Consumer Impact on Nutritional Products

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At Cargill Health & Food Technologies we believe that consumer insights are critical to the development of our nutritional and specialty-ingredient portfolio, and to the continued growth of the functional-food industry.

THE NUTRITION INDUSTRY

The nutrition industry in the United States consists of three sectors—supplements, natural / organic foods, functional foods—and is currently estimated to be a $49 billion market (Nutrition Business Journal, 2002). It has grown 81% over the past seven years, with growth in all three sectors (Figure 1).

Functional foods represent almost 40% of the nutrition industry at $18.5 billion. *Nutrition Business Journal* defines a functional food as:

> *fortified with added or concentrated ingredients to a functional level, which improves health and/or performance,*

or

> *a product marketed for its inherent functional qualities.*

They include enriched cereals, breads, sports drinks, bars, fortified snack foods, baby foods, and prepared meals." Interestingly, in the year 2000, functional foods surpassed supplements as the largest sector of the nutrition industry. Experts project sales of functional foods will continue to grow at a steady rate such that by 2010 they are expected to reach $31.2 billion in the United States (Figure 2) (Nutrition Business Journal, 2002).

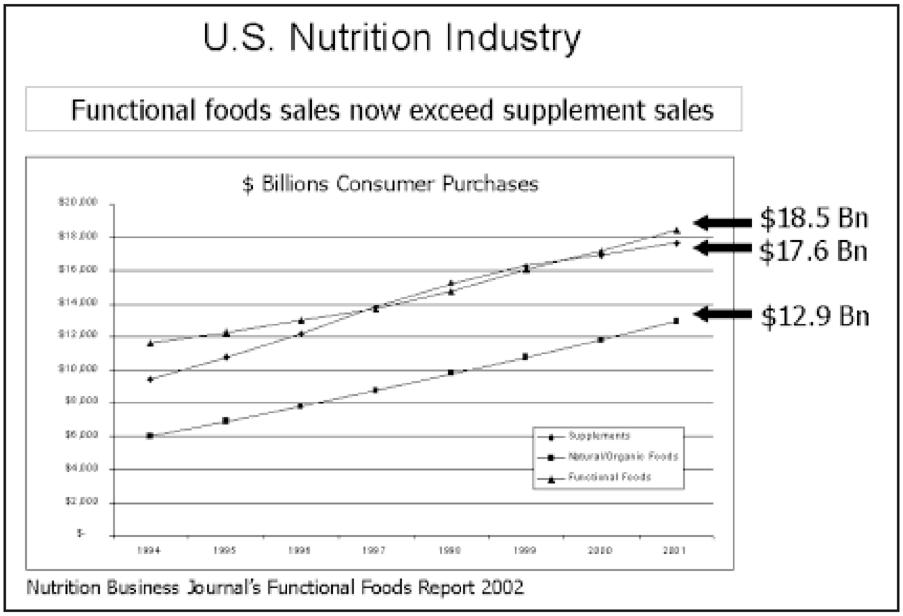


Figure 1. Consumer purchases of supplements, natural/organic foods, and functional foods, 1994–2001.

Consumer Drivers of Growth

To understand the reasons for this growth and, more importantly, the growth opportunities ahead, we look to consumer trends and consider three primary components to be critical. Demographic trends are the biggest driver, but much is to be learned also from lifestyle and attitudinal trends.

Demographic Trends Currently, about one-third of the population of the United States is over 55 years of age. This group will double in number over the next 30 years to represent about half of the population (Figure 3). This shift implies that incidence of many age-related health conditions will be affected, increasing the need for development of functional foods. Figure 3 shows the most common complaints among those over 50, with arthritis, overweight, high blood pressure, high cholesterol, and diabetes most prevalent (Multi-Sponsor Surveys, 2000), all of which affect mobility, functionality, and longevity.

In the meantime, younger age groups are more familiar with functional foods and will look to those products to address their health and wellness concerns. In contrast to older consumers, “complaints” from those under 50 relate to lifestyle hindrances such as stress, colds/flu, and overweight (troublesome for different reasons) (Figure 4).

