

**SURVIVAL OF THE FITTEST: A DELPHI STUDY  
ON MARKETING SCIENCE MUSEUMS  
IN THE 21ST CENTURY**

By

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**C O P Y R I G H T**

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## PREFACE

This study examines the challenges that science museums are facing and will continue to face in coming years, identifies those challenges that should receive priority attention, and offers solutions that will help science museums excel in the 21st century.

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## CHAPTER I

### INTRODUCTION

#### Science Museums: At the Evolutionary Crossroads

U.S. science museums currently face significant challenges that threaten their prospect for growth -- and, for some, even existence -- in the 21st century (Borun, 1994; Nicholson, 1994).

Despite the phenomenal proliferation of science museums in the United States during the past 20 years, public usage of these museums has declined slightly since the early 1980s (Miller, 1992a). According to research conducted for the National Science Foundation, the total number of science museum visits declined from approximately 90 million in 1983 to 87 million in 1990. In 1988, attendance reached its lowest point of the past decade when U.S. science museums experienced 83 million visits.

Coupled with this trend, U.S. museums -- including science museums -- have seen an overall decline in financial support. Museums experienced reductions in government grants during the Reagan administration (AAM, 1994) and legislators since then have considered additional cuts in funding for museums. Corporate and foundation support of museums in the last few years first became stagnant and then began to decline (Raymond, 1993). Donations from private sources have not kept pace with inflation.

U.S. science museums face two significant challenges in preparing for the future: reversing the declining public usage of their resources and offsetting losses in donor support. Because of this fragile economic situation, earned income has become increasingly important to the survival and success of museums (Toolen, 1994). Earned income -- revenue derived from admission fees, memberships, program fees, food services, museum shop sales, facility rentals and the like -- must be maximized to help offset losses incurred in donations.

These challenges have caused science museums to reevaluate their direction for the 1990s and beyond. Some professionals fear that, because of the public's limited interest in science and technology, science museums may have reached a saturation point in their markets (Miller, 1992a). Others propose that science museums have not offered new experiences at a rate sufficient to stimulate increased interest and usage. Still others point to the reluctance of the museum industry to acknowledge that museums must compete for the public's interest with other attractions in the entertainment/tourism industry and must operate as businesses in that environment.

Each of these suppositions identify marketing as the science museum industry's greatest hope for meeting the significant challenges that threaten its prospect for success in the 21st century. Marketing can offer solutions to the dual challenges of increasing attendance and earned income. Marketing could reverse declining public usage by attracting new audiences and giving existing audiences a reason to visit more often. At the same time, marketing could help science museums increase earned income by finding new revenue streams and maximizing existing sources.



As the science museum industry faces the uncertainties of the future and searches for ways to meet its greatest challenges, one thing is certain: the ability of science museums to adapt to changes in public usage and funding structures will define the evolutionary process that is already underway. In keeping with Darwin's rule of "survival of the fittest," those institutions that are most successful in adapting to the changing conditions will survive and dominate. The answer as to how science museums should adapt is far from clear, but what is clear is that they need to find marketing solutions now in order to prepare for a healthy future.

## Background

### The Science Museum Industry

Science-technology centers are science museums that are committed to increasing the public understanding of science through exhibits and education programs that actively involve the visitor. Although their subject fields may range from natural history and health to the physical sciences and astronomy, they share an interest in using the participatory techniques in education and exhibitions . . .

-- ASTC Mission Statement  
(ASTC, 1993a)

The Association of Science-Technology Centers (ASTC) is a not-for-profit organization of science museums dedicated to furthering the public understanding and appreciation of science and technology (ASTC, 1993a).

ASTC works with its members to share information and improve the operations and practices of science museums. ASTC's programs and services have proven valuable to the rapidly growing science museum industry. Since its founding in 1973, ASTC has more than tripled its membership as science museums have sprung up in nearly every major city in the U.S. and around the world. ASTC now has more than 400 members in 36 countries, including science-technology centers, nature centers, aquaria, planetariums, space theaters, and natural history, children's, and other multi-discipline museums (p. ii). ASTC also has sustaining members: corporations, associations, private firms, government agencies, and other organizations that demonstrate a strong interest in and support the purposes of ASTC.

Because the field has grown rapidly, ASTC surveyed its members in April 1987 to gather data needed for science museums "to measure their progress and get a sense of where the profession is headed" (ASTC, 1989). The vast majority of the 126 institutions which participated in the survey were located in the U.S., and a majority of these were founded since the dawn of the space age. The interest in space exploration triggered by the launch of Sputnik in 1960 raised fears in the U.S. about the state of its science education programs and science literacy levels compared to those in the U.S.S.R. (p. 2). As a result, fully 60 percent of the respondents were founded since 1960, with more science museums created in the 1960s than in any other decade. This growth continued into the 1980s, with 20 of the responding institutions founded in the period of 1980-87.

According to the survey, governing authority varied widely among science centers, although the independent, non-profit organization was

clearly the dominant model (ASTC, 1989). Most science centers appeared to have only one governing board. Of the primary governing boards, a clear majority (52 percent) were Boards of Trustees, with an additional 20 percent as Boards of Directors. The primary governing board typically had 30 members (p. 4). Nearly 70 percent of the museums charged an admission fee, with the average charge for standard adult admission being \$2.77 (reported in 1986 dollars) (p. 10). Even institutions with an admission charge made provisions to admit some visitors free. Science centers with admission fees reported that 17 percent of their visitors were admitted without charge. Not surprisingly, 50 percent of science center visitors were reported as being age 17 or younger. Forty percent of visitors were estimated to be between the ages of 18 and 59, with only 10 percent of visitors age 60 or older. Science centers report that, on average, 35 percent of their visitors came from outside their immediate metropolitan area.

In 1975, two years after ASTC's founding, the American Association of Museums (AAM) modified its accreditation criteria to allow science museums to join its ranks. Previously, science museums had been excluded because they lacked two significant features conventionally associated with museums and required by AAM for accreditation: systematic, artifact-based collections and organized scientific research. AAM's modified criteria includes any institution that "maintains and utilizes exhibits and/or objects for the interpretation of scientific and technical information" (Bloom and Powell, 1984).

According to an AAM study, of the 8,200 museums in the U.S., 184 museums (with 245 active operating sites) are classified as "science

museum/technology centers" (AAM, 1994). In terms of size, 78 percent of science museums are small (with budgets of under \$1 million), 13 percent are medium (\$1-5 million) and nine percent are large (\$5 million and above) (p. 51). Overall, 66 percent of science museums are privately operated; 34 percent are government-run. Privately-operated science museums -- consisting of two out of every three -- are financed primarily by earned income, private contributions, and government grants (Nash, 1983). The varied sources of museum support reflect the many partnerships that are vital to their continued success: two-fifths of their income is generated through earned income; one-fifth consists of private contributions from foundations, corporations and individuals; and another two-fifths comes from government sources (AAM, 1994).

While science museums compete with other tourism attractions for earned income, these institutions offer family entertainment that is radically different than that of amusement parks and other attractions. *Newsweek* magazine claims "there are two models for great American amusement centers and both can be found in California." Rising from the plains of Anaheim is the original Magic Kingdom, Disneyland. To the north, in a hangar-size building at the foot of the Golden Gate Bridge, is the Exploratorium, the first hands-on science center established in the U.S. (Springen, 1989). Disneyland is "a temple to the power of passive pleasures, nourishing everything but the mind," *Newsweek* says. Science museums, on the other hand, seek to educate as they entertain. They use entertainment as a medium for delivering educational experiences that broaden the visitor's understanding of science, math and technology.

oriented excursions through the Grand Canyon, to the depths of the ocean or into outer space.

Science museums have been pioneers in the development of informal learning methods that are difficult to replicate in traditional school settings (Bloom and Powell, 1984; Semper, 1990). As a result, school groups are a significant audience for science museums, representing an average of 24 percent of their annual attendance (St. John, 1989). Overall, 94 percent of science museums offer classes or field trip programs for school groups and over 50 percent serve more than 25,000 students per year. In a typical school group visit, exhibits are used by teachers as props for learning and students take a grade-specific class selected by their teacher and taught by science museum educators (Semper, 1990). In addition to informal learning experiences, science museums complement formal teaching methods and serve as adjuncts to their regions' educational systems, with materials, equipment, and expertise that schools cannot match (Nash, 1983). Science museums provide in-service teacher workshops and offer science kits with prepared curriculums to enhance the abilities of educators in the classroom. Some science centers even take their exhibits to the schools, such as Ontario Science Center, whose "Science Circus" has visited nearly every school in their region, or Omniplex Science Museum, whose "Earth Bus" has taken environmental exhibits to schools throughout Oklahoma (Zodrow, 1994).

Professional educators and exhibit designers who work in science museums instinctively feel that significant learning is occurring, and anecdotal evidence and studies show that this is the case (Borun, 1982). However, the exact extent of learning activity in science museums is not fully understood, because it manifests itself in ways that are difficult to

measure and quantify (Semper, 1990; Borun, 1982). After visiting a science museum, people may relate things they have seen or done in a science museum to real-world experiences. An experience in a science museum may trigger an idea in a class months later or a family discussion during a vacation (Semper, 1990). Science museums are thought to have the greatest educational influence on the "affective" realm -- that is, how visitors feel about science, and their receptiveness in attempting to understand science (Shields, 1993). This is one reason why science museums are viewed by educators and parents as being important for children. Providing students with a positive attitude about science and math can open new doors of discovery when they reenter the classroom.

The educational role of science museums is expanding as evidenced by the diversity of activities, the reach of educational programs, and the increasing dependence on science museums as learning resources. This role is likely to grow even more, as the need to understand innovations in science and technology increases and as competition in the global economy intensifies. Fears about whether the general population is equipped to make intelligent decisions about scientifically-complicated issues such as the environment or genetic engineering have spawned a host of educational initiatives. Science museums seek new approaches to education in an attempt to raise the level of science literacy for all citizens.

