Relating Long-Term Research Plans to Potential Food Needs

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The food industry in the industrialized world has reached a point where its major markets are virtually saturated. A stable population can only consume a limited amount of food and drink; thus growth for organizations in the industry can come only from geographical expansion, acquisition, or improved competitiveness. In the longer term the ability to be competitive is likely to be the real key; and here we must consider not just price competition, but more especially quality and innovation. The only way that a major food manufacturer will grow, or even just maintain its market share, will be through its ability to develop new products that the consumer will buy. Research and development (R & D) is one of the principal keys to success, but it must be genuinely demand-oriented.

RESEARCH AND DEVELOPMENT—THE PROBLEMS

The R & D laboratories of most large organizations represent a valuable resource for the future success of the organization. However, R & D is expensive. Only one in 15–20 projects started in R & D laboratories ever comes to fruition and produces usable results. And on average, across industry, an R & D project takes 10–12 years from applied research through development, testing, and engineering to the production stage. Thus any method for increasing the success rate of R & D projects is likely to give an organization an edge over its competitors.

A fundamental problem that has tarnished the reputation of longer term research in recent years has been the increasing number of mistakes in the marketplace caused by technology-push failing to meet demand-pull (1). This, combined with short-term financial pressures, has caused an emphasis on development rather than research—a trend that has been exacerbated by the decentralization of research into operating divisions or companies. Development is easier, it is shorter term, the success rate is higher, it costs less; but it usually produces only incremental change, not totally new products or processes. When markets are becoming saturated and competition fiercer, then the solution must be to innovate. While innovation can sometimes result
from many small developments, a few major ones usually give an organization a
greater competitive edge and a breathing space in which to consider future directions.

RESEARCH AND DEVELOPMENT—THE OPPORTUNITIES

Over the years two issues have emerged as being of critical importance for the
success of R & D: a willingness to work at the boundaries between disciplines or
across the boundaries of well established fields; and greater understanding of the
total system within which the organization is operating. These two issues are, of
course, related—and in the food industry perhaps more so than in other areas.

From the technical point of view, the questions that must be considered are:

(1) What will be the key technologies and developments in the future?
   —in our area?
   —in complementary ones?
   —in competitive ones?
   Here we shall have to consider the entire agribusiness sector (farming methods,
fertilizers, pesticides, aquaculture, health, biotechnology, processing, packag-
ing, materials, consumer technology, and so on).

(2) Whether or not we should expand our capabilities in some, or all, of these areas
   —by developing existing skills and resources
   —by acquisition.

The answers to all these questions will be organization-specific, based on long-
term vision, objectives, strategies, resources, strengths and weaknesses. The view
from the R & D laboratory can both contribute to the corporate vision and support
the strategies for achieving it. This means that to be really effective the R & D
function should work much more closely with the corporate strategy and marketing
functions than it has usually done in the past, so as to ensure that they share the
same vision and are committed to the same strategies.

We have found that one of the best ways of achieving this closeness is by initiating
a project whereby the planning, marketing, and R & D functions can meet and work
together to consider demand for food in the future. What could the future of food,
in its broadest sense, look like in 10, 15, or perhaps even 20 years’ time? The answers
are by no means obvious, but it is the time frame that is of real importance. By
focusing their attention on such a relatively long time ahead the participants are able
to cut themselves loose from the immediate constraints of their jobs, which are the
things that usually act to engender conflict between these functional areas. After
developing two or more scenarios of the future of food, the group can then ask itself
the question: “and what part of these futures would we like to have for our orga-
nization?” Having agreed on a future that they all desire, the group is in a position
to work back to the present to see whether that future is achievable and to identify
the actions that must be taken to bring it about.

In practice, when we do this with a client, we iterate between the future and the
present, and between demand and the technology available to meet the demand. When we have arrived at a picture of the future that looks both desirable and achievable, then the "path" between the present and the future becomes the strategic framework for all future decisions, including those involving R & D, and we use that strategic framework as if it were a desired resultant vector. After the vector has been agreed and established all decisions that are taken are expected to have at least some component that moves the organization in the direction the vector indicates (or, at least, if they do not, we want to understand why we have taken such a decision). This can be very useful because the demand orientation in some projects improves the potential success rate and lowers the risk of arriving at unusable results. And in this case, demand orientation does not imply development; rather than being a constraint on research it simply suggests a direction. The shared vision of the future also provides guidelines for deciding on the mix of demand orientated and truly "blue sky" research.