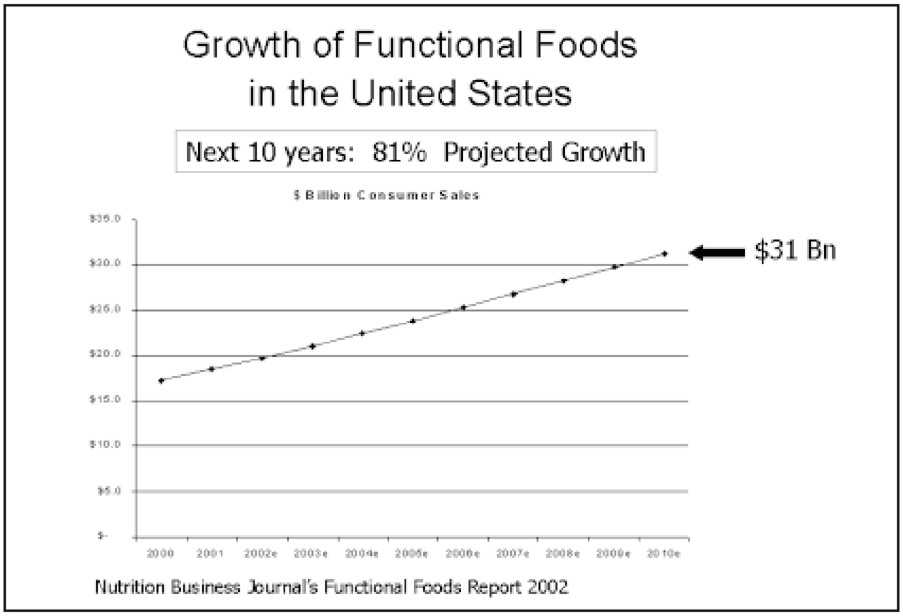
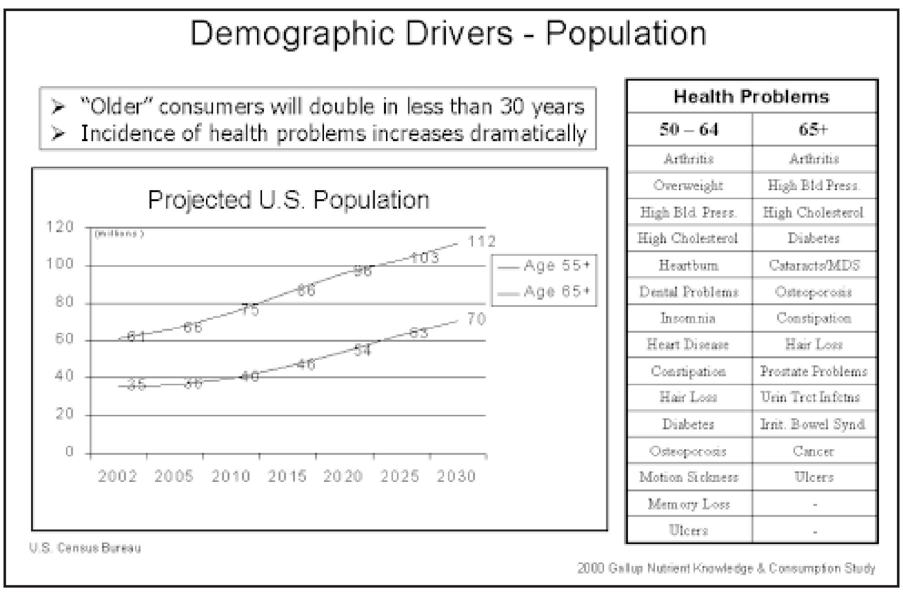


Figure 2. Consumer purchases of functional foods projected through 2010.



Health Problems	
50 – 64	65+
Arthritis	Arthritis
Overweight	High Bld Press.
High Bld. Press.	High Cholesterol
High Cholesterol	Diabetes
Heartburn	Cataracts/MDS
Dental Problems	Osteoporosis
Insomnia	Constipation
Heart Disease	Hair Loss
Constipation	Prostate Problems
Hair Loss	Urin Trct Infctns
Diabetes	Irrit. Bowel Synd.
Osteoporosis	Cancer
Motion Sickness	Ulcers
Memory Loss	-
Ulcers	-

Figure 3. Projected demographic changes in the population >55 and >65 years old and expected accompanying increases in health problems.

