall into either: 1) saving time, 2) saving money, or 3) peace of mind. The first two are easy to convert to numbers, of course. The third is often successfully dealt with as a binary trigger.

Example 5: Standards

The use of a binary trigger for depicting needs was best exemplified by the then-newly divested telephone companies' desire to purchase equipment from multiple vendors. In order to do this, it became important for them to define and establish product and network integration standards so that multiple manufacturers could build interchangable products for the network. With the establishment of standards, one could quantify the magnitude of the need for a given feature or product, but if it didn't meet the standard, no matter how inexpensive it was, it wasn't going to sell.

Another way to deal with the "peace of mind" problem, of which standards is an example, is to use relative metrics. And here, the

best example is the recreation field. "Fun," which is difficult to quantify, certainly implies that some things are "more" fun or "less" fun. One can also use "good," "better," and "best." There are innumerable other ways of dealing with these relative intangibles which will not be detailed here. Suffice to say that quantifying the needs list is almost always worth doing, and is, I have found, easiest in this type of structure.

A third way of dealing with the "peace of mind" or intangibles problem is through analogies, as is often helpful when the product concept is for a service that has never existed before. Part of the problem is that people sometimes have difficulty using analogies. The other part is that people sometimes forget that all needs are always in some state of satisfaction.

The anecdotal story of the development of the photocopier is often cited as evidence that this type of need can't be quantified. (Allegedly, no one could visualize the benefit of an expensive machine to replace carbon paper.) In spite of this, Bootstrap Marketing (which, of course, was not available in 1959,) forces the team to explore other needs (as shall be shown later,) such as for the wide dissemination of information (in the photocopier example,) that could be added to the nominal value of replacing carbon paper to contribute to the justification of the development.

Another example of dealing with "new" needs occurred in the work on a new video-on-demand service, which reinforces the assertion that many needs can be quantified, even if no other solution exists to use as a measure.

> Example 6: Video-On-Demand
>
> In the case of a new video-on-demand service, for example, surrogates such as the cost of a movie ticket, a pay-per-view showing, and other impulse entertainment vehicles were used to develop a starting point for measuring the magnitude of the need. Taking into account the effect on the market price of the traditional solutions by the introduction of a new competitor, it became easy to develop a figure that people could feel comfortable with for development purposes.

Certainly one must be cautious with this approach, but Bootstrap Marketing provides a simple structure and a relatively easy solution to all of these pitfalls; that of simply using a list structure to guide the accumulation of data.

In summary, one can add data not only to the customer lists, but to the needs and product concepts, as well, early in the process. Adding data to the lists is a key step in producing a quantitative market definition from a qualitative one, and greatly increases the power and the value of the analysis. It is done simply by

adding demographic metrics to the customer lists and costs to the product concepts and needs lists.

Step 2: Preliminary Market Analysis

The second step in Bootstrap Marketing is the development of a preliminary market analysis; and, in one sense, this is the most controversial step. A brief aside explains why.

When done as described above, accumulating demographic data, data on the cost of problems to potential customers, and data on the costs of developing product attributes tends to look, to non-marketing people, like the market definition job is done. Often, people have a tendency to assume that customer groups are market segments, and that products are applications, for example. It is of the utmost importance, however, that the process not stop at this point because, in fact, demographically defined customer groups as might be portrayed in step 1 are decidedly not market segments, and willingness-to-pay cannot be inferred from the cost of production. These things must be developed in a preliminary market analysis, and a failure to acknowledge this can greatly increase the probability of commercial failure.

In order to develop the preliminary market analysis it is necessary to briefly define certain terminology so that what is called the "iterative process" of Bootstrap Marketing can be implemented and, more importantly, so that theultimate goal of a commercially viable offering can be achieved.

The iterative process of Bootstrap Marketing views the diagram in figure 1 as a cycle that is "turned" (and tuned,) by asking specific questions of the data. (This, of course, applies whether we are dealing with a qualitative or quantitative analysis.) The answers to these questions are the fundamental tools of market analysis, and the thorough implementation of this step is key to a successful analysis.

Specifically, the relationships between needs, customers, and product concepts are defined in Bootstrap Marketing as market segmentation (which relates needs and customers,) target marketing (which relates customers and product concepts,) and application (which relates product concepts and needs;) and are explained below. In this step, the lists that were developed in step 1 will be used to generate simple matrices to represent the market segments, target markets, and applications. These matrices can, in turn, be used to develop the product development, strategic, and promotion programs that are the objective of the process.

As shown in figure 3, if one were to start with a preconceived notion of a product (such as a "straw-man" concept as developed in step 1,) and ask "Who would buy it?" (that is, "Who would buy a

product with these features?") one could develop a preliminary view of the potential customer group. Using this to expand the lists from step 1 broadens and deepens the potential customers that can be targeted by the eventual offering.

Conversely, if one were to start with a potential customer group and ask "What do they buy?" one could develop a profile of complementary or substitute products of assumed value to the market. This serves to expand the product concept.

Taken together, this is nothing more than Target Marketing. Groups of customers who have homogeneous purchasing practices (i.e. they buy the same things,) are Target Markets. Using the list of customers as one axis of a matrix, and the list of products as the other axis, one can create a target market matrix that can portray almost all the information necessary to explore the distribution and sales management problems.

As shown in figure 4, **Market Segmentation** defines the relationship between customers and needs. This step answers the questions "Given a customer, what problems does he/she have?" and "Given a problem, who has it?" Groups of customers who have common needs are Market Segments. Likewise, using customers and needs as the rows and columns of a matrix portrays all the information necessary to examine market segments and develop promotional programs.

By understanding the relationship between customers and needs, one focuses not so much on who the customers are, but on what motivates them to buy. One focuses not on what problems one's product can solve, but on the fact that a particular group of customers has a particular problem that can be solved by it.

This, as does much of Bootstrap Marketing, relates and borrows heavily from traditional sales techniques. Just as a product can have advantages (i.e. it can fulfill a need,) it does not have a benefit (and therefore won't sell,) until the customer says that that advantage applies to him or her. That is, of course, the essence of market segmentation.

Finally, figure 5 defines **Application** as the relationship between products and the needs they satisfy. If one defines an application as "the use of a technology to solve a problem," then one needs to understand both the technology (i.e. the product concept,) and the problem it is intended to solve. Together, these define applications. The process for applications analysis asks "Given a problem, what could solve it?" and "Given a product, what needs does it fulfill?" And again, using the product concepts and needs lists as the rows and columns on a table serves this purpose.

Several interesting things should be noted by this approach, summarized in figure 6. First is that market segments and target

markets are not the same thing. A group of customers may have the same needs, but may buy different products, for example. Also, the importance of the accessability of a target market is reinforced by the requirement to define it by demographic variables appearing in the first, customer analysis, step. Finally, and most importantly, it should be noted that these three keys to a market definition conveniently circumscribe a tautology of market definition, implying that many important implementation activities can derive from a market opportunity so defined. Bootstrap Marketing provides a simple method for defining target markets, market segments, and applications for both descriptive and practical purposes.

The second step in the process is then to develop a preliminary market analysis (i.e. market segmentation, target marketing, and application analysis,) by using the lists developed in step 1 as the line and row definitions in target marketing, segmentation, and application matrices.

Example 1 (continued): Fiber Optics

Tables 7, 8, and 9 show the matrices for the simple Fiber Optics example. In this case we have reverted back to a qualitative analysis, and used "X's," rather than quantitative data for the purposes of illustration.

Table 7 was made by creating a matrix from the product concepts and customers lists from step 1. To create table 7, it was projected that certain product attributes could be expected to be purchased by certain customers (indicated by an "X,") while in other cases, the customers are expected to be indifferent (indicated by a blank.) Based on what was believed at the time, this indicated that to sell to the telephone companies it would be necessary to develop a single mode product. Likewise, to penetrate the residential market (either directly or through an intermediary,) it would be necessary to develop large cross-section sheaths.

In addition to being an intellectually satisfying means of portraying several concepts, this type of diagram was invaluble in leading discussions of the market with executives and decision makers who, because of their vested interest, began a new round of brainstorming sessions during review meetings to refine the tables.

It should also be noted that this type of analysis is even more useful when done on a finer level, such as the individual telephone company, or a subsegment of the business or residence markets, as was done in table 4.