But what does "demand orientation" really mean in this context?

DEMAND—THE NATURE OF THE DRIVING FORCE

The scenarios that the group develops as a basis for its view of the future should picture their organization within realistic operating environments. Those operating environments will include all the technologies and sectors of the economy mentioned before, but they will also include social, economic, and political change. Here, of course, considering the future of food, the major driving force will be social change, and in particular its manifestation as demand.

The least reliable form of forecasting demand is extrapolation, especially when it is consumer behavior that is being extrapolated. We have only to see, on the one hand, how quickly people respond to scares and concerns; and on the other hand, how they think they are being traditional, despite using modern ingredients and cooking methods, to realize that food is not a rational matter and that its future will be influenced by things that are not included in the historical consumption patterns. To understand what is really going on we need to look at the wide variety of roles that food plays in people's lives; and to do that we have to go beyond behavior, to look at people's underlying values, beliefs, and motivations.

For this purpose we have developed a set of models that draw on several psychological theories, predominant among them being Abraham Maslow's theory of motivation. Maslow's contention was that every individual has within his psychological framework a hierarchy of needs; and the needs of a particular level must be satisfied, at least in part, before those of the next level can emerge. He saw this as a developmental progression that takes place throughout life, where, if various obstacles can be overcome, the individual can realize his full psychological potential. The value of applying such a developmental model to the society is that, if we can observe that sort of development taking place within the society and identify the way in which it is occurring, we can anticipate what is likely to happen in the future.
The empirical basis for this work is, principally, a comprehensive survey carried out on a random sample of the population of the United Kingdom since 1974. This detailed United Kingdom view is supplemented by comparative data from many countries in the industrialized world. Fortunately, for the present purpose finely detailed empirical information is neither necessary nor would it be particularly productive. What proves to be of most value are the general conclusions that have been drawn from this work.

The fundamental idea that underlies our models is that every individual possesses a set of values, beliefs, and motivations, which change only slowly over time, and which underpin almost everything that individual does. These long-term values (by long term, we mean from 5 to 20 years) are manifest in the medium term as attitudes and life-styles, and in the short-term as behavior. It is the very fact that they change slowly that makes these "social values" so important and valuable when taking the longer term view; they are relatively stable in an otherwise fast-changing world. A second reason for their importance stems from the fact that we see social forces as the most important drivers of change, with technology running a very close second. By contrast, our models give politics and economics roles as enablers or inhibitors of change, but not as fundamental drivers in their own right.

Conceptual Social Model

A generalized, rigorous model of society is a difficult thing to construct; and it is easy to see why. As we have said, empirical data on social values have to be gathered from the population by survey. We analyze these data in many different ways; and what we get is a multifaceted picture of society that we must somehow simplify in order to obtain a usable representation. The situation is complicated further when we attempt to cross cultural frontiers because we may need to ask the same question in different ways so it makes the same sense in different cultures. For example, in recent times we have seen that the words "political union," when applied to the European Community, carry different meanings that do not completely survive literal translation from language to language. Because of this sort of complexity we make no claim to have a general, rigorous social model; however, we do have a way of looking at social values that has held together well, even when applied across cultural boundaries. Our concepts seem to be particularly applicable to those groups in society that provide the main impetus for change.

As I mentioned before, our models are based on values, and we recognize three major social value groupings within societies throughout Europe. We name them the inner directed, outer directed, and sustenance driven groups. In the following paragraphs I shall describe briefly the principal identifying characteristics of each of these groups, how we perceive their role in society, and how we anticipate them to influence the future. For the purposes of this paper we will comment on the standards by which the members of each group make their decisions.
Inner Directed Groups

The inner directed groups are so-named because the members of these groups derive their sense of personal direction and their personal rewards from within themselves. This is a characteristic that makes these people very easy to misunderstand; and perhaps we should start by looking at what inner directed people do not do. In simple terms, they do not "keep up with the Joneses"—not in any respect. What they do is to try to maximize their own individual potential; but they try to do that in a way that is unselfish and unexploitive of others. That is, they see life as a non-zero-sum game and they recognize that "... in a non-zero-sum world you do not have to do better than the other player to do well for yourself" (2). Thus, although the criteria by which they judge the world—and their own performance—are internal, they care for, and are careful not to exploit, other people.