### Competition with Entertainment Attractions

In the late 1980s, a shift in U.S. demographics to more two-income families caused a decrease in the amount of leisure time available to

American adults (Magiera, 1992), even while competition among entertainment-based attractions increased dramatically. Theme parks and other entertainment options (many of which include educational aspects similar to science museums) pervaded American life, from high-concept restaurants such as Hard Rock Cafe and Planet Hollywood that display entertainment "artifacts," to mega-malls like Mall of America that combine retail stores with performance and exhibition space (Mintz, 1994). To keep up in the marketplace, marketers of mass entertainment spent more money on promotion than ever before. Cumulatively, entertainment marketers expended \$2.1 billion on advertising in 1990, a robust 38% hike from 1987, according to Arbitron Multi-Media Service (Magiera, 1992).

Museums have found they must compete with a greater range of entertainment options to attract visitors. The rise of for-profit play centers such as DiscoveryZone or Leaps and Bounds has provided competition for science museums. These facilities, which typically feature experiences based on those found in science museums, offered user-friendly play spaces for children. These pay-for-play centers tended to attract middle-class families with children - the most profitable market segment for science museums (Mintz, 1994). Theme parks also have invaded the family market and are a substantial competitor with U.S. science museums. About 255 million people were predicted to visit U.S. theme parks in the summer of 1995, representing a steady increase from 151 million in 1970 (McGraw, 1995). Total park revenues are expected to exceed \$5 billion in 1995 (compared with \$321 million in 1970), and theme-park operators will invest nearly \$1 billion in new and existing facilities (p. 49).

With the success of the theme park industry, even competition between theme parks has intensified. Smaller companies such as the Six Flags chain, Paramount and MCA/Universal have chipped away at Disney's lucrative theme-park monopoly. These parks translate the thrill of movies and television into rides which attract new visitors. In summer 1995, timed with the release of the film *Batman Forever*, the Six Flags chain offered two Batman shows, and now offers "Batman: The Ride" at four of its amusement parks (Pittman, 1995). This synergistic strategy boosted Six Flags attendance by 20 percent in 1994 (McGraw, 1995). After purchasing theme parks in Ohio, North Carolina, Virginia and California, Paramount capitalized on the company's movies such as *Wayne's World*, which has spawned a roller coaster ride, and *Days of Thunder*, which has inspired a stock-car simulator ride. Paramount parks have increased average attendance by about 12 percent since 1992.

Due to increased competition, attendance at Disney's four U.S. parks -- Disneyland, Magic Kingdom, EPCOT Center and Disney-MGM Studios -- fell by 2.2 million in 1994 (McGraw, 1995). With attendance off by as much as 10 percent, Disney also turned to Hollywood for inspiration, spending an estimated \$100 million to build a high-tech "Indiana Jones adventure" with a new approach designed to lure young audiences (Daly, 1995). The attraction's computers are programmed to select one of at least three different scenarios at 11 points along the journey, allowing more than 100 different beginning-to-end programming combinations to keep audiences interested in coming back. "It's crucial that we appeal to kids used to Nintendo and Sega and all those games that constantly give you new choices," Tony Baxter, vice president at Disney, said (Daly, 1995). Michael



Eisner, president of Disney, in announcing plans for the new attraction, said, "We want to keep Disneyland exciting -- not like a museum" (Eisner, 1995).

Science museums, because they offer technology-based experiences, are expected to match the engaging adventures available at modern theme parks such as Disneyland. Science museum professionals have addressed the issue of competing with theme parks and what each can learn from the other (ASTC, 1991a). At the 1991 Association of Science-Technology Centers' annual conference in Orlando, Florida, science museum professionals explored the theme, "Making Science Memorable: The Reciprocal Roles of Science Centers and Entertainment Parks." Keynote speaker George MacDonald, director of the Canadian Museum of Civilization, noted that the Orlando area draws more visitors than traditional pilgrimage centers such as Rome, Jerusalem and Mecca. MacDonald said evidence shows that science museums are moving toward more entertainment-based offerings while theme parks are moving toward "more meaningful, more authentic and more educational experiences." Distinctions between the two types of attractions are blurring, he indicated.

There is ample evidence that amusement parks have turned to education as a way to make their entertainment-based experiences more interesting and useful to the public. EPCOT (Experimental Prototype Community of Tomorrow) Center at Walt Disney World in Florida features "knowledge clusters" or "themes" of exhibits in life science (Living Seas, the Land, Wonders of Life), communications (Spaceship Earth, Communicore), and futurism (Journey into Imagination, Horizons) in the same way that science museums offer clusters of themed exhibits on these themes and others

(King, 1991). EPCOT attractions emphasize educational content, from a "time travel" ride through the history of mass communication to a walk-through aquarium brimming with sea life. EPCOT even offers a resource center that provides free educational materials to visiting educators (Mintz, 1994). Sea World, a chain of theme parks operated by Anheuser-Busch, features conservation messages in exhibits such as "Manatees: The Last Generation?" and provides Shamu TV, free interactive educational programming, to thousands of elementary- and secondary-school classrooms throughout the U.S., supplemented by classroom materials.

In addition, to reach new audiences, Disney has frequently turned to "hands-on" techniques pioneered by science museums. For instance, to promote its new animated 1995 summer movie *Pocahontas*, Disney created a traveling exhibition for shopping malls, featuring hands-on educational experiences in which visitors could create cartoon characters on a video screen and walk through full-size replicas of the film's sets (*The Daily Oklahoman*, 1995). Another example is Disney's plan to launch The Disney Institute, which would offer hands-on classes in everything from animation to landscape design (Giles and Murr, 1994). However, Disney's forays into education have not met with unanimous enthusiasm from the public. Recently, Disney's America, a history theme park the company hoped to build near Civil War battlefields in Virginia, was shelved after historians and local residents opposed the park's alleged trivialization of history (Meyer, et. al., 1994).

In turn, there is also ample evidence that science museums have turned to techniques typically reserved for theme parks in order to make their education-based experiences more attractive to the public. Commercial

exhibit houses and some of the larger science museums have successfully produced entertaining blockbuster exhibits and marketed them to museums across the country. In recent years, science museums have hosted traveling exhibits based on Hollywood movies, such as "*Star Trek: Federation Science*," "Movie Special Effects" and "The Dinosaurs of *Jurassic Park*." The *Star Trek* exhibit was timed to coincide with the 25th anniversary of the television series' debut (Arnold, 1991). These, and another type of traveling exhibit which features robotic dinosaurs, insects and other creatures, are designed to compete for the entertainment dollar and attract wider audiences to science museums (Borun, 1994).

This strategy seems to be working. Traveling exhibitions created by the Oregon Museum of Science and Industry break attendance records at virtually every venue. With titles such as "Super Heroes," these entertaining and educational exhibits attracted audiences typically drawn to movies, televisions and comic books (Mintz, 1994). The Buffalo (New York) Museum of Science hosted a Dinamation robotic dinosaurs exhibit and attracted 247,000 visitors -- five times the normal number for that three-month period and museum membership doubled to 4,000 (Colley, 1990). In December 1993, Cumberland Science Museum in Nashville, Tennessee, conducted a survey to determine the drawing power of its "Dinosaur Park" exhibition. Of the visitor population surveyed (1,039), 39 percent rated the exhibition as the primary reason they visited on that day (Bradshaw, 1994). In addition to increased admissions revenue, attendance for blockbuster exhibits often translates into more revenue from gift shop and food service sales as the museum dwell time of visitors increases.

However, museum directors agree that blockbuster exhibits present an unusual set of challenges. Retaining new members has been a problem for many museums. Some professionals feel that audiences drawn by blockbusters become accustomed to elaborate, highly-designed traveling exhibits, which establishes expectations many museums find difficult to fill (Ansel, 1994). Another challenge is that blockbuster exhibits often elicit diminishing returns. In an effort to establish the city of Memphis as a cultural center in the southern U.S., the city fathers mounted four exhibitions using hired curators and a show-business approach to exhibition design (Harney, 1992). In 1986, "Ramses" drew 675,000 people -- nearly half from out of town. "Catherine the Great" drew 603,000 in 1991. "Splendor of the Ottoman Sultans" in 1992 drew 225,000. "The Etruscans: Legacy of a Lost Civilization," held at the Pink Palace Museum in Memphis in 1993, drew about 125,000 (p. 40). If traveling exhibitions continue to produce diminishing returns, science museum professionals are not certain as to what, if anything, could take their place.

One possibility that is probably the most costly and attractive entertainment addition to science museums are large format theater systems such as IMAX®, OMNIMAX® or IWERKS®. Despite the \$5 million average cost of installing such a theater, it's an option that some 28 U.S. museums have taken (Harney, 1992) -- and all of these museums report significant increases in attendance and revenue as a result. The Maryland Science Center in Baltimore had a 52 percent increase in attendance after the installation of its IMAX® theater. The Museum Centre at Union Terminal in Cincinnati sold 1.4 million tickets for its OMNIMAX® theater and took in \$3,056,100 its first year -- \$88,000 more than projected (p.

63). Producers of large-format films, to counter those who say that museums are turning to show business (and to make their products more appealing to museums), have augmented their creations with additional teaching materials to ensure that the experience is educational in nature.