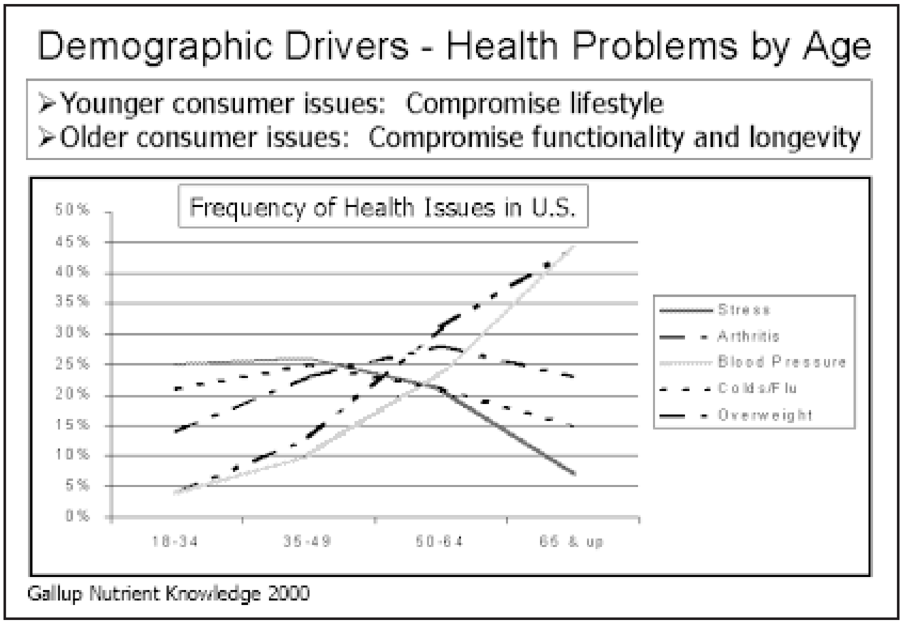


Figure 4. Frequency of selected health issues across four age groups, 18 to >65 years old.

Lifestyle Trends Demographics alone do not fully explain consumers' choices regarding functional foods. Changing lifestyles are also influential. The prevalence of dual-income households has had enormous impact on purchasing and consumption habits. Long working hours, technology enabling the blurring of the lines between home and work, and fragmented family activities have precipitated a reliance on convenience foods and foods prepared away from home. Consumers are simplifying their preparation tasks by making fewer dishes at meals (especially dinner). There is a tendency to eliminate side dishes, which often round out the meal's nutritional content, such as fresh vegetables (Figure 5) (NPD Group, 2001).

Declining nutritional intake is not going unnoticed by American consumers. One-third of adults believe their typical daily diet falls short of the recommended daily allowance (even with vitamins included). This proportion increased gradually throughout the 1990s (Multi-sponsor Surveys, 2000). Therefore, it is not surprising that many commonly consumed foods and beverages are now nutritionally fortified (*e.g.* milk, juice, cereal, yogurt). These trends also help to explain the growing popularity of nutrition/energy bars and beverages. Nutrition/snack bars are a $1.4-billion business that has grown 45% in the past five years. Liquid meal-replacements, including weight-loss beverages, represent $1.4 billion in sales, about 33% higher than five years ago.