Inner directeds are involved with personal growth, individual freedom, and personal responsibility—particularly their own freedom and responsibilities. The standards by which they measure themselves and the world tend not to be the materialistic standards of wealth, social class, income, status, or possession; but rather they are standards involving integrity, including honesty, quality, and appropriateness to the situation. Although most are not antimaterialistic they consider people, rather than things, to be of paramount importance, so they tend to see people in human roles that have far greater significance than their membership in a class or their economic functions of producer and consumer. In a similar way inner directeds are not caught up in the conventional socioeconomic classifications of capital and labor; upper, middle, and working classes; or management and labor divisions. They recognize that these and other differences exist, but they find it more realistic to see their world in terms of people who are understood as being responsible or irresponsible, dependable or unpredictable, sharers or takers, truth-tellers or liars. In this way they find a variety of individuals with whom they can be close and their circle of friends is likely to include people from each of the conventional classifications.

Inner directed people are difficult to observe because the thing that distinguishes them from the rest of the population is their motivation rather than their behavior; and as a result of this the media have real difficulty in representing inner directedness. Inner directeds tend to be self-confident and, although they are by no means antisocial, they do not feel obliged to conform to stereotyped social "norms." For this reason they can be found in urban or rural environments doing all sorts of jobs from management to physical labor, earning salaries ranging from vast to marginal, and enjoying the entire spectrum of recreational activities. What they are doing in common is getting on with their lives as seems best to them and interfering with other people as little as possible.

It seems likely that it is the combination of their self-confidence and their inner sense of what is important in their lives that gives the inner directed group its significant role in society. Quite simply, these people are the social innovators and trendsetters. Over and over again the inner directeds are found to be the originators
of new trends in societal values. Simple examples are to be found in such trends as health and fitness, healthy eating, and equal opportunities for women. All these trends began 20 years ago with small groups of people who simply did things—in contrast to those who have written or shouted about them subsequently—which seemed rather strange to the population at large. It was also peculiar that these people did not seem to care that they were regarded as rather strange. The ideas that I mentioned—and many others—are, or are becoming, mainstream core values now; and, of course, large markets have grown up to serve the people who espouse them. But it is by remembering their small beginnings and by being able to identify those beginnings with the inner directed groups that we can gain the most useful information. By observing what inner directeds are doing today, and by understanding why they are doing it, we can get a real insight into what the rest of society is likely to be doing in the future.

Outer Directed Groups

In contrast to these inner directed people the outer directed groups rely heavily on external indicators of their own self-worth. To put it another way, an outer directed person’s concept of himself depends upon his being able to compare himself with others; and his self-esteem depends upon finding himself to be “better off”—usually in some materialistic way. Because they are, in many ways, characterized by the idea that “you are what you own,” they form an easily visible group. Display, and particularly the display of possessions, is a necessary element in establishing their place in society, and this shows clearly in their homes, which tend to be neat, tidy, and well organized, in which their most prestigious possessions, particularly consumer goods, are openly exhibited. Being seen to do well is vital to the outer directeds who will live in the most prestigious houses in the most exclusive neighborhoods that they can afford.

At work the outer directed person is conscious of, and seeks actively to acquire, status and the symbols related to it. Job titles, supervisory or managerial roles, private office space (even a cubicle by the production line on the shop floor), promotion opportunities, a personal secretary, a company car, names on doors, etc., are all of interest to the outer directed employee. Such people are very much at home in structured, hierarchical organizations in which they can establish their position clearly and then display their position and measure their progress relative to others. In identifying themselves with a peer group in this way outer directeds automatically judge themselves to be up to the group’s level, and they generally use the group as the source of the standards by which they judge their world. In this way it is important for them to be seen to be up to the standard by being in the right places, having the right friends, adopting the right behavior, and so on.