However, even science museums with IMAX® or OMNIMAX® theaters are not safe from impending competition. The movie experience of the future could be a combination movie/theme-park ride. IWERKS® is preparing to launch the first in a chain of multi-attraction theater centers. Cinetropolis, a \$15 million complex in Ledyard, Connecticut, will open in fall 1995 and combine three attractions under one roof: a giant-screen theater similar to IMAX® or OMNIMAX®, a 360-degree wraparound screen and a motion simulator to offer filmed roller-coaster rides and fantasy underwater chases (Everitt, 1995). At a cost of up to \$18 million, the Cinetropolis is significantly less expensive to build than a theme park (which start at \$500 million) and occupies only 50,000 square feet, compact enough for shopping malls or casinos (*Business Week*, 1994). Learning from theme parks, which are expensive to refurbish if their rides lose favor with customers, Iwerks® plans to keep its Cinetropolises fresh by constantly upgrading them with new entertainment software.

Even though differences between theme parks and science museums have eroded in the past decade, a few primary and significant differences remain. Foremost is the fact that science museums must often promote their exhibits and programs on a limited to non-existent marketing budget by finding sponsors who can donate advertising or offer promotional opportunities. The Children's Museum of San Jose, California, for instance, has an annual budget of \$30,000 for marketing, so promotion is a matter of

collaboration and exchange in order to stretch the museum's dollars (*Tourist Attractions and Parks*, 1994). Chains of theme parks such as Six Flags, on the other hand, have excelled in part because of their larger promotional budgets and their ability to share the cost of marketing and advertising among their various sites to build awareness throughout the marketplace (Pittman, 1995).

In addition, theme parks and museums differ in their orientation to marketing as a means for increasing attendance. The customer service perspective is deeply ingrained in theme parks, with their carefully calibrated attention to comfort, cleanliness and courtesy. Theme parks are sophisticated in applying visitor studies and other research to identify marketing needs. Science museums, on the other hand, have traditionally viewed their role as educational in nature -- and, rightfully so, given their origins and missions as educational institutions. However, this myopic vision has caused some shortsightedness when it comes to seeing what is truly important to visitors. At the 1991 American Association of Museums meeting, noted zoo designer Jon Coe pointed out that people leave any experience with a combination of intended and unintended messages (Mintz, 1994). "Museums focus on the intended messages; theme parks pay careful attention to both," he said.

If science museums are to compete in the entertainment marketplace, they must not only focus on the intended educational messages but also the unintended messages. As the margin between theme parks and science museums continues to narrow, there will be an increasing demand for science museums to come to terms with their role as an entertainer as well as an educator.

## Rediscovering the Marketing Concept

Until the mid 1950s, "marketing" was synonymous with "selling" in the business world. Under this view, the key to profitability was greater sales volume; marketing was responsible for selling what the business or factory could produce (Webster, 1988). The focus was on products or services, not customers. Products and services were taken as a given -- what the business produced was what the sales force had to sell. As the American economy matured into a "consumer society" in the 1950s, the post-war conditions of scarcity were replaced by an abundance of businesses and brands scrambling for the patronage of an increasingly affluent customer. Marketing theory evolved. Volume, price and promotional orientations were seen to be less profitable than focusing on the needs of particular sets of customers with carefully tailored products and an integrated mix of marketing elements -- products, prices, promotions and placement within the marketplace. The key to profitability was not current sales volume but long-term customer satisfaction (Ansoff, 1965).

Peter Drucker was among the first to frame a coherent statement of marketing theory as a management philosophy. To this day he remains one of its strongest proponents. Drucker argued that marketing is a "general management" responsibility:

There is one valid definition of business purpose: to create a satisfied customer. It is the customer who determines what the business is.

Because it is its purpose to create a customer, any business enterprise has two -- and only these two -- basic functions: marketing and

innovation. Actually, marketing is so basic that it is not just enough to have a strong sales force and to entrust marketing to it. Marketing is not only much broader than selling, it is not a specialized activity at all. It is the whole business seen from the point of view of its final result, that is, from the customer's point of view (Drucker, 1954).

Though few have doubted the apparent wisdom and importance of the marketing concept, it has always had to struggle for acceptance, even in those firms that embraced it. The reasons for this ambivalence are never simple or obvious. At its roots, the marketing concept calls for constant change as market conditions evolve, and change is usually difficult for organizations. Beyond that, some chief executives have also observed that marketing managers in their firms have not developed the analytical tools and other competencies necessary to understand the customer and to represent customer needs and preferences persuasively in the forum of management discussion (Webster, 1981). Instead of a marketing orientation, what is seen in many organizations -- including non-profit organizations -- continues to be the traditional sales orientation. The emphasis within this form of marketing is short-term and tactical, focused on selling more today rather than developing new markets and responding to changing customer needs and competition (p. 5).

However, in the 1980s, the business press was full of articles on organizations that rediscovered Drucker's marketing concept. In 1985, General Electric appointed its first corporate vice president of marketing in more than a decade, and told him to bring about a "marketing renaissance" (*Business Week*, 1985). At Hewlett-Packard, President John



Young says, "Creating a personal computer group was . . . a way of communicating to everyone that marketing was okay" (Saporito, 1984). The director of corporate marketing research at Du Pont reported efforts to develop "a marketing community," outlining specific actions by the company's chairman and CEO "to make sure that everyone clearly understands that serving customers and market segments is the first priority for all functions" (Root, 1986). Chairman Donald Peterson at Ford observed that, "My single greatest desire is to develop Ford Motor Company as a customer-driven company . . . If you do that, everything else falls into place" (*Business Week*, 1985).

In the 1980s and 1990s, more U.S. organizations recognized that satisfying customers with quality products and offering superior service is the foundation for success in highly-competitive markets (Peter, 1994). In addition to Drucker's theory, the rise in marketing can be traced to the increased sophistication of theories, concepts and models to describe and understand marketing orientation within organizations. Marketers today have a greater variety of useful ideas for understanding consumers and their own organizations than they once did. Marketers use this information to develop promotions to persuade consumers to buy their products and services, and to influence their organizations to adopt a stronger marketing orientation to increase patronage and profits.

Non-profit organizations are relatively new players in the marketing arena. Beginning in the 1970s and intensifying in the 1980s and 1990s, hospitals, universities and museums experienced financial pressures that caused these institutions to turn to marketing for solutions. At times, non-profits have been reluctant to acknowledge the importance of marketing

largely because they define themselves as social institutions rather than businesses. For instance, while entertainment has become an integral part of the museum experience, many museum professionals fear that if they respond to what visitors want without reference to the museum's mission and agenda, the result will be an entertainment enterprise rather than an educational institution. As museums experiment with entrepreneurship, there is a fear that "the marketing tail will wag the dog" -- that museums will neglect the purposes for which they were founded in favor of making popular or lucrative decisions (Harney, 1992). There is growing tension between museum marketers and educators even while there is an understanding that one cannot operate successfully without the other -- that marketing people exist to support the museum's principal mission (p. 63).

At the 1991 Association of Science-Technology Centers' annual conference in Orlando, Florida, Ted Ansbacher, director of exhibits for the New York Hall of Science, contrasted what he viewed as the competing goals of education and entertainment. In his session entitled, "The Case Against Entertainment in Science Centers" (ASTC, 1991a), Ansbacher offered:

Whatever these two words mean, it is clear that they are not the same thing . . . Entertainment does draw visitors, and because educational outcomes are so difficult to measure, we use numbers as an indication of success. In providing entertainment as our response to marketing pressure, however, we may be negating our educational goals (p. 4).

Ansbacher stated that entertainment fails as education because it conveys "an attitude of disrespect for the visitor's capacity to learn" and "the message that the exhibit content is difficult or uninteresting," and "may appear to achieve short-term goals, but in the long term what it achieves is the desire for more entertainment." Ansbacher cautioned against being "seduced by the easy route to large attendance or led astray by the notion that to compete with entertainment-leisure activities we must emulate them" (p. 12). He voiced concerns that are shared by many science museum professionals, especially those who believe that science museums should concentrate on education to the exclusion of entertainment.

An alternative viewpoint (and one that seems to be increasing in popularity among science museum professionals) is entertainment and education working together, rather than being thought of as rivals (Jacobsen, 1994). John W. Jacobsen, president of White Oak Associates, a consulting firm serving science museums, said that using large-format theaters and simulators as "entertainment hooks to draw visitors to the supposedly more educational exhibit halls misses the mark and undervalues the theaters' potential." Theaters and exhibits can both be used as educational media, he said, and both need entertainment to engage and attract the visitor. Many others within the industry agree. Stephanie Martin (1994) argued that science museums "must create incredible exhibitions, rich in meaningful learning opportunities spun around an irresistible, entertaining theme" (p. 26). Michael Crowther, CEO of the Thomas Kean New Jersey State Aquarium in Camden, said, "Let's not forget that the best lessons we learned in school were those taught by teachers that made them entertaining. When you educate people you empower them, but before that

you have to engage them" (*Tourist Attractions and Parks*, 1995). Or, in Martin's words (1994), "We have to reach 'em before we can teach 'em."

Ann Mintz (1994) sees education/entertainment as a false dichotomy. Years of science museum surveys suggest that visitors seek the intersection of entertainment and education, she said. When asked, they cannot assign a higher value to either. Pamela Rogow, who negotiated the license for the Academy of Natural Sciences' Jurassic Park exhibition, agreed that museums need to embody both (ASTC, 1993b). "Either/or just means that the potential hasn't been met," she said. "If a *Jurassic Park* exhibition can be criticized for being too oriented to entertainment, it's because of a lack of balance in engaging educational expression." Neil Chalmers, director of the Smithsonian's Natural History Museum, insisted that despite the overtly popular nature of blockbuster exhibitions, they do contain good science as well. "There's nothing incompatible about good science and good presentation," he said (Coghlan, 1993). Science museums are places where people go for educational entertainment, or depending on one's view, entertaining education (Hannapel, 1993). Negotiating these different visions requires a fluid and candid collaboration, "a waltz in which each partner occasionally leads" (Bunch, 1995).