Similarly to table 7, table 8 was made by creating a matrix from the needs and customer lists from step 1. Table 8 shows

the simplified example relating Potential Customers to Needs, and logically portrays the Market Segments. In this case, the matrix clearly shows what customers (or prospects) have which needs; an important step in developing promotional programs, for example.

Table 8a shows this segmentation at an even finer level of detail. Driving problem definition to this level can greatly improve the selection of needs to be addressed and the segments to be targeted.

It is interesting to note that one often feels inclined to consolidate segment members when portrayed in this manner, although it is not really necessary at this point. For example, one could define a few simple market segments based on customers which have the majority of their needs in common (although this example doesn't so lend itself.) Ultimately, such an exercise becomes very simple, however; in fact the natural segments will usually evolve by themselves anyway during the later translation step.

Created by matching the needs with the product concepts that could satisfy them (better than copper,) table 9 finally shows a simplified example which defines the applications for the product. In this case, as can be seen from the table, the applications domain for fiber optics appears to be overwhelming. And, in fact, fiber optics represented an improvement in performance over copper no matter how it was made, and when considering any problems; a simple way of portraying what is now obvious.

Table 9a, which shows a subset of needs at a finer level, illustrates some of the simple inflections that can be given to the data, even in the absence of numerical representations of value differences. In this case, the ability of fiber to deliver improvements in transmission quality, when compared to copper, were somewhat less dramatic for voice services than for other services, shown by the smaller "x's." The equivocal benefits in solving problems in this area explains why fiber was deployed in voice applications later, and needing far more rigorous economics.

Certainly, as was implied before, some simplification and selection can be applied at this point, and mention should be made of it, even if it is not recommended. A cursory look at market segments, target markets, and applications can easily suggest obvious choices for development and targeting, as well as market positioning.

One of the most important aspects of the preliminary market analysis is that it provides the ability to speak about opportunities in terms of those specific things that need to be

done to achieve commercial success. For example, as opposed to discussing demographic customer groups as if they were homogeneous, one can speak in terms of market segments that really are. Likewise, this approach enables one to identify target markets for whom the channels of distribution are existing and efficient, and product concepts that are salable.

Example 2 (continued): Living Wills

For example, in the case of on-line access to living wills, the elderly and baby boomers could both be targeted based on need, but it wasn't until the fear of falling ill when one was away from one's family was identified as a common need did the marketing theme emerge. (The team had noted that baby boomers tend to travel, and elderlies tend to move to the south.) In this case, the synthesis of the needs of the two groups in the market segmentation process formed the basis of the marketing program.

Likewise, looking at applications in this manner can provide product developers with coherent feature packages which combine features into groups that would have synergies and added value to large groups of customers. This has a clear benefit in avoiding the gold-plating that accompanies many projects by identifying the subset of features that applies to a particularly large market segment.

This can provide a tremendous competitive advantage to a company because of its ability to minimize development and manufacturing costs. And while there are many issues to be balanced in developing feature packages, only in some cases is it cost-competitive to put every feature into the versions of the product sold to every segment. By developing application packages, or feature aggregations targeted at particular segments, one can minimize the price of the product. Also, by manipulating the base architecture of a product so as to accomodate a few packages targeted at sufficiently large segments, considerable manufacturing economies of scale can still be achieved while market share is maximized. Bootstrap Marketing makes the derivation of these packages a straightforward, market-driven, and economically sound process.

Finally, it should be noted that often in using this technique it quickly becomes obvious that one knows more about the market than could be represented by "X's" in the cells of the matrix, even in a preliminary analysis. For the fiber optics example, it was known, and therefore could be shown, the number of customers in each cell and the dollar value of the problems or needs. This, when supported by market research, made the tool even more powerful. As a driver for structuring market research designed to measure these differences, Bootstrap Marketing is extremely effective.

Step 2a: Using Data

If one had added data as described in step 1a, then it is a simple matter to use the data in the matrices described earlier. For example, knowing the number of units that could be targeted in each potential customer (from the customer list,) and the cost of each feature (from the product concepts list,) one could easily calculate the potential revenue (under a cost-based pricing assumption,) by simply multiplying the row and column data.

Likewise, one could easily calculate market segment size by multiplying the demographic data on the customer list by the "cost of the problem" data on the needs list.

And finally, one could easily gain an estimate for willingness-to-pay by multiplying the "cost of the problem" data from the needs list by the cost of alternative solutions (or competitive products,) from the product concepts list.

By having introduced quantitative data into the process, one can substitute the "X's" in the cells with valuble numeric information the can later help to quantify demand, size markets, measure willingness-to-pay, establish prices, and rationalize capital investments.

Step 3: Iterating the process

The third step begins the process of refining the market definition by iterating around the cycle by using another series of questions. This step is designed to both expand and refine the lists created in step 1 until there is what is referred to as an "equilibrium" in the market definition. This equilibrium, or balance, is established when there are targetable market segments of sufficient size, and a deliverable product that can be sold at an acceptable profit.

Having already asked "Given a product, who would buy it?" this step asks "Who else might buy it?" (the difference being the word "else,") either to explore the possibilities in more depth, or conditionally on product modifications.

Likewise for the other lists, the other generic questions that are posed in this step are: "What other problems (or needs) can be addressed?" and "What other features can be delivered?" This exercise, while seemingly simple, quickly becomes a dynamic process in a brainstorming session.

Example 7: Investment Banking Application of a Loan Package

This was the case in an attempt to penetrate a new market (the investment banking market,) with old products (that had been sold to the commercial banking market,) for a computer timesharing company. While a lending package was relatively useless to the investment bankers, and a database of financial information on public companies was redundant with what they already had, putting the two together (i.e. looking at what else we could sell,) met their need for generating prospects by providing a fast and simple means of screening candidates for merchant banking services.

Here, it was only by forcing the expansion of the product concepts that the opportunity was identified. Bootstrap Marketing, by imposing a disciplined -- but simple -- questioning structure, provided a process for doing something that would ordinarily be unnatural.

Figure 7 illustrates the logical flow which is used to drive the iterative process. Not really as complicated as the diagram makes it look, typical questions that are asked are:

- If we added this feature, who else would buy the product?
- If we added this feature, what other needs would the product satisfy?
- What other problems does this customer have which we could solve?
- Who else has this problem?
- What other products does this customer buy which we could displace?
- What other needs could we satisfy with product modifications?
- ... and so on.

Each of these questions is designed to expand or refine the customer list, the needs list, and the list of product attributes. (Refining is done by "taking away" features, needs, and customer groups.)

A danger of the process should be pointed out, however. At this step in the process it is possible to lose control of the exercise and come up with some seemingly rediculous ideas. For example, it is very easy to identify needs of potential customers which couldn't possibly be satisfied by your products (because you're

not in that business, for example,) or by practical technology. Likewise, it is possible to identify potential customers who you can't reach with your sales force. While these intellectual forays are not particularly dangerous (and, in fact, they often lead to some very striking opportunities,) they tend to be the types of ideas that irritate the corporate culture. (On the other hand, if one is looking for a means to accomplish this, the method can be used to great effect.)

Example 8: Video services

This was clearly the case in looking at the market for fiber optic-based services after the long haul and feeder markets had been developed. Conventional wisdom had it that fiber optics in the distribution plant (i.e the "last mile,") had to be justified on the basis of its economic advantage over traditional copper facilities for conventional voice services, just as had been done for other applications. Unfortunately, the cost curve resulted in a penetration of this segment some 20 years hence, a particularly unsettling thought for the Business Unit managers.

The obvious solution was arrived at through Bootstrap Marketing by asking, during the iterative step, "What else do residential customers buy that could be satisfied by the capabilities of fiber optics?" The answer, video services, was then easily tested for its viability through simple market research, and ultimately became a major part of the product strategy. It should be noted that it had not only been expected that this was eventually going to be a market opportunity, but the idea had, in fact, previously been discarded with considerable prejudice because of early commercial failures. Bootstrap Marketing not only provided the logical intellectual and economic framework to resurrect the idea, but it drove the structure of the market research by focusing on the key application issues.

Given an expanded list of potential customers, one could (in fact, one necessarily has to) ask what other needs this group has, and what else they would buy. An expanded group of needs implies an expanded list of features and an expanded list of customers. And an expanded list of features implies an expanded list of customers and an expanded list of needs; and so on. Thus is driven the optimization process. One can go in either direction, and easily round out the market definition in this way. This process expands not only the potential applications of the product, but also the potential value, as will be discussed later.