If this description makes the outer directeds seem shallow that is because it reflects the essential aspect of display which is, by its nature, only skin deep. However, the people in these groups are of vital social importance; they are the dynamo, the energy
source in our competitive economic systems. They are the ones who feel the need to compete; who need to prove themselves against the opposition; who have the drive to win at virtually any cost. This outer directed energy is essential in business as it generally operates today; and this is the real positive side of the outer directed. The negative side is that, when a person is unable to check it, it acts as a lemming-like drive that can ultimately be self-destructive. Nevertheless, this is the key function of the outer directed group in our model of society; as a dynamo. If we think again about our examples of health and fitness and healthy eating, we see that huge markets have grown up to service these originally inner directed ideas. These markets developed when the ideas were picked up by the outer directed groups; when fashion and style took over from doing one’s own thing. These outer directed are the people that market researchers identify (incorrectly) as the trendsetters. In fact, they are trend developers in the new market, the broad terrain of which has already been roughly mapped by the inner directeds.

**Sustenance Driven Groups**

Everywhere we look in Western industrial society the two groups at which we have just looked are growing at the expense of a third group, which we call the sustenance driven. This pattern is a long-term and consistent trend. Because of its declining size, we consider the direct impact of the sustenance driven group on the long-term future to be relatively small. However, it is influential at the moment, and to neglect it would be to miss the essential role by which it will influence the future. The distinguishing characteristic of sustenance driven people is a desire to “hold what you’ve got.” This orientation tends to make them form homogeneous groups with well-defined characteristics and relatively impermeable boundaries. The typical picture that this idea brings to mind is the tightly knit, clannish, working-class community; but a little reflection will indicate that these characteristics also describe a good many company directors of the “old school,” a lot of the traditional “professions,” and perhaps the hereditary peerage. In fact, we find that the sustenance driven groups include a substantial number of people from all these conventional classifications; and the thing that they have in common is that they resist change. Not only do they hold on to their possessions, but to their institutions as well. Taking examples from the United Kingdom, the trades unions, the civil service, the professional institutions, the national health service, even the great industrial monoliths (nationalized and private) all represent comfort and security to the sustenance drivers, who are most often their most staunch supporters and employees. These great institutions are attractive to sustenance driven people because they are resistant to change; and change is their greatest fear. As the sustenance driven group declines in influence—we have seen and will continue to see—these institutions and others like them change, often profoundly.

From what we have said it is clear that a very substantial number of sustenance driven people control investment decisions, industrial relations (on both sides of the
negotiating table), and the political, economic, and legal framework. Essentially, what the sustenance driven people in this sort of position do to influence the future is to hold a brake on it. This sort of brake is unlikely to stop the social changes that are in progress; they are far too fundamental and will have been brewing far too long to be stopped at all. The effects of the sustenance driven "brake" are likely to be of two sorts. The first, and the positive effect, will be a sort of "social inertia" that prevents things from changing too quickly for society to adapt. The second, and the negative effect, will be the creation of chaos, turmoil, and conflict as those sustenance driven people who are inclined to militancy try to resist change by force of one kind or another or as changes that are genuinely needed are not implemented in a timely fashion.

This is a very broad outline of the model of society we use when we develop scenarios to assess the impact of possible futures on a client and his operation. We can see that each group plays a different role in society when it comes to change. The inner directed are innovators who provide the ideas and determine (by their individual actions, not by any conspiracy) the general direction in which the society will move. The outer directed are dynamos and provide the energy and drive that will push the change through to its completion; while the sustenance driven are inhibitors who provide the inertia that prevents the whole system from flying apart. It is important to understand fully that these statements of function are not, in themselves, value judgments. Nor is it sufficient to think of these groups as being in competition one with another, although the sustenance driven, particularly, might be prone to that view. Rather it is necessary to take a systems view of society and understand that each of these functions is both essential and beneficial to the overall well-being of society. We are looking at a symbiosis in which the sustenance driven keep the outer directed in check, while the outer directed in their turn provide a focus that prevents an inner directed evaporation into personal space. Conversely, the inner directed constantly provide the outer directed with new ideas and opportunities, while the outer directed in their turn provide the energy to drive businesses that service the material needs of the sustenance driven. What we have here, in fact, is a view of the great dynamic of society; it is the interplay of these three forces that really keeps the wheels moving throughout our industrialized world.