In recent years, it has become even more critical that museums bring entertainment and education closer together. Due primarily to decreases in attendance and donor support, executive directors and board members are painfully aware that they must find new sources of income or watch their institutions suffer (Toolen, 1994). In many parts of the U.S., economic conditions are not expected to improve substantially in the near future. Museums must maximize attendance and earned income in order to offset

their financial losses. "The word is out that museums must adapt to the changing times and promote themselves or many will have to cut services drastically or even go out of business," notes Terri Knoll, director of the California Association of Museums (p. 1).

According to the American Association of Museums (AAM), the financial stability of museums in the 21st century "will depend on their capacity to address their economic prospects methodically and with an innovative eye" (Bloom and Powell, 1984). In a 1994 report entitled "Museums for A New Century," AAM singled out seven conditions in museums today that need to be approached with fresh insight, one of which concerned marketing. AAM found that "the museum community has never adequately described or aggressively promoted the significant contributions museums make to the quality of the human experience . . . museums need to market their assets more thoroughly and effectively." However, Thomas Aageson (1994) pointed out that marketing is still foreign to most museum cultures: "Take a look at the AAM's structure and notice the downplay of marketing. . . . When is marketing going to receive the importance it deserves in the museum field, given the increased emphasis on earned revenue?"

Science museums have been among the first in the museum industry to emphasize the need for marketing solutions. Realizing they must compete with rising public expectations created by amusement parks and other tourism attractions, science museums have offered traveling exhibitions and large-format theaters to attract the public's interest. Still, some science museum professionals fear that, because of the public's limited interest in

science and technology, science museums may have reached a saturation point in their markets or may not be offering experiences at a rate sufficient to stimulate increased usage (Miller, 1992a). Others wonder if large urban science centers -- particularly those with massive buildings and high overhead costs -- may be "dinosaurs that have outgrown their food base," making way for smaller, more-distributed science museums in the future (Borun, 1994). Still others feel that the developments of the past 10 years are part of the evolutionary process as science museums adapt to compete in the business world (Becker, 1994). One thing is certain: the evolution of science museums in response to changes in funding structures and social factors will continue. Marketing will play an extremely important role in determining the outcome of this process.

Bonnie VanDorn (1994), executive director of ASTC, said that science museums, as a relatively new phenomenon, "are still searching for our niche. How can we make sure we are really innovative and excellent? How can we best address equity concerns? What can we offer that others can't?" VanDorn says the industry needs more research on science museums and their future. "We are starting to be a mature enough field to look seriously at what we do," she said (p. 39).

A study of significant marketing challenges and the future of marketing within science museums could point the way for the science museum industry to devise creative marketing approaches and face the dual marketing challenges of increasing public usage and earned income, while maintaining the proper balance between education and entertainment.

## Statement of the Problem

Competition for visitors has intensified with the rise of amusement parks and other entertainment-oriented attractions. At the same time, a decline in attendance and donor support has led to an increased dependence on raising earned income to offset these losses. Non-profits (including museums) have only begun the process of adapting the techniques of marketing as a means for attracting new visitors and stimulating those who currently use science museums to visit more often. The problem, as examined in this study, is that science museums must find a way to provide growth in attendance and earned income in order to remain competitive and survive in the marketplace. How will science museums adapt to the changing needs and wants of the public? What marketing solutions would help science museums meet the challenges of the 21st century? It is time for the science museum industry to look ahead and anticipate the adaptations that will be required to provide growth for the industry.

## Purpose of the Study

This study offers a look into the future of marketing within the U.S. science museum industry. In particular, this study examines the challenges that science museums are facing and will continue to face in the 21st century based on the opinions of a panel of experts in the science museum field. These experts forecast the marketing problems that science museums will find most difficult to solve, identified those issues that are the most

significant, and offered solutions that will help science museums meet these challenges and excel in the 21st century.

### Research Questions

The panel of science museum professionals addressed the following research questions: What marketing challenges will U.S. science museums continue to encounter in future efforts to meet the needs of visitors (schools and/or the general public)? How significant is each challenge for the future of science museums? What are some possible solutions to these challenges?

### Methodology

This research study utilizes the Delphi Technique, a qualitative research method most often used to make predictions and propose solutions to problems (Linstone and Turoff, 1975). In this study, the Delphi Technique is used to structure a group communication process that helps professionals associated with the science museum industry identify the marketing-related challenges facing their industry, rank those challenges in order of their significance to the future of the industry, and offer solutions that may prove useful in meeting these challenges and paving the way for a brighter future.

Panelists were selected based on their recognized expertise in the science museum field, either because of their status as mid- or upper-level management personnel at science museums or science museum associations,



or as consultants who specialize in science museums, or as persons who have written about or researched future trends concerning science museums.

This study consisted of three rounds of surveys. In all rounds, science museum professionals were asked to offer their views anonymously to encourage free expression of observations and ideas. The first survey asked participants to identify 10 problems that will pose the greatest challenge to science museums in marketing their services to visitors in future years. The second survey consisted of a comprehensive list of the challenges as identified by participants in the first survey. In this survey, participants indicated the significance of each challenge. In the third survey, panelists examined a ranked list of the challenges (ranked according to their significance to the future of science museums) and offered possible solutions to each of these. A more detailed explanation of this process is offered in Chapter III.

### Significance of the Research

As science museums seek new ways to enhance the public's interest in entertaining and educational experiences through "hands-on" science, industry executives face a multitude of important, institution-defining decisions. These individuals will benefit from sharing ideas through the systematic approach of the Delphi Technique, as used in this study. The Delphi Technique has brought together the group's views and offered a vision of future solutions to significant marketing challenges that will be useful to all involved. Science museum professionals will learn new ideas

from the solutions proposed by other participants -- and the industry, as a whole, will benefit.

### Scope and Limitations

The Delphi Technique used in this study involves three rounds of surveys with experts making predictions about the marketing of science museums. The primary limitation of this study relates to the Delphi Technique itself. Although panel members were selected based on their position and experience in the science museum field, they were not selected randomly. Thus, results cannot be generalized to a larger population and must be accepted as the views of this particular group of experts. No matter how educated or experienced, no group of professionals can predict the future of their industry with accuracy. The Delphi Technique merely represents the consensus of a group of experts and presents their "best guess" of marketing solutions to challenges that science museums will continue to face in the near future (Linstone and Turoff, 1975). This study recognizes that this panel's responses represent the opinions of those involved and are not necessarily an accurate prediction of the future challenges or the best solutions to those challenges.

### Outline of the Study

In this study, Chapter II consists of background information and a review of the literature. Background information on the problem looks at studies on attendance trends in science museums and data concerning the

decline in donor support. The literature review focuses on the rising importance of marketing within non-profit organizations such as universities, hospitals and museums and research that has been conducted on creating market-oriented organizations. Chapter III outlines the Delphi Technique -- the research methodology and design for this study -- and briefly introduces the participants. Short biographies of the experts are included in Appendix A. Chapter IV includes a presentation of the findings, with analysis and interpretation. Chapter V includes a summary, conclusions and recommendations for further study.

## CHAPTER II

### THE RISING NEED FOR MARKET-ORIENTATION

#### Overview

This chapter begins with an examination of the current challenges facing the U.S. science museum industry. Stagnation in attendance at U.S. science museums over the last decade and a decline in financial support from donors are discussed as pertinent background information on the problem.

Also included in this chapter is a review of the relevant literature. This review begins with the emergence of marketing within U.S. non-profit organizations such as hospitals, universities and museums. While little research exists in the area of marketing non-profit organizations, research has been conducted on suggestions for engendering market orientation and the antecedents necessary for effective implementation of an organization-wide market orientation. Also included in the literature review is information regarding the integration of public relations and marketing as a combined discipline and the effectiveness of two alternative approaches (the programmatic approach and the market-back approach) for engendering a market-orientation. This last section provides a review of approaches for resolving marketing challenges within non-profit organizations and the important role the market-back approach could play in implementing the findings of this study in the science museum setting.

## Background of the Problem

### Stagnant Attendance

The number of science museums in the United States has grown dramatically in the past 20 years (Semper, 1990). In 1973, when the Association of Science and Technology Centers (ASTC) was founded, slightly more than a dozen museums joined - "a widely scattered array of older institutions and a few that recently had opened, bound by a common commitment to hands-on learning about science" (VanDorn, 1993). Today, there are more than 200 science museums in the U.S., and one-quarter of the U.S. population visits one every year (Miller, 1992a). Almost as many Americans visit a science museum each year as attend professional baseball, basketball and football games combined (Sagan and Druyan, 1995).

Despite this proliferation of science museums, a series of four studies conducted over a 10-year period by Jon D. Miller for the National Science Foundation (NSF) showed the actual number of science museum visits per 100 adults has declined slightly since 1983 (Miller, 1992a). The studies identified 53 visits per 100 adults in 1983, but that number dropped to 47 visits per 100 adults by 1990. When these rates of visitation were applied to the adult population aged 18 and over for each of the years in which the studies were conducted, the resulting estimates indicated the total number of visits to science museums declined from approximately 90 million in 1983 to 83 million in 1988, and then rebounded to 87 million in 1990.

Based on this data, Miller concluded that the science museum industry is "no longer a growth enterprise," since the proportion of American adults

who visit science museums has declined from 1983 to 1990. Diminished support for cultural institutions has been borne out by the 1992 Survey of Public Participation in the Arts conducted by the Census Bureau for the National Endowment for the Arts (Robinson, 1994). This study showed that public participation in many leisure activities declined in the 1980s as stagnant household incomes cut the amount many Americans could spend on admission fees. The study found that, while participation in the arts remained fairly steady due to population increases, per capita participation declined for many cultural attractions, including museums (p. 9).