This iterative process of asking "Who else might buy?" "What other problems could the product solve?" and "What other features could be offered?" serves to expand and refine the market definition until there is a balance, or equilibrium, between what needs are

served, what customers are targeted, and what product is feasible to deliver. Often an economic question, development, marketing, and other costs are easily folded into the analysis as constraints by either allowing on not allowing possibilities to appear on the lists.

Example 4 (continued): Environmental Compliance Software

While any business has innumerable examples of features they could not afford to develop, an example should at least be given here to affirm the necessity of discretion in proposing developments. In the case of the environmental compliance software company, it was clear that while the market needed a cost effective way to computerize the chemical information contained in the eight page MSDS (i.e. do the extensive data entry,) we could not afford to develop an automated data entry capability on the available budget. This meant, of course, that the market for the tracking system would be substantially smaller, as we could not meet the needs of a significant number of prospects. As unfortunate as it was, budget limitations are always a reality of business.

The "balancing function" is one which must be done uniquely to the situation, and there are no prescriptions for how far to go in expanding or refining a concept, or when to stop. More often than not, however, the dynamic of the brainstorming session reveals the prejudices of the participants (or budgetary realities,) which tend to throttle or enhance idea generation. Judicious use of the list expansion and contraction techniques in Bootstrap Marketing can have a great effect in negotiating these prejudices. The key is to exhaust the possibilities through good questioning techniques described above, using the explicit nature of the process to enhance the productivity of the negotiations.

Once the cycle has been worked through with sufficient rigor and the lists have been "tuned up," the market segments, target markets, and applications must be adjusted (via the matrices,) to correspond to the revised lists. This is often more a matter of reduction than expansion, in spite of the expansive tendency of the questions used (i.e. "What else...?") This is partly because group dynamics tends to focus on only those customers, needs, and product attributes on which everyone can agree, and partly because the answers tend to be obvious by this time. Unimportant elements tend to get dropped; and summarizing market segments, target markets, and applications with as few parameters as possible makes the market definition clear and concise.

In summary, a market, then, is defined by its constituent customers, their needs, and the products that serve them. Bootstrap Marketing provides a convenient means of developing the market definition and portraying it in the form of matrices which show the pattern of relationships between the market's defining

elements. By selecting particular cells (or groups of cells) in the matrices (most easily done by circling them on the table,) one can easily portray the alternative strategic options for discussion, analysis and implementation.

Step 3a: Refining the Data

If one has performed this as a quantitative exercise as described in steps 1a and 2a, the process can be easily continued by providing quantitative answers to the questions in step 3, and using the results in the same way.

Step 4: Translation

The final step in Bootstrap Marketing is the translation of the market definition into conventional market research, marketing mix, and product development programs. And while the benefits of the earlier steps are somewhat tentative, an effective translation of the tables provides the major payoff for having endured the occassional tedium of those simplistic activities. The translation, however, is a very easy step to do using the matrices that have been developed, and is illustrated conceptually in figure 8.

As shown in figure 8, target marketing leads directly to market sizing, sales planning, and distribution. Application analysis leads directly to willingness-to-pay analysis and to pricing. And market segmentation leads to promotional programs and advertising. As a group, they collectively lead to positioning.

It should be noted that once layed out in this manner, the process also lends itself to re-visiting the product concept list to develop new products and explore product improvements; the customer list to identify new and potential prospects; and the needs list to identify new problems that can be solved by the firm. Thus, the process itself can provide a solid foundation for evolutionary market development. In addition, there are numerous other marketing, development and commercialization functions that can be driven that will not be specifically dealt with here, but for which the data is now neatly formatted.

In sum, the basis for the translation process are the product concept, needs, and customer lists developed in step 1 and 1a, and the target marketing, market segmentation, and applications matrices developed in step 3 and 3a, with quantitative data providing the more powerful vehicle than qualitative data.

In general, the format of the matrices identifies not only the issues to be researched, but the target populations, as well. Bootstrap Marketing can save a great deal of research money by not

only improving sample selection, but by driving the structure of the actual questions in the research instrument.

Importantly, though, because many of the decisions are now made obvious by the data, the necessity to do a particular piece of research is more objectively judged. And while "self-evident" may sometimes mean that there is simply a concensus formed around an idea, Bootstrap Marketing also lends itself to more scientific criteria.

In addition to basic market sizing data, derived information such as willingness-to-pay and projected take rates are also not only easy to define, but to prioritize and research using the matrices that have been developed. For example, an application matrix populated with the prices of alternative (or competitive) solutions can show the obvious initial price points for features and feature packages. A target marketing matrix showing sales of competitive products by customer group can easily be used to project take rates and cannibalization effects.

In sum, beyond having at the ready the customers, features and problems to be measured, Bootstrap Marketing also has already defined packaging (in the form of feature groups,) as well as the market position of complementary and competitive offerings. By doing so, while this doesn't necessarily make the math any easier, it almost always makes the planning so.

Market Research

The most obvious implication for market research is that since the data necessary to define the market is logically formatted in the lists and matrices, data voids are not only easily identified (by vacancies in the matrices,) but are also easily prioritized for their research value. This can be based on how much they impact the decisions that are to be made regarding marketing and development programs, for example, or how much it would cost to implement a particular program. Simplifying the issues in this way also identifies opportunities to use less expensive secondary market research, rather than primary market research.

> Example 3 (continued): ISDN and CLASS
>
> Typically, when data voids show up on the customer lists, they are most easily -- and inexpensively -- filled with secondary research. This is primarily due to the "bean-counting" nature of the customer lists, and the easy availability of data. Thus, when it was necessary to populate the customer lists for the signalling services analysis, other studies of home banking, PC use, and home data applications were cited for statistics.

It could also be added that by its nature, this process also increases the value of secondary data. Rather than being victimized by the orthogonal data collection methods of the root study, Bootstrap Marketing places the data in a context which clarifies the bias, and allows it to be dealt with objectively.

When secondary data isn't available, as is typically the case in populating the needs matrix, the structure of the process greatly simplifies the task of specifying the market research.

Example 6 (continued): Video-On-Demand

This was clearly the case with identifying the need for a video-on-demand service, which had to be demonstrated on two levels -- the end user and the telephone companies (i.e. the distributors.) The issue of the existence of a latent need for an on-demand video service could be resolved through end-user primary market research, for which there was a concensus. But due to the close relationships that already existed and the politically charged atmosphere, suggesting a new need on the part of the telephone companies (that being to get into the video business,) truly met some resistance.

By listing the telephone companies' needs at an appropriate level, not only did the need to ask the question become clear, but so did its format. Since it was assumed that the decision to enter the video market was CEO-level decision, we simply (and anonymously,) asked the CEOs to compare its merits to other comparable strategies: manufacturing, long distance service, and international ventures. The 100% response rate indicated we had asked the right people the right question.

Finally, while it isn't really market research, it should be mentioned that voids in the product lists can also drive a sort of inquiry. That is, if one has identified a need and a group of customers willing to pay for its satisfaction, the product list can identify features (or whole products,) that should be considered for development. One might even think of the "Can you build it?" question as inward-focused market research.

But in general, market research will be much more efficient and effective when driven by this process because it is implemented for specific purposes, it's structured to answer only necessary questions, and it's simplified to make it as inexpensive as possible.

Market Sizing

The target marketing matrix shown in table 7 could certainly be used to portray market size directly if the underlying lists had

included quantitative data. Additional demographic variables could also be added from step 1 to subdivide the target markets more finely, as might be useful for sales planning.

> Example 3 (continued): Environmental Compliance Software
>
> This was the case in marketing the environmental compliance software product, for example. By focusing only on large companies in SIC codes 20-30, (the group which is required by law to report to the government their use of hazardous chemicals,) unqualified leads could be reduced significantly.

This type of analysis is also very useful for the product manager who wants to know how much of each type of product to make.

Also, when willingness-to-pay is calculated, the addressable market can be easily sized in dollar terms as a subset of the target market. The addressable market is simply the willingness-to-pay times the number of applications, and is extremely helpful when planning capital allocations.

As in the other cases, market sizing becomes benignly simple when based on the lists and matrices of Bootstrap Marketing.