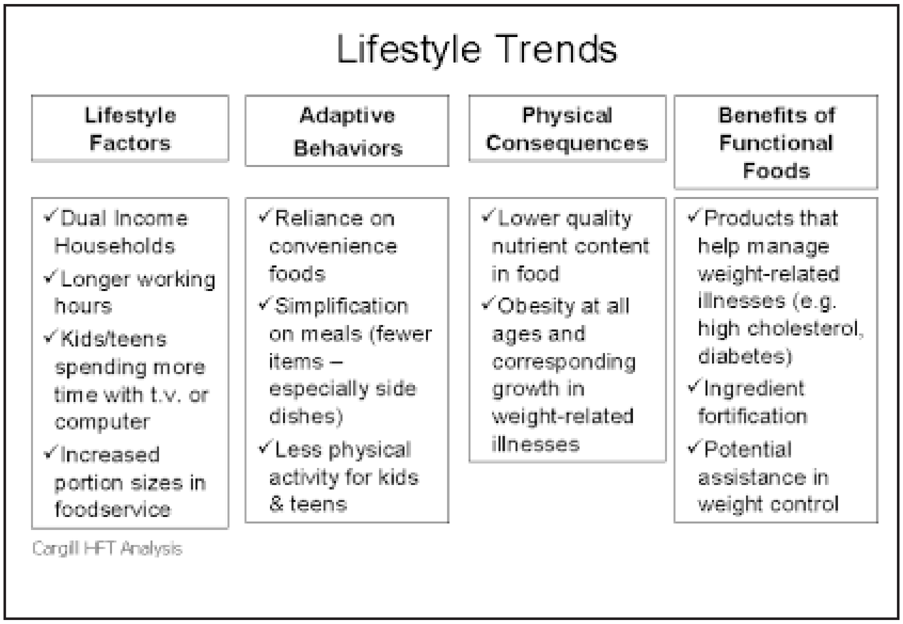


Figure 5. Benefits from functional foods relevant to modern-lifestyle trends.

Childhood obesity is a dangerous result of the changes in eating/food preparation discussed above, along with increased portion sizes in food service, and a more sedentary lifestyle. Thus, weight-related health problems formerly associated with older people are now prevalent in children and teens.

Products in this relatively new category will play a role in improving dietary nutritional quality and will contribute to the management and/or treatment of specific conditions. Specifically, efficacious, safe products for weight control will find a receptive public. Likewise, markets will exist for safe and effective products for the management of cholesterol level, hypertension, and diabetes.

Attitudinal Drivers

Many excellent sources of information are available on attitudinal trends. We have found three that have been particularly useful: the Daniel Yankelovich Group, HealthFocus (2001), and various articles published by Dr. Elizabeth Sloan of Sloan Trends and Solutions. From these and others we have developed our strategy with respect to functional foods.

The first trend is **Positive Nutrition.** Healthy eating used to be defined by avoiding negatives (*e.g.* fat, sugar, salt). The emphasis is now on seeking foods that are beneficial (*e.g.* calcium, fiber, antioxidants). Likewise, there is a growing interest in health maintenance and disease prevention, rather than just treatment.

Another trend is **Nutritional Individualization.** There is a growing awareness that one size does not fit all when it comes to health and wellness. The HealthFocus® Trend Report (HealthFocus, 2001) shows that 74% of shoppers believe that nutritional needs are different for each person. The increasing numbers of products targeted by age, gender, activity level, and need-state are a response to this trend.

Self-Education and Self-Medication is a two-pronged trend. Today's consumers are the most highly educated in history. We have unparalleled access to information, which is both good and bad news. Consumers have the ability and the opportunity to gather information on health management. However, it is difficult to assess the quality of the information, which is often complex and conflicting. This makes the consumer-education task crucial, but very difficult. Consumers gather information from a variety of sources ranging from informal (friends and family) to published sources (including opinion leaders such as Oprah Winfrey and the Internet with targeted sites such as WebMD®), to health-care professionals (doctors, pharmacists, physicians' assistants, and alternative providers). In developing a functional food, it is important to learn which sources are most consulted by the target consumer and develop plans to reach those sources.

Once educated, consumers show a growing willingness to act without medical professional intervention, and feel an increasing confidence in treating themselves. Over half (58%) of consumers are "very confident" about the decisions they make in taking care of their health. About three-fourths (73%) prefer to try to treat conditions themselves rather than go to a doctor (Roper Starch Worldwide, 2001).

A trend driven by the baby-boom generation is **Extending the Middle Years.** With the increasing average life span and improved quality of life, consumers are unwilling to age gracefully. Baby boomers essentially deny the whole aging process and are unwilling to accept age-related physical changes. This drives opportunities for new products that will help preserve health, appearance, performance, and, ultimately, independence. This trend also has significant implications for how we communicate with the consumer. This generation will not want to be approached as "old": the nutrition industry must minister to the aging population in a positive, proactive manner.

The final trend is **Oxymoron-ism.** American culture has become adept at blending seeming opposites. One interesting example would be a consumer who is willing to risk laser surgery, yet seeks alternative medicine approaches for certain ailments. Other examples include business/casual, organic/junk food, and reality/television. Thus, natural additives and sophisticated natural solutions in functional foods will likely be tolerated and perhaps embraced.