Contrary to the NSF studies' findings, a study conducted by the Association of Science-Technology Centers (ASTC) found that visits to science museums increased in the mid-1980s, even while a substantial percentage of science museums reported declines in attendance. In a survey of science museums conducted by ASTC in April 1987, the 100 institutions providing three-year attendance figures experienced an average increase of 4.4 percent per year in fiscal years 1985-87 (ASTC, 1989). Averaged over the three years, 81 percent of the sample showed an increase in attendance. However, 19 percent of the sample showed a decline in attendance over the three-year period. In 1989, ASTC commissioned an independent review of the study's data to identify those findings that might have broader salience to science museum professionals and provide an overview of the industry (St. John and Grinell, 1989). This review found that just over 60 percent of the institutions showed steady growth (defined as positive increases for each of the last two years). Conversely, almost 40 percent failed to show steady growth (p. 16).

Both the NSF and ASTC studies used statistically sound sampling techniques. In the NSF studies, telephone interviews were conducted by the Public Opinion Laboratory at Northern Illinois University with national probability samples of approximately 2,000 adults (Miller, 1992a). Households were selected through random-digit dialing with each household having an equal probability of being selected. Within each household, one adult aged 18 or over was selected randomly and interviewed for about 25 minutes on a wide range of matters (p. 11). In the ASTC study, 200 science museums were invited to participate, including all ASTC member museums, institutions not yet open to the public and 35 non-member institutions whose missions were considered compatible with ASTC members (ASTC, 1989). In late April 1987, ASTC mailed the Science Center Survey (via Wayne University in Detroit, Michigan) to a total of 187 institutions (167 members and 20 nonmembers), each of which had agreed to participate. Seventy percent of the ASTC member museums and six non-members responded, for a total of 131 institutions.

The disparity between the NSF and ASTC studies in identifying attendance trends can be attributed to the different origins of their data and the different audiences considered in that data. In both studies, there are apparent deficiencies in the research methods used to calculate overall attendance and identify trends.

The NSF studies based attendance figures on the responses of individuals who were asked whether they had attended a science museum in the previous year. The rates of visitation were then applied to the adult population aged 18 and over for each of the years in which the studies were conducted to estimate the total number of visits to science museums. While

the final data was weighted to bring the distribution of respondents into an age-gender-race-education profile consistent with national estimates from the U.S. Census Bureau, the methodology only considered the adult population, and failed to take into account attendance by those under the age of 18, an important audience for science museums. In fact, an ASTC study indicated that 50 percent of science museum visitors are age 17 or younger (ASTC, 1989). By overlooking one-half of the science museum audience, the NSF studies failed to include all visitors to science museums and, therefore, underestimated the number of annual science museum visits. However, because the four NSF studies were conducted over a 10-year period, they served to identify a trend of declining attendance among a specific age group (those aged 18 and over).

The ASTC study, on the other hand, based attendance figures on actual recorded attendance as reported by participating science museums. This method offered a more reliable picture of science museum attendance since all age categories of visitors are included. However, the study's overall figures were inflated. For instance, there was no differentiation between paying and non-paying visitors. Science museums typically open their doors to non-paying groups as a community service. In times of low attendance, this practice often increases to offset diminished numbers at the gate. In addition, science museums could have counted as visitors those who attend off-site museum programs as a way to boost attendance figures. Science museum professionals, cognizant that board members look to attendance figures as a barometer of success, are often pressured to reflect annual increases in attendance. By counting every person who attends a science museum rather than only paying customers, the ASTC study



overestimated the number of science museum visits annually. In addition, the study only took into account a three-year period for attendance and did not attempt to identify long-term trends.

Because the NSF studies tended to underestimate attendance and the ASTC study tended to overestimate attendance, accurate attendance figures are probably in-between the two sets of figures. It is important to note that both studies indicated declines in public usage for many science museums. The NSF studies showed the proportion of American adults who visit science museums has declined from 1983 to 1990. In addition, despite its indication of positive attendance growth overall, an independent review of the ASTC study showed that almost 40 percent of science museums failed to show steady attendance growth during the years 1985-87 (St. John and Grinell, 1989). These trends are especially alarming when considering that the number of science museums in the U.S. has grown dramatically in the past 20 years. Despite increased access to science museums, the public is not using these institutions at a similar rate of growth.

### Loss of Financial Support

At the same time, U.S. museums -- including science museums -- have experienced diminished sources of revenue to sustain them. First of all, for those museums with declining attendance, the resulting reduction in earned income has placed substantial pressure on operations. In general, science museum income is made up of 35 to 40 percent earned income (derived from admission fees, memberships, program fees, food services, museum shop sales and facility rentals) (ASTC, 1989). Admission fees account for

the highest percentage of earned income, representing 29 percent of that category (p. 11). Earned revenue fluctuates in absolute amounts with the ebb and flow of attendance. If attendance drops -- and it takes constant effort to keep it up -- the results can present major difficulties. As Alphonse T. DeSena, then-director of The Carnegie Science Center, said, "Around 50 percent of our total budgeted income is admissions revenue . . . when that falls off, the pressures on operations are considerable" (Jacobsen and Stahl, 1993).

In addition, U.S. museums have experienced a dramatic decrease in donor support from government (federal, state or local), foundations, private individuals and corporations in the past decade. Donor support provides 60 to 65 percent of the funds needed to operate science museums. For U.S. museums, the percentage of government allocations declined from 1979 to 1989 (AAM, 1994). Repeatedly since 1982, U.S. presidents and congressmen have proposed budgets that would substantially diminish the federal government's role in support of museums. The elimination of the Institute of Museum Services (IMS) and the "Understanding of Science" program at the National Science Foundation (NSF) have been proposed. As recently as January 1995, the Republican Party's "Contract with America" called for congress to revisit the issue of cutting federal funding for culture. In response to this threat, ASTC urged its members to "generate volumes of letters and calls on the value of your science center to your community and IMS funding to your institution," citing that there is a "rocky road ahead for other support of science centers," including the possibility of budget cuts for the Departments of Education and Energy (Griffiee, 1995). AAM established a toll-free number to garner public

support for continued federal funding of IMS and NSF programs (AAM, 1995).

State and local governments are in no better position to provide financial assistance for museums. The escalating cost of providing programs, combined with the tendency of federal government to pass the tab for governing down to the state and local levels, have forced state and local leaders to raise taxes or slash programs. At an annual meeting of museum professionals in California, Howard Dean, governor of Vermont, said that "our initial reservations have evolved to alarm. We fear a massive shift . . . to the shoulders of state and local governments" (Harney, 1992). With tax revenues down, state and local subsidies to museums have been cut or eliminated altogether.

Just as government has made dramatic cuts in funding, decreased tax incentives for philanthropists and increased competition for donor support have contributed to a decline in private and corporate support for museums (Borun, 1994). The Tax Reform Act of 1986 placed severe limitations on the deductibility of objects that have appreciated in value, causing donors to sell these objects rather than donate them to museums. In addition, in both private and corporate support, giving has shifted from unrestricted donations that could be used for general operations to sponsorship of specific programs and exhibits. Even philanthropic foundations are complaining that, with interest rates low, their investments haven't yielded what they used to, reducing the amount of funds they can make available to non-profit organizations (Harney, 1992). Corporate contributions to museums have plummeted by as much as 50 to 60 percent in the past five years (Toolen, 1994). In 1992, for the first time, corporate giving in

science museums declined (Raymond, 1993). "Flat or declining corporate giving - you better get used to it. It's a long-term trend," was one development officer's comment at the 1993 ASTC convention. ASTC members have found they have to work harder to raise smaller amounts of money (ASTC, 1991b).

Most science museums operate near the "break even" point, with income and expenses evenly matched (St. John, 1989). In a 1987 ASTC study, almost half of the museums (47%) had net incomes (or losses) that were within five percent of their total gross revenues. Over the three years of the study (fiscal years 1985-87), 64 percent of the museums in the sample showed an increase in their net income while 36 percent showed a decline in net income (p. 9). With science museums operating on the fine line between budget income and loss, any threat to revenue can be critical.

In response to decreases in donor support, some museums have turned to cutting public programs, curtailing hours to save on the cost of security and building maintenance, reducing staff and even closing exhibit areas to the public. In March 1991, the Museum of Science in Boston reduced its programming budgets, instituted hiring and merit pay freezes, cut the pay of senior management and laid off 43 employees after experiencing a 10 to 15 percent decrease in attendance, corporate sponsorship, government grants and memberships (ASTC, 1991b). At the same time, the Brooklyn Children's Museum lost half of its total state appropriation of \$70,000, corporation contributions were down 10 percent and attendance was down slightly, prompting the museum to reduce its hours, lay off personnel and leave six positions vacant through attrition. In Michigan, all three science centers have been affected by cutbacks in appropriations from the state's

budget. The Detroit Science Center has curtailed its operating hours 30 percent, reduced staff from 35 to 25 full-time equivalents and raised admission fees -- all while attendance has dropped.

The decline in donor support and the specter of lay-offs, program cuts and reduced hours has increased the importance of earned income in science museums. For example, the Franklin Institute in Philadelphia, Pennsylvania, has seen a dramatic shift from donor support to earned revenue in the past decade. In 1984, the museum had a \$7-8 million budget with 70 percent contributed by donors; in 1994 the museum had an \$18 million operating budget with only 15 percent coming from donors and 85 percent covered by earned revenue (Moore, 1994). Many other museums have experienced similar shifts to earned income (p. 27). Art museums, for instance, now receive more funds through earned income (\$290 million) than from donor support (\$200 million) (Toolen, 1994). Realizing the dramatic increase in the importance of earned income to the livelihood of museums, AAM recommended that museums vigorously pursue cost-saving opportunities and creative ventures to increase earned revenue (Bloom and Powell, 1984).