Sales Planning

Since the development of the customer (or prospect lists) is a formal part of the market definition, sales planning, including sales force deployments, compensation programs, and budgets are natural by-products of the market definition process.

This raises an intriguing question. It is striking how often turning over marketing data to the sales planner is an overlooked part of the planning process, and it is a wonder why it ever happens at all. But more importantly, if a structured approach to market definition results in the production of data that is so useful to the sales management function, it is a wonder why marketing organizations don't demand that sales take the data.

In either event, the following are some examples of how Bootstrap Marketing can support sales planning:

- Very often, the demographic data bases that provided the raw materials for the customer lists contain geographic data. This is extremely useful in establishing geographic sales territories.

- Where salespeople have discretion in pricing, an understanding of the willingness to pay for an application can provide not just a means to maximize revenues, but can also provide a competitive advantage.

- An outgrowth of this same concept is to share with salespeople the list of needs that was developed. Not only can salespeople confirm their accuracy, but if the list is accurate, the salesperson will have a valuble window into their prospect's mind fro use in positioning the product.

- The market sizing data can lead to addressable market quantification, which can lead to a sizing of the "served" market. By calculating take rates for the products (or absorption rates,) high level sales forecasts can easily be made. This can be easily translated into territory sizes, and thence to quotas.

In sum, sales planning also can benefit from the availability of the data developed in Bootstrap Marketing.

Distribution

In addition to the identification and measurement of potential customers for an offering, distribution channels can also easily be identified through this methodology by examining how a particular prospect can be approached. This is derived from asking "What else does this customer buy?" as part of the iterative phase of the study.

Numerous examples of channel development and selection can be imagined by knowing what customers have which needs, and knowing the demographics and buying habits of those customers.

> Example 9: Developing an Independent Distribution Channel
>
> This was the case in one company's effort to develop a new market for its "old" products. By asking what else their customers buy, the manufacturer was able to identify a contractor/distributor channel that it had previously ignored. Sales through this new channel quickly exceeded $100 million, without any significant cannibalization of the traditional channels.

Again, the key to a sucecssful analysis becomes the use of good questionning techniques, provided by Bootstrap Marketing.

Willingness-to-Pay

Willingness-to-Pay is a function of the intensity of a given need, measured as the cost of the problems incurred, less the cost of alternative (or competitive solutions.) In the example of fiber optics versus copper, one can examine (and portray on the Applications matrix,) the relevent costs, and identify where the highest willingness-to-pay appears. A tool that is often used for

this is Economic Domain Analysis, which is nothing more than a graphic portrayal of the data.

Not only does the pricing exercise benefit from this analysis by valuating intangibles, but the sales process does, as well, by identifying prospects with the highest willingness-to-pay.

Pricing

While pricing is more complex than discounting a willingness-to-pay, it is also more complex than marking up costs. This analysis provides a rational means of comparing costs to willingness-to-pay, providing a key means to avoiding the development of products that cannot sell above their costs. It also focuses the market plan on the value the prospect will receive in applying the product to his or her problems.

It is interesting to note that Bootstrap Marketing accomodates one of the major conundrums encountered in marketing: that of differentiating the incremental value of features versus the aggregate willingness to pay for the product. If one assumes that the total value (and by extension, the price you could charge,) is not the same as the sum of the incremental values of the features, then how does one manage to still valuate features within a competitive price?

The tool provided by Bootstrap Marketing is that it allows you to aggregate and disaggregate the product and its features (by manipulating the lists,) to measure the wilingness-to-pay for both features and for the product as a whole. This was clearly the case in analyzing the market for a townhouse condominium.

> Example 10: Townhouse Condominium
>
> As a graduate student in 1976 I had the opportunity to look at the market opportunity for townhouse condominiums at a time when virtually none existed in New Jersey. The market research indicated that the willingness to pay for each feature exceeded the willingness to pay for the entire house; a not surprising result of many studies.
>
> By selective deconstruction of the feature lists we were able to identify the core list of features, without which no one would buy the condo, and establish a premium schedule for optional features. And this was all done without having to re-survey the market.

Similar results occur in many studies. For example, the potential feature list for a major piece of equipment for the telephone network had over 100 features. Developing a willingness to pay for each one revealed that the one feature it didn't have

(compatibility with a yet-to-be-developed standard,) was a must-have feature. No discount could overcome the liability of its lack.

Advertising and Promotion

Because the prospect lists identify the potential customers, and the needs lists identify their "hot buttons," these two items can be combined into an efficiently targeted and well defined promotional program. In its simplest sense the message is nothing more than a communication of the vendor's understanding of the prospect's problems, and the medium is the most efficient one for reaching the prospect. And while advertising and promotion programs may become quite elaborate in their implementation, the most effective ones are clear and simple at their core.

> Example 1 (continued): Fiber Optics
>
> In the case of fiber optics, needs analysis showed that the biggest problem of the telephone companies was the maintenance cost of copper, rather than congestion, transmission quality, or EMI. By focussing on the maintenance issue (specifically operations, administration and maintenance,) not only were we able to develop a solid economic justification for the substitution of fiber for copper in new routes, but a high degree of modernization of old routes was achieved. In fact, by suggesting that since the biggest maintenance expense was in the outside plant, we were able to penetrate the voice services market without having to overcome the problem of having little advantage over copper with respect to transmission quality.

Bootstrap Marketing provides cogent messages that the prospects will relate to, but what is most interesting about the process is that it doesn't require a "conversion" to "preach the gospel." In other words, one does not have to be inculcated in the benefits and grandiosity of an opportunity to speak intelligently and enthusiastically about it. And this has a major benefit: So often people lose their objectivity in evaluating and developing market opportunities, but the traditional alternative is a lack of conviction. By literally creating benefit statements in a reasonably scientific fashion, Bootstrap Marketing allows one to develop promotional programs without losing one's objectivity.

As the above discussion indicates, there are many useful applications of the Bootstrap Marketing technique, not at all limited to the examples given. The key is that Bootstrap provides a logical and convenient structure for presenting and analyzing data that is commonly used in marketing and product development programs.

Summary

Bootstrap Marketing provides a means of market definition that enables the planner to more reliably develop commercially successful ideas from limited information. Bootstrap Marketing provides the structure and data necessary for the development and implementation of effective product development, marketing, and sales programs that are the keys to commercial success in start-up situations, for turnarounds, and for mature business seeking growth.

The technique has been employed in a large number of significant cases which have repeatedly affirmed the value of the technique. And while no technique guarantees success, with its use of team-building brainstorming sessions and the use of simple data display and analysis, Bootstrap Marketing can be relied on to consistently add structure to the often chaotic early stages of market strategy development, accelerating the commercialization process, while enhancing its chance of success.

Epilog

While the tools that Bootstrap Marketing employs are simple and easily visualized, their power to drive success is less obvious, and cannot be easily understood in the abstract. It is something that must be tried in order to see its benefit. I have found it invaluble, and use it on virtually every project.

Product Concepts List Fiber Optics	
Attribute	Feature
Transmission mode	Single mode Multi-mode
Cladding	Graded index Stepped index
Wavelength	850 nm 1310 nm 1550 nm
Cross Section	Single fiber 2–4 fibers 8–12 fibers 24–48 fibers > 48 fibers

Table 1:
Example 1, Feature Options for Fiber Optics

Customer List Fiber Optics	
Customer Type	Customer/Prospect
Telephone Companies	New England Telephone New York Telephone New Jersey Bell C&P Telephone etc.
	Non-Bell
CATV Companies	TCI Cox Cable Comcast etc.
Business	Large Medium Small
	Single Site Multi Site
Residential Customers	Urban Suburban Rural
	Single Family Multi Family

Table 2:
Example 1, Potential Customers for Fiber Optics

Needs List Fiber Optics	
Problem	Benefit
Duct congestion	Reduce/eliminate duct congestion
Poor data transmission	No noise if digital
High cost of growth	Reduce/eliminate need for relief
Limited facility capacity	Unlimited bandwidth
Susceptibility of Copper to EMI	Resistance of fiber to EMI
High maintenance cost of copper	Reduced maintenance
Copper is easy to tap; unsecure	Fiber is hard to tap; secure