DEMAND—FUTURE FOOD NEEDS AND WANTS

Using our developmental model and our understanding of the dynamics within society we can postulate both how people's values and motivations might change, and how that will affect the way in which people live, work, enjoy life, eat, shop, and so on. Were we to do this for a client we would devise at least two scenarios, and we would give particular attention to the areas in which they overlap. Because that is hardly feasible in this circumstance, we will make certain assumptions based on our experience and base our comments on the future upon them.
LONG-TERM RESEARCH PLANS AND FOOD NEEDS

The inner directed group is the innovative one that sets the long-term trends. In addition, it has been growing slowly but steadily for almost 20 years; and in most European countries 30% to 40% of the population exhibit some inner directed characteristics. What this group does today, the outer directeds are likely to do in 2–5 years’ time, and the sustenance drives some time beyond that. Thus, when we come to look at the future of food, in say 2000–2010, we shall need to consider what the inner directed will be doing then, and how the others will have been influenced by them.

Inner directeds have now, and will continue to have, the most diverse life-styles—some living on their own, some with partners and families, and some in groups including friends as well; they do not have the concept of a “norm” in this area. Their lives will reflect their needs and wants at the time. Inner directeds tend to keep “open-house” for family and friends. They expect people to visit at short notice and to stay for a meal; they also expect other members of the household to come and go and perhaps not be there for a fixed mealtime. This will mean having meals that can be “stretched,” kept for the duration of an evening, and perhaps even eaten at various temperatures. At the other end of the spectrum, it will also mean having individual meals or portions available for latecomers or for people with special needs or preferences (vegetarians, people on diets).

The inner directeds include a large proportion of the “well-traveled” and we expect this proportion to increase over the next decade. When they travel they prefer to eat local food and specialities, and it is this group that wants to eat the food again once they are back home. We anticipate the demand for foreign foods and ingredients to increase significantly as this group goes ever farther afield and the outer directeds begin to emulate them.

Inner directeds are extremely busy people, they have the broadest range of interests and activities, and their food—when it is not the main activity—must fit in with the others. Thus, inner directeds may eat prepared foods, any form of convenience foods, any combination of prepared and fresh foods, or they may cook everything from basic ingredients, depending upon the function of the meal and the time available.

The decisions involved in this pattern of eating are made as conscious trade-offs by the inner directeds. As we saw earlier, they started all the health food and healthy eating trends, yet they will also consume junk food, high-quality chocolates, and high-fat ice cream, when they feel it is appropriate. Their trade-offs have to do with time, convenience, flexibility, pleasure, fun; in the food, not usually in the price. They are also aware that if convenience is important, they may have to accept a lower quality, although their general, long-term concern for quality is increasing. All of this is causing enormous fragmentation in the marketplace; and this trend can only increase and at an accelerating pace.

Future demand for food by this complex group of inner directed people, as well as all the others, is a vast topic. I shall try to cover some of the principal issues that I believe will be critical for the future, and therefore critical for R & D.
Quality—Taste, Diversity

To the inner directeds quality—quality of life, quality of products, and quality services—is paramount; and they are becoming ever more discerning. But quality is a difficult concept because it means different things to different people. To the inner directeds quality is intrinsic; some aspects of it may be the familiar measurable product characteristics—taste, aroma, texture, color—but the way in which all these characteristics come together contains intangibles that are important for the inner directeds. These intangibles may range from some generally acknowledged perception of the whole product to some personal memory that is used as a norm by a single person. In addition personal taste (likes and dislikes), a key element in the perception of quality, is also changing, because of this group’s propensity for travel and experimentation; trying foreign food and attempting to replicate dishes eaten abroad. To the outer directed and sustenance driven groups, on the other hand, quality is much more likely to be associated with brand, price, or some norm that has usually been derived from a major brand, although we can see that this pattern is already changing. As manufacturers respond to the demand for quality, so too will the demand for quality continue to increase—an elusive carrot, always beyond reach.