While museums across the U.S. are being forced to sharpen their fiscal and entrepreneurial skills in order to maximize earned income, their ability to earn income in the marketplace is restricted by the federal Unrelated Business Income Tax (UBIT). Enacted in 1950, UBIT was intended to draw the line between what for-profits and non-profits could legally do to earn money. This line, however, is not always clear and interpretation of UBIT remains, at best, an inexact science (Harney, 1992). UBIT states that non-profits are exempt from paying taxes, except when they earn profits

from the sale of goods and services that are not related to their educational mission. So far, museums have been successful in avoiding UBIT threats, despite occasional issues such as off-site museum stores competing with for-profit businesses and corporate sponsorships that consist of free advertising (Roth, 1992). As museums seek ways to earn money, they must be careful to avoid violation of the UBIT or pay federal income taxes on their profits.

While it is possible that a science museum could be totally self-sufficient through earned income, no science museum has managed to do so and, according to a 1993 preliminary study, nor would most museum professionals want to operate their institutions solely on earned revenue. Jacobsen and Stahl (1993) found that science centers "at both ends of the scale in their percentage of earned revenue are trying to move to the center" (p. 12). Museums with levels of earned income above 80 percent want to move 5 to 10 percent below that; and those museums with a low proportion of earned revenues say they do not want to see earned revenue rise above 40 to 70 percent. Professionals at many institutions are reluctant to allow earned income free reign, as they believe this could create too great of a dependence on earned revenue and could detract from the museum's mission.

There is no doubt that the future financial stability of museums will depend on their capacity "to address economic prospects methodically and with an innovative eye," the American Association of Museums (AAM) says (Bloom and Powell, 1984). Many museums are already engaging in imaginative efforts to conserve resources and generate earned income. This struggle for survival has caused science museums to realize the need for

more marketing (Becker, 1994). "The play of the market is driving the change and marketing plays an increasing role in this shift," Aageson said (1994). But change doesn't come easily. U.S. museums -- including science museums -- have traditionally viewed themselves as educational institutions, even while they attempt to adjust their organizational cultures in response to financial pressures. Science museums must not only find solutions to their most significant marketing challenges but also find ways to implement an effective approach for resolving marketing challenges and creating organizational cultures which engender a stronger market-orientation.

### Need for the Study

This study was designed to help science museum professionals consider marketing-based solutions to the challenges of declining attendance and donor support. By encouraging professionals from all levels and backgrounds to share information on marketing and by creating a consensus among the experts on what science museums need to do, this study sought to point the way for the science museum community to devise new and creative strategies for the future. These ideas could be of strategic benefit to the entire science museum industry in overcoming the dual challenges of increasing attendance and earned revenue.

### Review of the Literature

Studies have been conducted by the Association of Science-Technology Centers (ASTC) and the American Association of Museums (AAM) on the

public use of science museums and their sources of revenue. Facts from these studies were cited in Chapter I and the preceding section of this chapter. Besides these surveys of science museums, the majority of the available literature concerning science museum attendance focuses on visitor studies of individual institutions or exhibits that cannot be generalized to the entire field. Science museums have addressed micro-management problems but have not researched long-term marketing strategies for the entire industry.

The literature review focuses on trends in marketing non-profit organizations and research on the engendering market orientation and the antecedents necessary for effective implementation of an organization-wide market orientation. In addition, the review looks at research which has been conducted on two alternative approaches to increasing the level of market orientation within an organization (the programmatic approach and the market-back approach). The goal of this literature review is to provide an examination of approaches for resolving marketing challenges within non-profit organizations and the important role the market-back approach could play in implementing the findings of this study in the science museum setting.

It is important to note, however, that this study's primary source of information on marketing science museums can be found in the minds of science museum professionals across the country, a source which was tapped using the collaborative nature of the Delphi Technique. Science museum professionals possess a keen knowledge of their industry and have shown much enthusiasm for marketing and its potential to increase public usage and earned income. The idea for conducting this study was inspired



by the thoughts and concerns expressed in interviews with science museum professionals conducted by White Oak Associates, Inc., a private consulting firm, for *Forum '94*, a collection of views on trends in the science museum industry. Those who shared their thoughts will find they have made an indelible imprint on this study.

### Non-Profits in the Marketing Arena

Why can't you sell brotherhood like you sell soap?, asked G. D. Wiebe (Wiebe, 1951-52). Wiebe wrote that marketers of soap usually were effective while marketers of social causes usually were not as effective, a conclusion he based on research of several social campaigns in which he determined the reasons for their success or failure. He found that non-profit campaigns that used the elements of business marketing were more successful than those that disregarded those techniques. His message: it's possible to combine marketing and non-profit organizations (Wasem, 1995).

Since Wiebe offered this observation, and in particular since the early 1970s, successful marketing techniques that once belonged almost exclusively to profit-motivated business enterprises have been used advantageously by alert managers in non-profit organizations (Shapiro, 1993). With financial pressures has come the understanding that marketing presents a disciplined way of managing resources to meet the real needs of their clients -- the "consumers" of their valuable services. Ironically, such discipline is even more necessary in the non-profit world than in profit-

centered fields, because of the added responsibility that comes with the proper utilization of tax-exempt resources (Wagner, 1978).

Non-profit administrators have been reluctant to entertain marketing, partly out of fear of being criticized for using strange language, and partly out of fear that marketing activities could adversely affect their programs. Many managers of non-profits have failed to recognize that marketing is as intrinsic to the non-profit sector as it is to the business community. Some continued to assume that promotion means "hard sell," which many non-profits give an air of illegitimacy (Wasem, 1995). However, once non-profit administrators realized that business terminology is not demeaning to their professional cause but rather brings a new and valuable discipline to the promotion of that cause, they began to use the marketing language in the same way as any corporate manager (Wagner, 1978). Evidence of this can be seen in hospitals, universities and museums.

In the late 1970s, hospitals were faced with an overwhelming battery of business dynamics brought about by advances in medical technology, the increasing cost of providing health care and changes in federal reimbursement (Deats, 1990). Competition increased significantly among health care providers. During 1979-80, 30 new Health Maintenance Organizations (HMOs) opened in the U.S. In addition, many hospital facilities were nearing obsolescence, with 85 percent reaching the end of their useful life during the 1980s. At the same time, consumerism began to play a greater role in the average citizen's selection of health care providers. A nationwide study conducted in 1983 showed 38 percent of a hospital's customers based their choice of hospital on the selection of physicians (Hauser, 1983).

A new discipline of hospital marketing emerged. Prior to these developments, marketing in many hospitals did not even exist as a separate entity (Gregory and Klegon, 1983). From 1981-83, the number of hospital marketing directors and vice presidents in the U.S. increased from 25 to nearly 400 (Hauser, 1983). For the first time, hospital marketing was considered one of the "hot" professions by the professional placement services operating in the health care field. With the new emphasis on marketing, hospitals began to pay more attention to consumers' needs and wants. Conducting patient surveys on customer satisfaction became commonplace in hospitals. For example, in 1983 the University of Chicago hospitals began to ask patients such questions as "Were you given appropriate emotional support during your stay?" and "Were you called by your right name?" The inquiries boosted satisfaction ratings so significantly that 30 hospitals in the Oak Brook, Illinois-based University Hospital Consortium adopted the idea (Shapiro, 1993).

Hospitals also began to answer the challenge of providing health care at a better price than their competition and develop niches that would differentiate one facility from another (Deats, 1990). At New York University Medical Center, for instance, the marketing program was initiated in 1981. A market study was commissioned to determine consumer attitudes about NYU Medical Center among the prime target audiences in the metropolitan region. This study determined that the medical center had three problems: most of the target audience didn't know it existed; those who did confused it with other local medical institutions with similar names; and the remainder thought this private institution was a subordinate part of its better-known public affiliate, Bellevue Hospital (p.

189). Guided by marketing, administrators elected to: change the center's name from New York University Medical Center to NYU Medical Center to increase name recognition; establish "excellence" as the center's theme in advertising and promotion; modify exterior signage to differentiate the center from Bellevue Hospital, a neighboring institution; and refocus internally-produced publications and initiate new publications specifically aimed at particular audiences within the center. A 1983 follow-up study to test unaided recall among the same target audiences showed that NYU Medical Center had become the best-known medical center in the region (p. 190). In late 1986 the center conducted another follow-up study to determine standing in the marketplace. The study found that NYU was still the medical institution most frequently mentioned first by the center's target public and NYU was the consistent leader selected for a variety of intensive medical diagnostic and surgical procedures.

In the mid-1980s, higher education underwent a similar marketing renaissance brought about by an increase in competition and a struggle for financial survival (Burdenski, 1991). Until that time, college and university administrators did not appreciate the term "marketing" -- a term which they viewed as synonymous with selling and a practice which they viewed as being unethical in the academic world (Strang, 1986a). Then the realities of the marketplace set in. The number of students 18-24 years of age (prime college age) began to decline, and studies indicated the trend would intensify in the 1980s (p. 23). In 1985, more than 3,000 universities competed for 3.6 million 18-year-olds in the U.S., a decline of 700,000 since 1979 (Firstenberg, 1991). At the same time, competition for donor support intensified. In 1988, charitable giving in the U.S. went up six

percent, but the overall number of dollars given to higher education declined (p. 34).

In response to these pressures, U.S. colleges and universities began to appoint marketing directors and develop strategic marketing plans (Strang, 1986a). University administrators began to focus on the competitive environment to position their institutions according to comparative advantage in the marketplace (Firstenberg, 1991). In 1983, the Council for Advancement and Support of Education published its first marketing guide for universities (Strang, 1986b). James Lichtenberg, director of the college and university relations division of Hill & Knowlton, a New York City public relations agency, said in 1985, "It's only been in the last two years that you could use the word marketing on campus without being drawn and quartered or ridden out of town on a rail. Now everyone is beginning to talk about things like target marketing and market strategies" (Murphy, 1985).