Table 3:
Example 1: Potential needs that could be solved by fiber optics

Customer List (With Data) Fiber Optics		
Customer Type	Customer/Prospect	Size/units
Telephone Companies	New England Telephone	12M lines
	New York Telephone	11M lines
	New Jersey Bell	8M lines
	C&P Telephone	9M lines
	etc.	
	Non-Bell	20M lines
CATV Companies	TCI	26M subscribers
	Cox Cable	18M subscribers
	Comcast	11M subscribers
	etc.	
Business	Large	12M employees
	Medium	30M employees
	Small	60M employees
	Single Site	9M companies
	Multi Site	.2M companies
Residential Customers	Urban	60M residences
	Suburban	30M residences
	Rural	12M residences
	Single Family	50M dwellings
	Multi Family	20M dwellings

Table 4:
Example 1, Sample Measures of Potential Customers for Fiber Optics

Product Concepts List (With Data) Fiber Optics		
Attribute	Feature	Development Cost
Transmission mode	Single mode	$14M
	Multi-mode	6M
Cladding	Graded index	2M
	Stepped index	4M
Wavelength	850 nm	4M
	1310 nm	8M
	1550 nm	12M
Cross Section	Single fiber	1M
	2–4 fibers	2M
	8–12 fibers	2M
	24–48 fibers	9M
	> 48 fibers	9M

Table 5:
Example 1, Sample Development Costs For Fiber Optics

Needs List (With Quantified Costs) Fiber Optics		
Customer Problem/Need	Fiber Optic's Benefit	Costs/Value of a Solution
Duct congestion	Reduce duct congestion	A new duct costs $100 per foot
Poor data transmission	No noise if digital	Poor circuit quality adds 20% to costs
High cost of growth	Reduce need for relief	Facility relief costs 8X terminal replacement
Limited facility capacity	Unlimited bandwidth	Revenue grows 10% for each 10mb/s added
Susceptibility of Copper to EMI	Resistance of fiber to EMI	EMI cabinetry adds 15% to cost
High maintenance cost of copper	Reduced maintenance	Fiber maintenance = 1/4 of copper
Copper is easy to tap; unsecure	Fiber is hard to tap; secure	Secure networks = $100M/yr

Table 6:
Example 1: Cost/value of sample needs associated with fiber optics

Product Concepts		Potential Customers			
		Telephone Companies	Cable TV Companies	Business	Residence
Transmission mode	Single mode	X			
	Multi-mode		X	X	X
Cladding	Graded index	X	X	X	X
	Stepped index	X	X	X	X
Wavelength	850 nm	X	X	X	X
	1310 nm	X	X	X	X
	1550 nm	X	X	X	X
Cross Section	Single fiber	X	X	X	
	2–4 fibers	X	X	X	
	8–12 fibers	X			
	24–48 fibers				X
	> 48 fibers				X

Table 7:
Example 1, Preliminary Target Markets For Fiber Optics

Needs/Problems	Potential Customers			
	Telephone Companies	Cable TV Companies	Business	Residence
Duct congestion	X			
Poor data transmission	X		X	
High cost of growth	X	X	X	
Limited facility capacity	X	X	X	X
Susceptibility of Copper to EMI	X	X	X	
High maintenance cost of copper	X	X		X
Copper is easy to tap; unsecure	X	X	X	

Table 8:
Example 1, Preliminary Market Segments for Fiber Optics

Needs/Problems	Area Affected	Potential Customers			
		Telephone Companies	Cable TV Companies	Business	Residence
Duct Congestion/ Right-Of-Way	Distribution	X			
	Feeder	X	X		
	Long Haul			X	
Poor Transmission Quality of Copper	Voice	X		X	X
	Data			X	
	Video		X		
High/Unstable Cost of Copper	Forecasting	X			
	Rate effect	X		X	X
	Availability	X			
Limited Facility Capacity	Bandwidth			X	
	Distance		X		
	Services			X	X
Electro-Magnetic Interference	Central Office	X			
	Short Haul	X	X	X	
	Long Haul	X			
High Maintenance Costs	Operations	X	X		
	Administration	X			
	Maintenance	X	X		
	Provisioning	X			
Security	Tapping			X	

Table 8a:
Example 1, Detailed Preliminary Market Segments For Fiber Optics

Product Concepts		Needs/Problems						
		Duct Congest.	Trans. Quality	Cost Of Growth	Facility Capacity	EMI	Cost Of Maint.	Security
Transmission mode	Single mode	X	X	X	X	X	X	X
	Multi-mode	X	X	X	X	X	X	X
Cladding	Graded index	X	X	X	X	X	X	X
	Stepped index	X	X	X	X	X	X	X
Wavelength	850 nm	X	X	X	X	X	X	X
	1310 nm	X	X	X	X	X	X	X
	1550 nm	X	X	X	X	X	X	X
Cross Section	Single fiber	X	X	X	X	X	X	X
	2–4 fibers	X	X	X	X	X	X	X
	8–12 fibers	X	X	X	X	X	X	X
	24–48 fibers	X	X	X	X	X	X	X
	> 48 fibers	X	X	X	X	X	X	X

Table 9:
Example 1: Preliminary Applications for Fiber Optics

Product Concepts		Needs/Problems											
		Duct Congestion/ Right–Of–Way			Poor Trans. Quality Of Cu.			High/Unstable Cost Of Copper			Electromagnetic Interference		
		Dist.	Feeder	Long Haul	Voice	Data	Video	Fore-casting	Rate Effect	Maint.	Central Office	Short Haul	Long Haul
Transmission Mode	Single mode	X	X	X	x	X	X	X	X	X	X	X	X
	Multi–mode	X	X	X	x	X	X	X	X	X	X	X	X
Cladding	Graded index	X	X	X	x	X	X	X	X	X	X	X	X
	Stepped index	X	X	X	x	X	X	X	X	X	X	X	X
Wavelength	850 nm	X	X	X	x	X	X	X	X	X	X	X	X
	1310 nm	X	X	X	x	X	X	X	X	X	X	X	X
	1550 nm	X	X	X	x	X	X	X	X	X	X	X	X
Cross Section	Single fiber	X	X	X	x	X	X	X	X	X	X	X	X
	2–4 fibers	X	X	X	x	X	X	X	X	X	X	X	X
	8–12 fibers	X	X	X	x	X	X	X	X	X	X	X	X
	24–48 fibers	X	X	X	x	X	X	X	X	X	X	X	X
	> 48 fibers	X	X	X	x	X	X	X	X	X	X	X	X