As the demand fragments, which it has been doing for some time, so the ability of manufacturers to respond with a wide variety of high-quality products becomes more difficult. Flexible manufacturing processes can facilitate different versions of a particular product; but shelf space constraints and competitive pressure can make this route difficult. Looking at what inner directeds are doing at present, it seems as though basic products to which a variety of ingredients (spices, etc.) can be added according to individual taste are likely to be appealing. These additions might also be products manufactured specially to go with the basic product, or they might include fresh food/herbs.

This leads to another aspect of quality and taste: freshness. In general, inner directeds would prefer to prepare meals from basic fresh ingredients—raw vegetables, fresh herbs, fresh meat, fish, etc. However, because of various other constraints—time, convenience, availability of ingredients—they will often buy prepared and manufactured foods. They have been the greatest consumers of prepared chilled foods, for instance. Ideally they would like these dishes to taste as if they had prepared them with fresh ingredients. We believe this is going to become even more important in the future.

Convenience

There are many different aspects of convenience, ranging from labor-saving (prepared meals) to time-saving (partially prepared, or quick-cook meals) and easy-to-eat-while-doing-something-else (single portion, hand-held food, etc.); and, of course, fast foods in every form fit into all these categories. While this particular trend toward
convenience food is one of the few that were not started by inner directeds, as the quality of the products offered has increased they have picked up on this trend for a particular reason. They are busy, and because they are such busy people, the inner directeds will use all forms of convenience products, depending upon their particular needs.

Outer directed and sustenance driven people use convenience foods for other reasons. They do seek convenience, but they also wish to ensure reasonable quality (especially if they are entertaining); and they find it a good way to try new or foreign food in a relatively safe (nonthreatening) environment. For all these reasons we anticipate the demand for high-quality convenience foods of all kinds will continue. As mentioned earlier, the inner directeds are more likely to want food products they can enhance to suit their taste; and they are already well on the way to developing a trend in high quality, even “healthy,” takeaways—dim sum, sushi, fresh fruit juice bars, etc. While we do not anticipate that “grazing” will substitute for traditional mealtimes all the time, it will certainly be a major trend.

There should be many opportunities here for new forms of food products that combine the characteristics required by the inner directeds. These will include offering convenience foods that can be “enhanced” with spices or other ingredients, and devising new methods of putting combinations of food together in ways that are easier to eat; they may well include new packaging technology.

### Health and Well-Being

The concepts of health and well-being, from the consumers’ point of view, are not entirely logical or rational. Indeed, both the outer directed and sustenance driven groups are fatalistic and fearful about their health. They tend to believe that there is nothing they can do to prevent disease. This means that information and educational programs aimed at these people fall on deaf ears, while media hype about food scares confirms all their deepest fears and is therefore more believable. Word of mouth from friends and acquaintances they respect is the best way of influencing behavior here.

The inner directeds are different. Our data over the last ten years suggest that inner directeds have a significantly lower incidence of all sorts of diseases than the other groups in the population. While there may be a few cranks among them, inner directeds are much more self-determined about their health. They started all the preventative health care trends, including those relating to healthy eating and adequate physical exercise. They tend to be much more aware of their bodies—whether things feel right or wrong—and of their psychological state; and they will take steps to improve the way they feel, by exercise or by changing their diet to include foods that make them feel good, while cutting down on foods that make them uncomfortable.

Because of their increasing interest in self-development, and their view that a human being is more than just a physical entity (i.e., it includes body, mind, and
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spirit), their concept of health and well-being encompasses all of these. Thus in the future they are also likely to select foods that affect them psychologically—which stimulate, relax, give a greater sense of awareness—while they will avoid foods that make them feel sluggish or depressed.

Functional foods may go some way toward satisfying some of these needs, but high-energy foods and isotonic drinks that satisfy physical needs are probably only the tip of the iceberg. We anticipate enormous opportunities in this area in the future.