In the 1990s, marketers of higher education have begun to focus on strengthening their institution's competitiveness to maintain academic quality. Institutions that fail to secure a strong competitive position will lose funding and, in turn, be forced to cut their academic programs, facing diminishing quality with little room to maneuver (Firstenberg, 1991). For many schools, marketing has meant keeping enrollments stable and the doors open. Austin Peay State University in Tennessee found basic marketing research had positive implications in its recruitment program (Strang, 1986b). Administrators picked 35 variables that were known to affect students' selection of a college or university and developed a questionnaire for incoming students. Students were primarily concerned

with such issues as proximity to home, tuition, scholarships, job placement and program quality. Such information proved to be useful for guiding the university's student recruitment and is credited with increasing enrollment. In 1987, Pan American University in Edinburg, Texas, used basic marketing concepts as it made a concentrated effort to encourage students to enroll for the first time (Burdenski, 1991). Overall, 496 spring enrollments were attributed to that effort. From an investment of \$5,722 the institution projected \$1.9 million in additional tuition revenue over four years.

Museums have been among the most recent of the non-profit organizations to enter the marketing arena. In the mid-1980s, federal and state budget cuts, coupled declining attendance and donations, prompted museum administrators to turn to marketing for solutions. Many museums hired marketing directors and began to develop strategies for attracting a more diversified audience, driven both by mission (the need to serve a broader cross-section of the community) and by marketing (Mintz, 1994). In 1987, the Franklin Institute in Philadelphia had no marketing department; by mid-1989, it had a staff of 10 under that title (King, 1991). Museums have increasingly adopted the term "CEO" for the executive director's position, a term typically used by businesses and corporations. This reflects the shift from the museum director being less of a scholar and more of an entrepreneur -- more a "chief executive officer" than a director in the museum's original sense of the term (Mintz, 1994).

Museums that have been most successful in maximizing earned income have undertaken numerous entrepreneurial ventures, including blockbuster exhibitions, an IMAX®, OMNIMAX® or IWERKS® large-format theater,

museum shop sales, food service and facility rentals. Most science museums today engage in a number of these approaches. A preliminary study by two leading researchers on science museums and their methods for generating earned income revealed that, to achieve a high degree of earned revenue, museums should offer a multi-venue, multi-ticketed facility with additional revenues coming from ancillary services. They also should plan on offering changing programming that will bring in more high-paying adults (Jacobsen and Stahl, 1993).

Spin-off ventures as separate profit-making enterprises, such as satellite stores in malls, museum reproductions, mail order catalogues, licensing programs and video/book publishing, have been gaining acceptance in the museum field. The Children's Museum of Denver is an outstanding example of the new entrepreneurial spirit in museums. When Richard Steckel became director of the museum in 1977, three federal grants had just expired. To earn revenue quickly, the museum created a line of childrens' publications and developed a mascot: a cuddly creature called NUZZ, which led to spin-off ventures -- toys, fruit punch and frozen fruit juice bars (Fine, 1990). As a result, the museum's marketing program made the institution 95 percent self-sufficient (p. 164). Steckel (1989) advocated that non-profits adopt an entrepreneurial approach in which they "are responsible and responsive to their markets." Entrepreneurial non-profits, as opposed to traditional non-profits, are risk-taking and goal-oriented organizations that adopt for-profit attitudes and behaviors and have a clear vision for the future, Steckel said.

This entrepreneurial spirit is evident in many science museums, such as Ohio's Center of Science & Industry and the Oregon Museum of Science &

Industry, both of which have created traveling blockbuster exhibitions to rent to other museums. These ventures have provided revenue streams to the parent museum -- and to the museums which have rented and displayed the exhibits. Museums have been so successful with traveling exhibitions that private entrepreneurs have entered the market, creating exhibitions for museum and non-museum venues, some working with robotic creatures (dinosaurs, insects, whales, etc.), others with art and history exhibitions (Rogers, 1995). For instance, Jim Broughton, an administrator in Memphis city government who coordinated shows including "Ramses the Great" for the city's convention center, is a private entrepreneur who excels in staging large art expositions in conjunction with financially-strapped museums in Russia and China.

In a 1987 survey, the Association of Science-Technology Centers asked 167 member institutions and 20 non-member institutions to identify future directions for the science museum industry. The study's participants predicted an enhanced visitor-centered focus and an increased emphasis on business practices, specifically more careful marketing efforts, further development of income-producing businesses and an increased reliance on traveling exhibits for both marketing and educational reasons (ASTC, 1989). The group predicted a more business-like approach to operations, more emphasis on earned income and entrepreneurial methods, and an increased need for traveling exhibitions and exhibit collaboratives (p. 20).

Each of these predictions for the future direction of the science museum industry point to an increasingly important role for marketing. Just as hospitals and universities have traveled this path in recent years, the relatively-young science museum industry will become a more



sophisticated, business-like enterprise as the field continues to mature. As this occurs, science museum professionals will increasingly seek marketing solutions to their most significant challenges. In addition, they will need to consider ways in which they can incorporate a marketing orientation within their organizations in the interest of creating an internal culture that responds favorably to market pressures and finds ways to implement marketing solutions at all levels.

### Creating Market-Oriented Non-Profits

Marketing orientation is an organizational culture committed to the continuous creation of superior value for customers. Deshpande and Webster (1989) defined organizational culture as:

The pattern of shared values and beliefs that help individuals understand organizational functioning and thus provide them with norms for behavior in the organization.

Implicit in this definition of organizational culture was Waterman, Peters and Phillips' (1980) 7-S framework of organizational alignment. Waterman and his colleagues argued that an organization consists fundamentally of seven major components: organization structure, staffing, skills, leadership style, shared values, systems and strategy. The component, "shared values," represents the organizational culture -- that is, the organization's norms for behavior. The authors stressed that a change in any one of the components ultimately affects the other six. Thus, an organization's shared values, i.e.,

its culture, will be affected by a change in one or more of the other six components. It follows that for an organization to change its culture, it may try to change its shared values directly, or indirectly, by changing one or more of the other six components.

There exists only a small set of conceptual articles that offer preliminary suggestions for engendering market orientation (Stampfl, 1978; Webster, 1988). It is only within the last few years that researchers have begun to identify the necessary antecedents for successful implementation of market orientation. Very few empirical studies have been conducted, and these primarily concern the extent to which organizations have adopted the marketing concept, rather than the antecedents or consequences of market orientation (Barksdale and Darden, 1971; Hise, 1985; McNamara, 1992). However, substantial progress has been made in clarifying the concept of "market orientation" and understanding the effects of market orientation on an organization's performance.

Kohli and Jaworski (1990) found that market orientation is composed of three sets of activities: (1.) organization-wide generation of market intelligence pertaining to current and future customer needs; (2.) dissemination of this intelligence among departments; and (3.) organization-wide responsiveness to it. This responsiveness is composed of two sets of activities: response design (i.e., using market intelligence to develop plans) and implementation (i.e., executing such plans). Narver and Slater (1990) identified three behavioral components to marketing orientation -- customer orientation, competitor orientation and interfunctional coordination. In principle the three components are of equal importance in the long run. In addition, Narver and Slater offered

substantial evidence of the positive effect of marketing orientation on profitability, success and customer retention.

Only one study, conducted by Kohli and Jaworski (1992), has focused on identifying the antecedents necessary for effective implementation of an organization-wide market orientation. This study suggested that market orientation appears to be facilitated through: emphasis top managers place on market orientation by continually reminding employees that it is critical for them to be sensitive and responsive to market developments; risk tolerance on the part of senior managers and a willingness to accept an occasional failure as a normal part of doing business; and positive interdepartmental dynamics. Interdepartmental conflict appeared to reduce market orientation, whereas interdepartmental connectedness appeared to facilitate it (p. 25).

Many institutions have aspired to become market-driven but have failed to instill and sustain this orientation. Often these aspirants underestimate how difficult it is to shift an organization's focus to customer concerns (Day, 1993). They apparently assume that marginal changes, a few management workshops, and proclamations of intent will do the job, when in fact a wide-ranging cultural shift is necessary. During this period of structural change, it is critical that an institution develops strategies with the objective of satisfying customers and increasing earned income and market share. Unfortunately, this approach may be the exception rather than the rule. As Peter Drucker, the father of marketing theory, pointed out: typically, businesses -- but also non-profit institutions -- have wrongfully believed that a strategy aimed at a "happy medium" is the most comfortable, the least risky and adequately profitable (Kaufman, 1994).

Clearly, for a non-profit organization to increase its market orientation, a necessary first condition is that the organization be totally clear on the "purpose" of a market orientation. A market orientation involves creating an organizational culture that is entirely committed to the continuous creation of superior value for customers (Levitt, 1960; Day, 1990), from which the institution creates superior value for itself (Forbis and Mehta, 1981; Hanan, 1985). Initiatives to enhance market-sensing and customer-linking capabilities are integral to broader efforts to build a market-oriented organization. Day (1990) argued that for strategies to be truly market-oriented, they must be guided by top management but formulated as close to the market as possible. And the various departments, in order continuously to create superior value for customers, must possess a high degree of autonomy, flexibility and creativity to execute the required tailored approaches. In order to be market-oriented, non-profit organizations must possess a culture that manifests itself as an ongoing commitment to customer orientation, competitor orientation and interfunctional orientation in each and every market.

Benson Shapiro (1993) cited four key business concepts that provide the basis for marketing thought and action in the non-profit environment: (a.) the self-interest aspect of the transaction or exchange, in which both the buyer and the seller believe they are receiving greater value than they are giving up; (b.) the marketing task, which stresses the importance of satisfying customer needs; (c.) the marketing mix, the elements of which are the tools that marketers use, such as advertising and public relations, channels of distribution, pricing and product policies; and (d.) the idea of distinctive competence, in which the company concentrates on what it does

best because doing so maximizes profits. Resource allocation in non-profit organizations is somewhat analogous to product policy in a business or corporation. In a company, the key product-policy question is "What business are we in?" The answer defines the products to be offered and the consumers to be served. Similarly, a non-profit organization must determine its basic function or mission. It must decide who its clients are and what it will provide for them (Shapiro, 1993). In marketing a non-profit, as in marketing a business, the challenge is to market services on the basis of benefit and cost and then to go one step further by asking how to increase the benefits of the services in relation to the cost of buying them. Better still, market-oriented non-profits should ask how to *increase* the benefits while finding ways to *decrease* the cost.