Table 9a:
Example 1, Preliminary Applications Subset for Fiber Optics

Market Definition

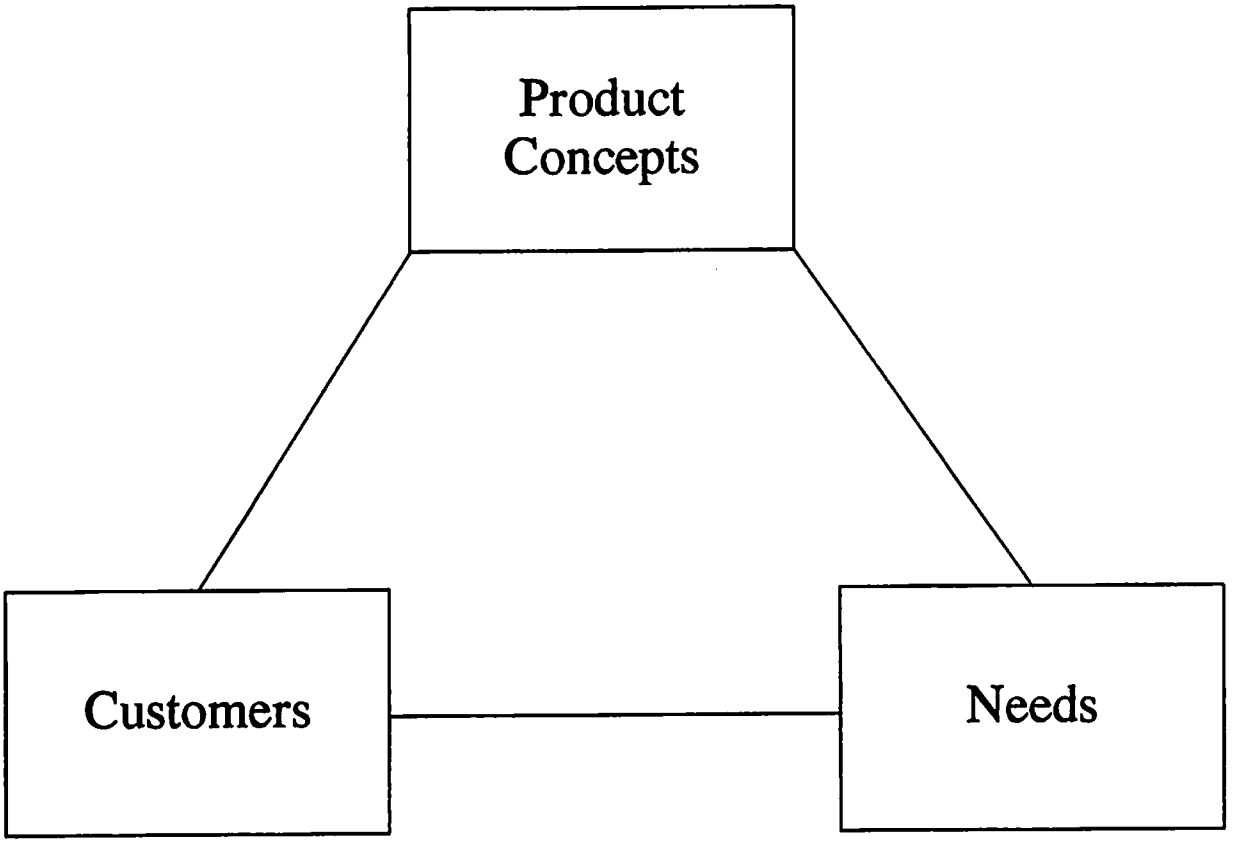

Figure 1: The cornerstones of Bootstrap Marketing

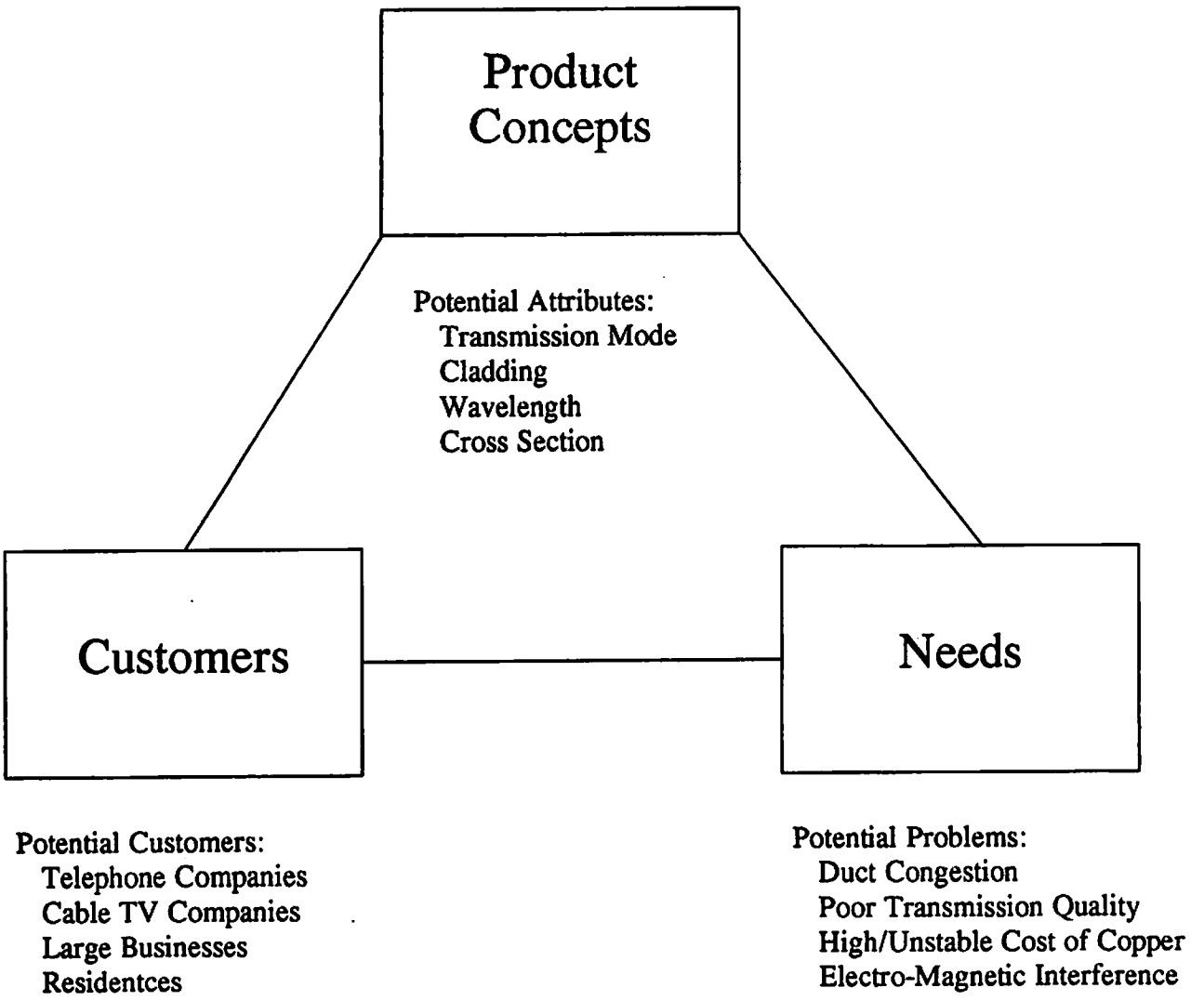