Environment and Safety

The environment and its problems are a major issue of concern of the food industry since agribusiness, in its broadest sense, is both a polluter and a victim. Here, as in the area of health, and closely related to it, we have the real problems and the perceived ones. In the area of vegetables and fruit, for instance, the producers want high and consistent yields; and the consumers want reasonably cheap, high quality (consistent size, taste, unblemished) items. This requires the use of fertilizers and pesticides that cause concern to the consumer (because they are afraid of ingesting them) and to the conservationist who sees that they may contaminate rivers and water supplies through run-off. So far, with the exception of dominozide, the trade-offs in this area have favored the continued use of agricultural chemicals. This may not always be the case. Two trends militate against it.

The first is a consequence of the fragmentation in consumer demand, which I have already noted. One result of this is that people are wanting more variety. There is a small but growing trend toward demanding different varieties of fruit and vegetables. In the United Kingdom we are now seeing many different varieties of potatoes, a good number of which are imported; a few years ago we saw only the four popular ones. The price of these new varieties is considerably higher, presumably because of a smaller production, or possibly lower yield, or perhaps transportation; yet some people are willing to pay for them.

The second is the interest in organically produced food, which experienced some growth during the 80s but now seems to have leveled off. The consumers of organic food are buying it for two reasons—first because it is free from agricultural chemicals, and second, because it has more taste or better flavor than mass-produced crops. The inhibitors to this trend have been price and appearance.

Because the people who are buying the different varieties and the organically grown products are the inner directeds, we ought not to dismiss these trends as being associated with cranks. We must watch the development of these trends with care because, if the outer directed groups begin to espouse them, the large-scale use of agricultural chemicals may be called into question—at least for food consumed in the Western industrial societies. A long-term solution might perhaps be found in further developments in the field of hydroponics, and especially developments in biotechnology. We can envisage inner directeds welcoming new technologies at two extremes: new disease-resistant varieties of produce requiring less fertilizer and
peptide; and, at the same time, almost totally "synthetic" foods such as mycoprotein, grown from microorganisms under relative sterile conditions.

Contamination of food at any stage in its process is another related problem; and the more complicated the processing and packaging, the more opportunity there will be for contamination. New forms of processing and packaging could help to solve these problems. New packaging that is genuinely environmentally friendly will receive inner directed support, but performance along this dimension will probably have to be demonstrable in order to avoid the allegations that one is trying to "make a profit" out of the environment. Irradiation technology seems to show promise from the technical point of view, but the inner directeds are not too happy about irradiation as the process is presently perceived.

CONCLUSION

In the future that I envisage, an organization in the food industry will be able to grow only by satisfying consumer demand and this can only come through research as a basis for development. The main areas of research activity are likely to be:

Consumer-oriented:

—new food products that replicate fresh taste
—new food products with entirely new tastes
—new food products designed to alter mood
—new food products made of foreign recipes using foreign ingredients
—better preservation techniques for food ingredients, which also retain natural flavor:
  herbs
  spices
  "foreign" ingredients
—new food products aimed at the convenience market:
  to be held in the hand and eaten as is
  enhanced by "add ons"
  self-heating
  quicker cooking
—"do-it-yourself" from basic convenience products, plus other ingredients to taste
—healthier, but tastier food, through better substitutes for:
  saturated fat
  salt
  monosodium glutamate

Processing and packaging:

—new, healthy, environmentally sound forms of food processing (new generation of hydroponics, more "synthetic" food products, etc.)
—multifunction, more flexible manufacturing processes to cope cost-effectively with fragmenting demand
—new forms of packaging:
  environmentally sound
  to facilitate use
  instant self-heating
  to preserve flavor
  to preserve without additives

Agriculture and biotechnology:

—new varieties/forms of fruit, vegetables, herbs, etc., which are:
  disease-resistant
  climate-resistant
  better tasting and have different flavors/aromas
  different textures
—new varieties that are hybrids or are synthesized from organic material
—new agricultural chemicals that are environmentally sound and not at all harmful.

While many of these areas are not new and many of the ideas have been around for a long time, what is new is the potential demand for them. Our models suggest that we are seeing them move from the realms of science fiction and crankiness into the real wants and needs of the trendsetting inner directeds.