Innovative Product Responses

A number of companies have introduced innovative products in this category in response to these trends, some of which were discussed during the conference. Notable examples include:

- Viactiv™ (McNeil-PPC, Inc.) calcium "chews" for women—a unique and appealing form.
- Luna® bars—the makers of Clif® bars (Clif Bar Inc.) recognized an opportunity for an energy bar targeted to women with fewer calories than existing energy bars and nutrient fortification specifically for women's health issues. They support the product through sponsorships of women's events and causes.
- Take Control® (Lipton Investments, Inc.) and Benecol® (Raisio Group) margarines—these products represent a sophisticated natural solution to help lower cholesterol. They contain a plant-based extract that is clinically proven to reduce cholesterol. These products are promoted both to consumer and to medical professionals.
- White Wave Silk® (White Wave, Inc.) soymilk—consumers are becoming more familiar with the benefits of soy, due in part to the recent FDA health claim. However, there has been resistance to the taste of soy foods. White Wave offered an improved tasting product, packaged in familiar milk cartons, and placed in the refrigerated dairy section of the grocery store. This combination of elements resulted in a $130 million business in just five years.
- Kashi Heart to Heart™ (Kellogg's) cereal—is the first national brand cereal targeted for heart health. It is a high-fiber cereal fortified with antioxidants, grape seed extracts, green tea, and B-vitamins.
- Harmony™ (General Mills, Inc.) cereal—targeted for women. It is fortified with calcium, folic acid, antioxidants, soy, and iron.

Role of Industry

Industry will continue to play a valuable role in developing healthy, effective, and safe ingredients, and in making exciting, new functional foods available to the consumer. These contributions fall into four major categories: innovation, safety, credibility, and marketing and business development / management (Figure 6).

To drive the first category of innovation, we are taking a health-platform approach in order to build condition-specific expertise, as well as an ingredient-specific approach in order to gain cost-, quality-, regulatory- and formulation-specific expertise. The model in Figure 7 shows the elements required for a successful new functional food product. Of course, we believe this is founded in sound consumer insight and backed by the appropriate healthy ingredients, food applications, good taste, health benefit, and product positioning and delivery. Much of this is simply strong execution of fundamental marketing.

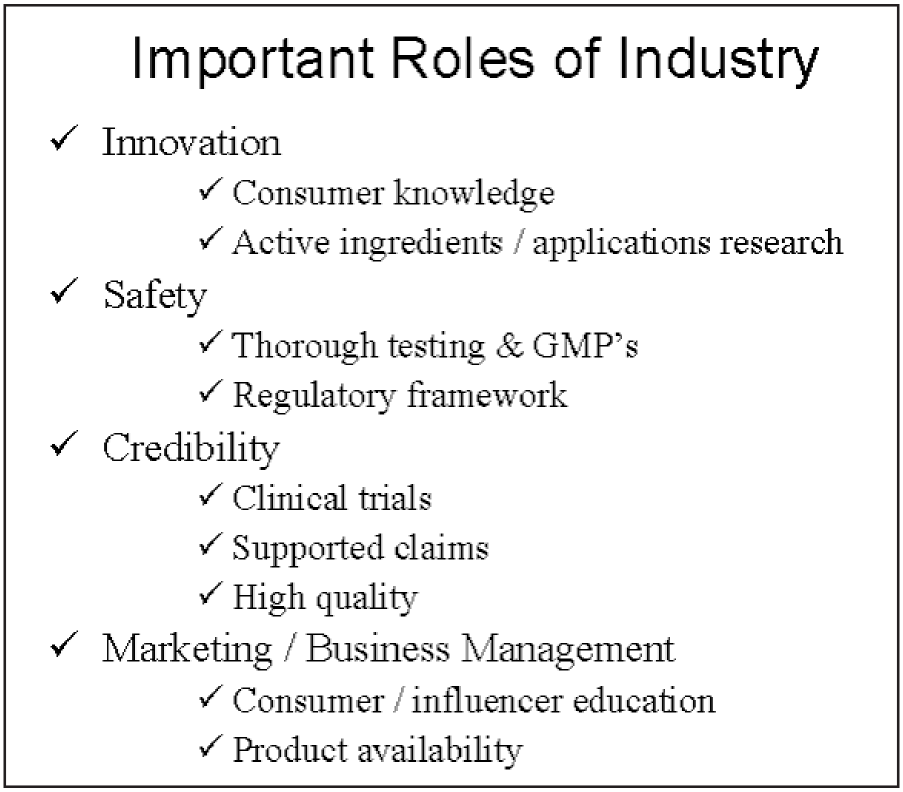


Figure 6. Contributions of industry to the provision of functional foods.