Figure 2: Preliminary view of the market definition for Fiber Optics

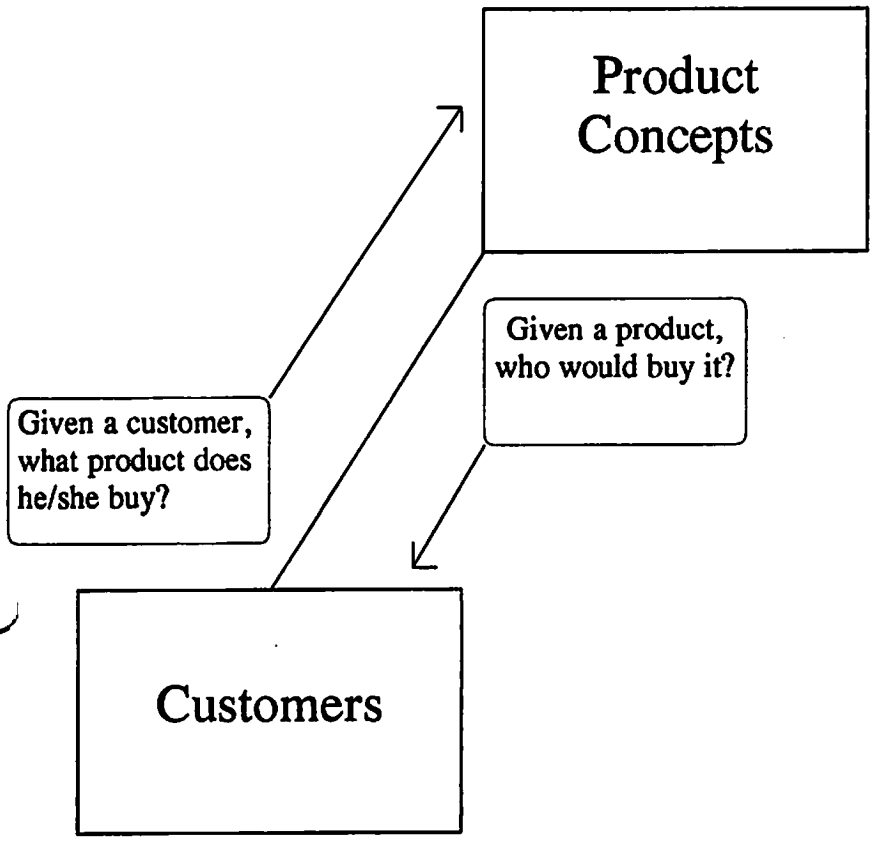

Figure 3: Target Marketing

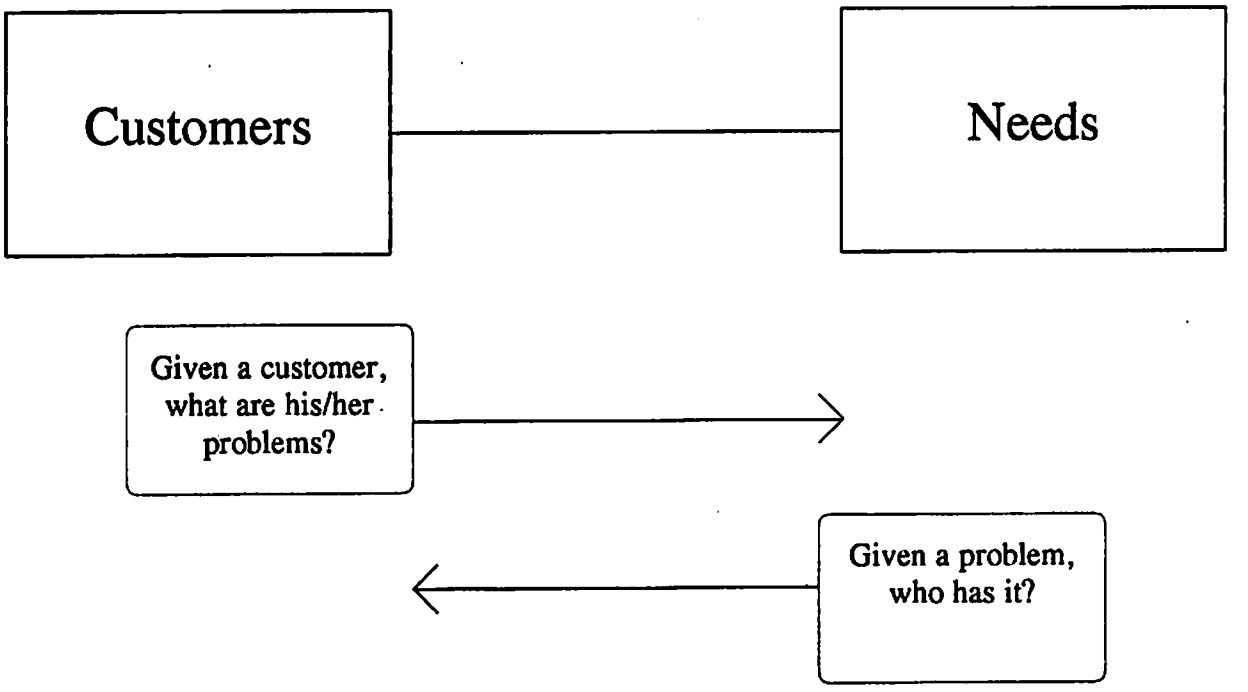

Figure 4: Market Segmentation

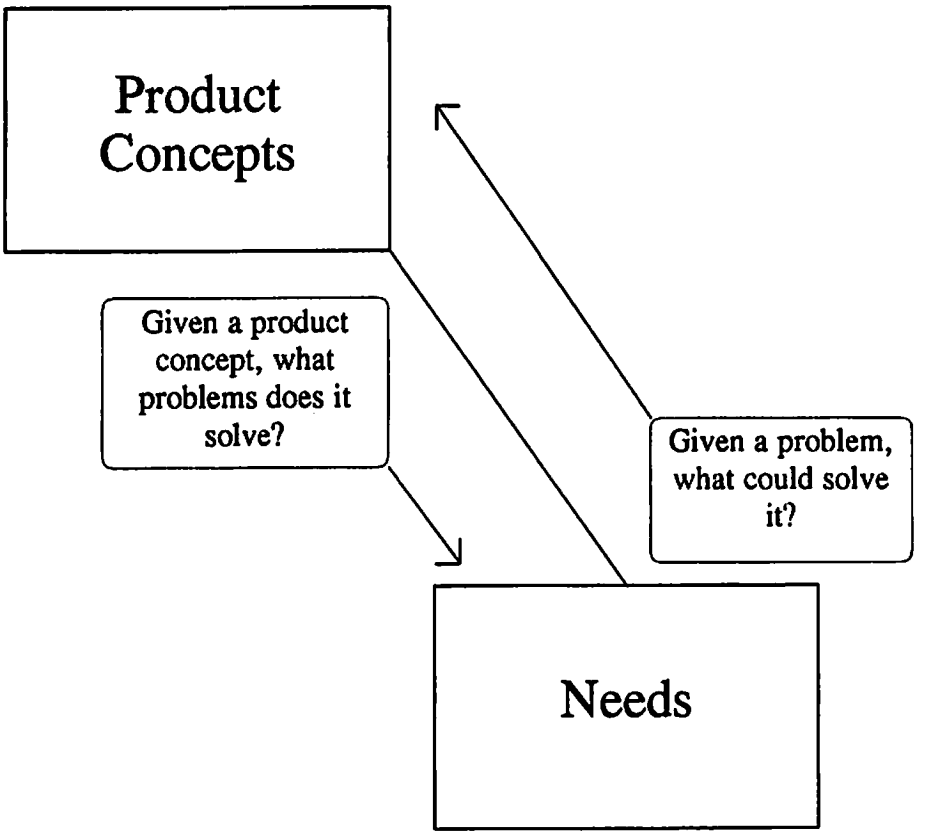

Figure 5: Application