REFERENCES


DISCUSSION

Sir Kenneth Blexter: The definition of research and development is shifted far toward the development end of the spectrum and the research with which we are dealing is primarily applied. You said nothing about the background of discovery and innovation. How can we finance the research that results in the discovery of the new tools and basic ideas that will fuel the future? It is all very well to say that we can choose within a great area those particular facets where we should do applied research but we must also cater to the sort of work that is not motivated by the marketplace.

Mrs. MacNulty: What I was trying to point out is that if we can improve the success rate of short-term and medium-term R & D then more money will be available for “blue sky” research. We always recommend that our clients spend not less than 10% of their R & D budget on basic research. This depends on the client’s business, and I am of course referring to the commercial sector, not academic research.

Dr. Ashwell: Sir Kenneth opened this conference with the thought that human survival on this planet will depend on genetically engineered food. It is obviously very important that we get consumer acceptance of this. From your research into the three different types of people, how do you see us succeeding in getting acceptance for such a novel concept?

Mrs. MacNulty: I don’t think there is a problem with genetically engineered plant life
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because people have gotten used to various types of hybrids, which are not too far removed
in concept. I think the difficulty will come with genetically engineered animal life, which may
seem a little close to home. When the subject of genetic modification of humans to eliminate
inherited diseases is raised, the inner directed say "Hang on, this is getting a bit too much
like playing God." Good communication may be the answer. If people can see the benefits
of flavor enhancement, better quality, better yields, more variety, and so on, then acceptance
should follow.

Dr. James: You imply that the trendsetters are the Scandinavians, the British, and the
Dutch, but if I were a food company I would forget about them. There are other much larger
markets, in the USA and Japan for example, which can be dealt with in other ways. Are
you implying that the trends established in any particular society are dependent on the percep-
tions of the intrinsic trendsetters, or do trendsetters wherever they are come up with a
universal set of conclusions?

Mrs. MacNulty: In northwest Europe and Scandinavia there tend to be more inner di-
rected, so their views become established more quickly. It is of course true that they rep-
resent only a small market, but the time frame in which other groups in society start to latch
on to the "leading edge" trends is getting shorter. An understanding of what the inner di-
rected are thinking today will enable companies to get to grips with their markets in the
next ten years. The situation is different in developing countries, but by the turn of the century
I expect to see the Third World adopting "outer directed" ideas and products from the
Western world at a much faster rate than now. These products of course will in turn be influ-
enced by the inner directed, so it is possible to see a chain of take up.

Dr. Hulse: I am troubled by homogenized classifications. In Toronto there are over 500,000
people of recent Italian origin as well as many thousands of Chinese, other Asian, Caribbean,
west and central European, and of course the earlier settlers of predominantly British origin.
To suggest that these complex communities, let alone Canada as a whole, can be assigned
any uniform characteristics seems an extravagant extrapolation.

Mrs. MacNulty: If we are talking of behavior, then I am sure you are right. If we are
talking of underlying values and motivations then the model withstands transfer from one
community to another.

Dr. Olson: I too am troubled by arbitrary classification. There must be a lot of hybrids in
the population, yet you seemed to convey the idea that these three groups are quite discrete.
What is the evidence for this?

Mrs. MacNulty: The three groups are of course very broad, and people tend to have some
of all the characteristics. But when we say that someone is "inner directed" we mean that
their dominant motivation is at that level.

Dr. Olson: What is the distribution of the three groups?

Mrs. MacNulty: The United Kingdom, the Netherlands, and the Scandinavian countries
tend to have between 38% and 40% of inner directed people, between 30% and 40% outer
directed, and rather few sustenance driven. In the period 1973 to 1989 the inner directeds
have grown in the UK from 25% to 37% of the population.

Dr. Leathwood: What is the validation of your methods?

Mrs. MacNulty: Our methods have been used in many countries for a long time. They
are based on surveys of representative population samples of somewhere between 2,000 and
3,000 people, depending on the country involved. The models were developed deductively.
We tested them and validated them using ten years' worth of previous data from a particular
research institute, where we took one-half of each year's data to test and one-half to validate the models. Then we developed our own more comprehensive surveys and have been developing the techniques ever since. By using two models we can hold one constant and see how the other moves. We have been able to see how the different groups are changing and how, while the underlying values and motivations are still there, the ways in which they manifest themselves have indeed altered.