As new ingredients and products are developed, consumer and ingredient companies will provide increased credibility through their consumer brands, and increasingly through their ingredient brands which will stand for their commitment to healthy, good-tasting, safe, and effective products. Consumer-product brands, and increasingly ingredient brands, will provide consumers a reason to believe that the products are safe and deliver on their promises. Additionally, the industry will need to help educate the consumer, build awareness of new product options, and make those options convenient.

Challenges and Opportunities

A major challenge for consumer and ingredient companies is to recoup the investment required to develop and support this new product-development process (Figure 8). Active ingredients for functional foods require much larger investments in science and in regulatory and clinical aspects than other food ingredients. Without sound business management leading to tangible company profits, the necessary funding and developmental efforts will be cut back, thus

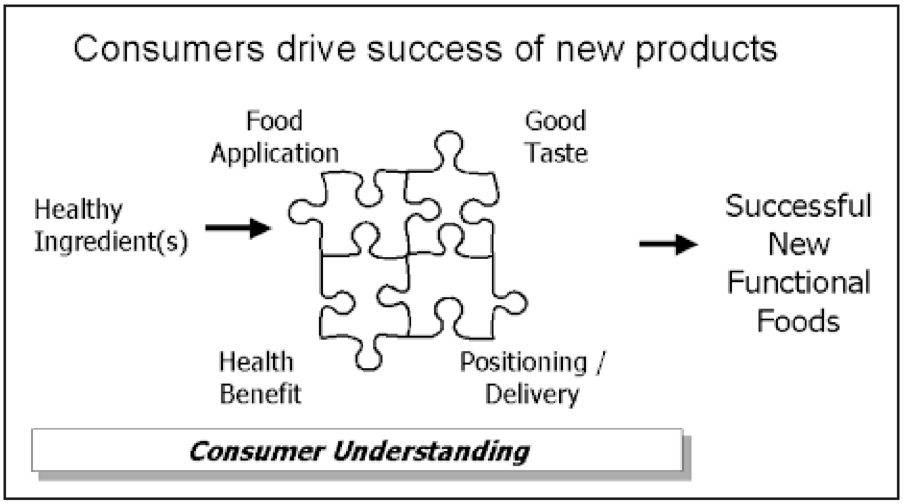


Figure 7. Schematic representation of new-product development.

Figure 8. Challenges and opportunities related to the development of functional foods.

slowing growth of this segment. One essential element of this management effort will be effective partnerships between ingredient companies, consumer-food companies, and retailers. Partnerships will allow cost sharing on the development of ingredients and the education of consumers. Ultimately, value will be created for all points on the chain.

Other challenges include:

- how to share value along the channel to the consumer,
- how to effectively educate and communicate with the consumer, and
- how to manage and leverage the regulatory / claims processes and agencies.

A number of positive signs indicate that these challenges will be met. Strong favorable consumer trends are evident, as discussed above. Consumer need and receptivity is increasing. Health-care costs continue to increase and will drive the move to more functional foods. Although some products are already successful, disappointing product introductions have allowed the industry to learn from mistakes and make next-generation products more acceptable to consumers. Finally, increasing emphasis on solid scientific and clinical research will drive new discoveries and improved products.

FUTURE OF FUNCTIONAL FOODS

Based on a number of indicators, we believe the functional-foods segment will continue to show above average growth. This will be exhibited by a number of visible indicators (Figure 9) such as more sophisticated product "solutions," increased mainstream consumer acceptance, healthy brands both from consumer and from ingredient companies, and more individually tailored products driven by breakthroughs in information and genomics technology (*i.e.* "nutrigenomics").

Future of Functional Foods

- Efficacious products with credible consumer benefits
- Greater acceptance by the "main-stream" consumers
- Increased value of food and ingredient brands to consumers
- New ways of reaching consumers: communication/ education
- Tailored products to individuals, *e.g.* nutritional genomics

Figure 9. Visible indicators of the future of functional foods.

In summary, the future of functional foods is bright, but not without challenges. We believe that a detailed understanding of consumer behavior and patterms will play a major role in ensuring success.

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