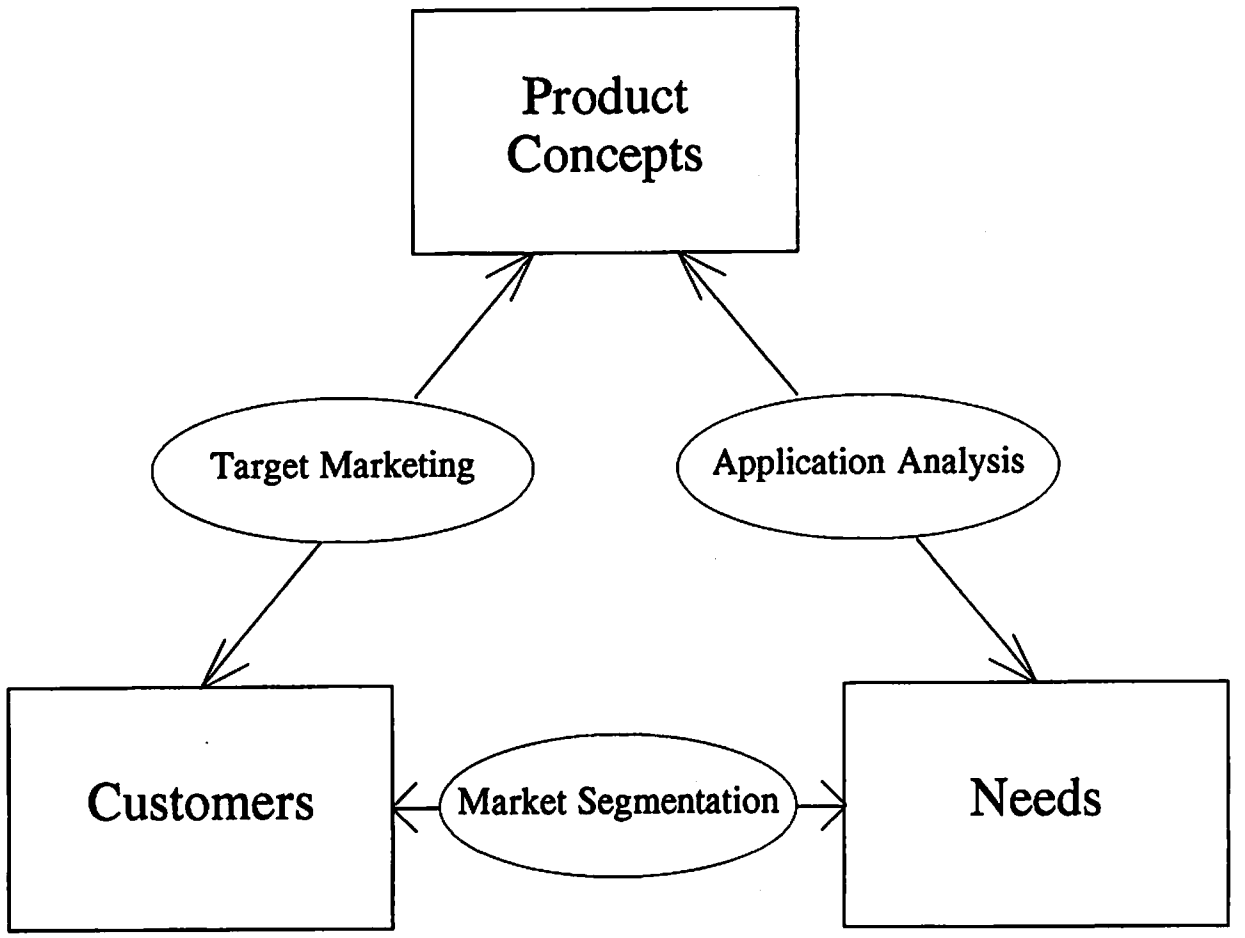

Figure 6: Market Analysis and Bootstrap Marketing

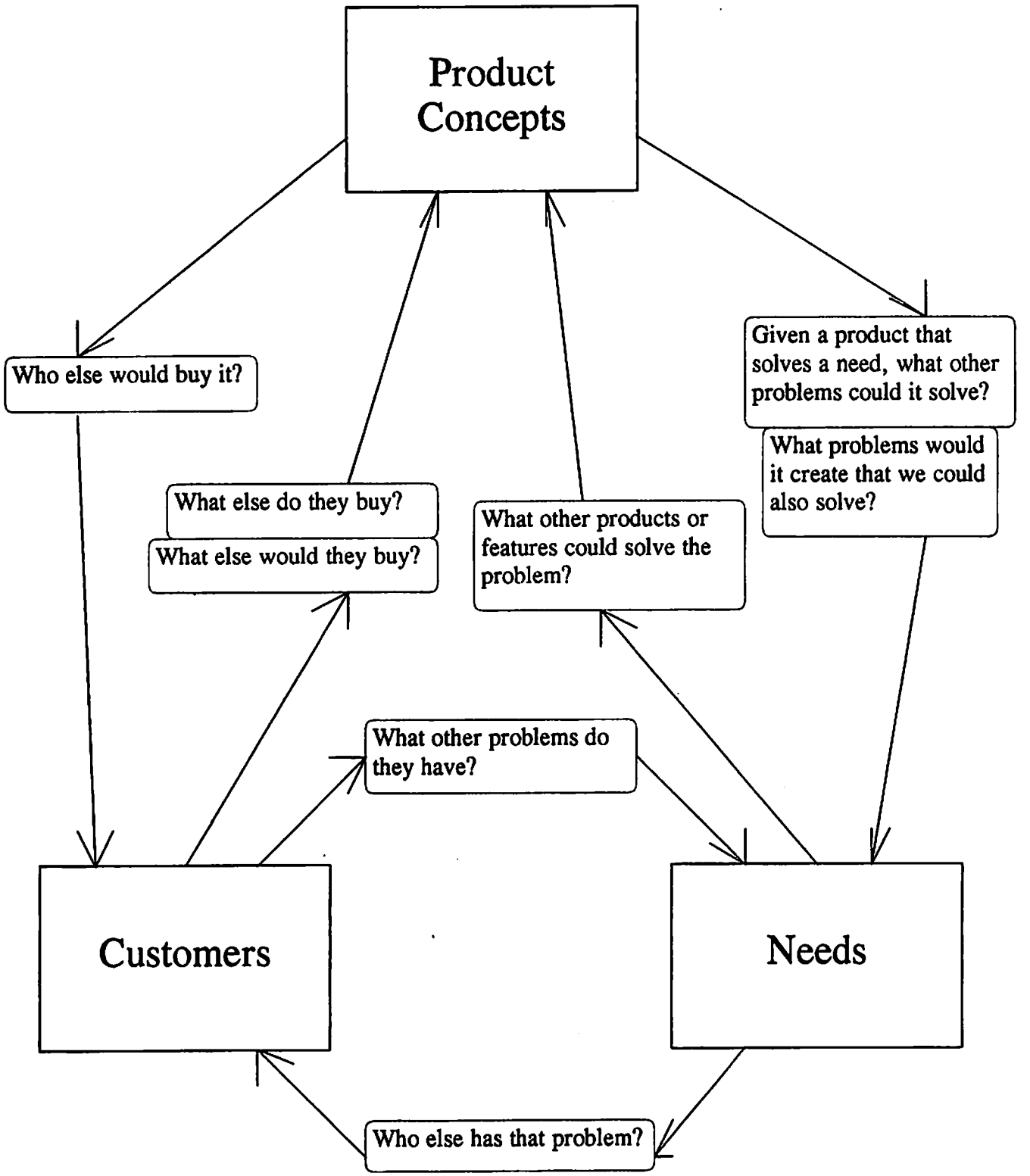

Figure 7: Iterating the process

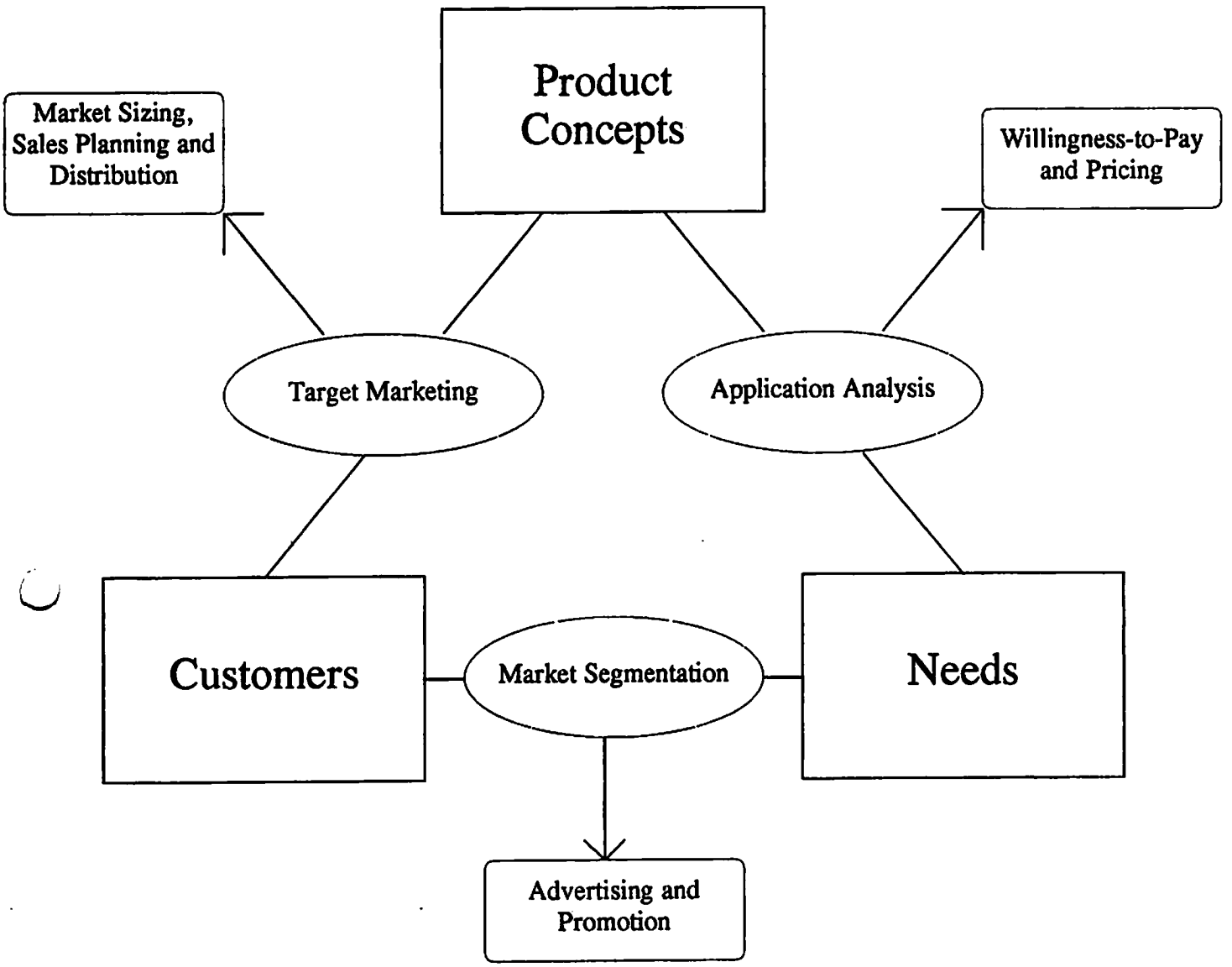

Figure 8: Translation to Implementable Marketing Mix Elements