The first and most important drawback of marketing non-profits seems to be the lack of adequate funds for effective market research (Wagner, 1978). Marketing research provides the road map for the most efficient, effective and direct route to improving services, reducing costs and increasing customers. Without it, a non-profit organization will retrace the old trial-and-error route employed by corporations 50 years ago (p. 41). A 1986 study on hospital marketing performed by the Society for Hospital Planning and Marketing of the American Hospital Association of Chicago found that marketers rated their ability to work with the CEO and communication skills as their greatest strengths but rated marketing research as among their weakest areas (Higgins, 1986). Based on his experience with several hundred non-profit organizations, Wagner (1978) found the most conspicuous problem is either the total lack of marketing expertise within the organization or the low status of those staff members

who have that function. Historically, executives who have the responsibility for "production" of the non-profit's products and services are so dominant that those who have the marketing responsibility have little leverage.

In non-profits, marketing often finds a permanent home in the public relations office. While the marriage isn't always made in heaven, many non-profit chief executives recognize that public relations is the logical caretaker of an institution's marketing efforts (Hauser, 1983). Public relations people can ensure the success of a marketing program -- if they understand the marketing objectives in detail. After all, both public relations and marketing require an understanding of the publics involved, of the messages these publics respond to, and the media to which they are most receptive (Wagner, 1978). There is much the knowledgeable public relations practitioner can do in marketing for non-profits in which no recognized marketing function exists. Public relations can raise awareness, influence behavior, develop effective communications and create a climate for customer acceptance (Miller and Rose, 1994). The bringing together of these vitally important communication disciplines is not an attempt to diminish the role of public relations. Rather, this is a unique opportunity for both fields to grow and become better appreciated by those in both related and non-related roles in non-profit organizations.

### Integrated Communications and the Market-Back Approach

Without question, the marriage between public relations and marketing in non-profit organizations must produce an offspring capable of addressing the unique and challenging problems these institutions face as

they approach the 21st century. Increasing support for the merger of all communications functions under a single organizational unit is already yielding some new acronyms for the 1990s: IMC (Integrated Marketing Communications) and ICMP (Integrated Communications: Marketing and Public Relations) (Miller and Rose, 1994). The concepts of IMC and ICMP have caused heated debates among educators as well as public relations and marketing professionals. For the most part, marketing educators are in favor of IMC, seeing it as the best of both worlds. Public relations educators, on the other hand, tend to be vehemently opposed (p. 13). Many public relations educators are poised not to let their function be taken over by marketing.

Traditional public relations educators are convinced that practitioners share their views of IMC and ICAP. However, studies prior to 1991 were done, in most cases, by educators and focused on the views of other educators rather than practitioners (Miller and Rose, 1994). No research has been done to determine what practitioners think about integrating public relations and marketing. However, numerous articles written by practitioners have appeared in support of the integrated approach on the grounds that public relations will benefit in the long run (Harris, 1993; Niederquell, 1991; Strenski, 1991; Tortorici, 1991; Stanton, 1991; Novelli, 1989-90). Since 1992, *PR News*, the international weekly for public relations, public affairs and communications executives, has contained at least one article per month on the subject. Many public relations practitioners seem to be comfortable with IMC and ICAP, realizing that to survive they will need to have the skills necessary for both marketing and public relations assignments within their organizations. Public relations

professionals have expressed an interest in strategic planning, consumer behavior and marketing management.

By being involved early and regularly with all marketing functions, public relations practitioners can help ensure totally integrated, strategically focused and cost-effective marketing communications (Tortorici, 1991). As public relations practitioners assume more responsibility for marketing, they likely will be the driving force for implementing a market orientation at all levels within their organization. What approach should they take to increase their opportunities for success?

Narver and Slater (1991) identified two substantially different approaches that an organization may take to increase market-orientation culture. The first of the two approaches, the one that most organizations have used, is to try to change an institution's culture directly. The approach consists of attempting to instill a shared goal of creating value for customers, and changing the six organizational components (Waterman, Peters and Phillips, 1980) to reflect this shared value. Following Beer, Eisenstat and Spector (1990), Narver and Slater labeled this method the "programmatic approach." The second approach to changing an organizational culture is for the organization to implement a process of continuous learning on how to create value. In this approach an organization adapts its structures, systems, skills, staffing, leadership style and strategy (and thereby, over time, its shared values) based on daily learning from its customer-value-creation successes and failures. Narver and Slater labeled this method the "market-back approach."



## The Programmatic Approach

The programmatic approach to create and increase a market orientation culture consists of an organization trying to implant the shared value of creating superior value for customers to adapt the organization's structures, systems, etc. and produce the appropriate behaviors. The approach, in principle, addresses all seven S's (organization structure, staffing, skills, leadership style, shared values, systems and strategy) simultaneously. To attempt to create a market orientation culture through a direct change program is a relatively straightforward effort, and for that reason, very popular. The programmatic approach may be characterized as a "deliberate" strategy as opposed to an "emergent" (or feedback-correction) strategy (Mintzberg, 1987).

The programmatic approach has been the conventional attempt to increase a market-orientation culture (Felton, 1959; Payne, 1988; Kohli and Jaworski, 1990). However, according to Beer and colleagues (1990), the programmatic approach is seriously flawed, for it contains at least three major "mistaken" assumptions about how to create change in an organization. The first of these assumptions is that promulgating organization-wide programs -- mission statements, corporate culture programs, training courses, quality circles and new pay-for-performance systems -- will transform organizations. The second is that employee behavior is changed by altering a company's formal structure and systems. Beer and colleagues (pp. 158-9) found that exactly the opposite is true, namely, that the greatest obstacle to change is the idea that it comes about through organization-wide programs, particularly when a staff group such as human resources sponsors them. The third of the mistaken assumptions

is that the process should begin with changes in individual knowledge and attitudes. They contend that individual behavior is powerfully shaped by peoples' organizational roles, and therefore, the most effective way to change behavior is to put people into new contexts that impose new roles, responsibilities and relationships.

The programmatic approach, with its primary focus on the form rather than the performance of a market orientation, is necessarily abstracted from the creation of superior value in specific markets for specific customers. By abstracting from the specifics of creating value for customers, the programmatic approach gives little guidance to employees on what steps they should take to implement a true market orientation.

### The Market-Back Approach

Change is about learning (Beer, 1990). The major emphasis of the market-back approach is organizational change based on learning. Culture change occurs as the business adapts to reinforce its successes and minimize its chances of repeating failure in creating superior value for its target customers. The market-back approach holds that assigning people to problem-solving contexts, both current and new, is the key to learning and thereby, the key to appropriately reinforcing the culture (Beer, 1990; Gardner, 1981).

The essence of the market-back approach is continuous improvement. Learning better how to organize to create value is facilitated by department autonomy, empowerment, innovation, teamwork, success stories and role models (Dumaine, 1990; Peters, 1987). The market-back approach is bottom-up in style and illustrates an "emergent" strategy compared to the

"deliberate" strategy of the programmatic approach (Mintzberg, 1987; Imai, 1986). Leavitt (1987) implied the utility of the market-back approach:

Probably the best way to maintain a pathfinding culture is, paradoxically, by not working at it -- at least not directly -- but rather by fertilizing the well-seeded soil that enables and nurtures (visionary) behavior, whenever and wherever it may develop.

In summary, the market-back approach changes the culture by not consciously attempting to change it. The positive attributes of the market-back approach include directing attention to the structures, systems, etc., that specifically facilitate or impede value creation. It thus provides guidance to employees on the required next steps (Imai, 1986) and it encourages entrepreneurship and self management. A possible risk is that organizations may grow in directions inconsistent with overall objectives and performance (Shapiro, 1988). However, this risk is inherent with any decentralization and can be minimized (Dumaine, 1990; Day, 1990).

The preceding descriptions of the programmatic vs. market-back approaches imply that the market-back approach is more effective because it is more incremental, more focused on specific problems and more entrepreneurial in nature. Narver and Slater (1991) examined the effectiveness of the two strategies through surveys administered to a sample of 36 strategic business units in a Fortune 500 industrial firm. A strategic business unit is an organizational unit with a defined business strategy and a manager with sales and profit responsibility. The researchers found that the

"deliberate" strategy of the programmatic approach (Mintzberg, 1987; Imai, 1986). Leavitt (1987) implied the utility of the market-back approach:

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market-back approach had a substantial effect on the magnitude of market orientation in an organization, whereas the programmatic approach had no effect.

Their analysis implies that the CEO and top management play a very important role in enabling organizations to become more market oriented. In addition to conveying the vision of a market-oriented culture, management must provide tangible assistance in eliminating any internal barriers to the organization becoming more market oriented. Narver and Slater stated that a critical issue for future research is to identify the most substantial internal as well as external challenges to increasing market orientation. In addition to the external challenges (inadequate public interest, increased competition, etc.) previously outlined in this chapter, non-profit organizations -- including science museums -- face substantial internal challenges if they are to become market oriented.

Taking into consideration the science museum industry's need for solutions to its most significant marketing challenges and Narver and Slater's findings on implementing a market orientation, the market-back approach offers the best opportunity for the science museum industry to learn to adapt, reinforce its successes and minimize its chance of failure. The market-back approach, like the Delphi Technique used in this study, assigns people to problem-solving contexts as the key to learning and making continuous improvement. Opinions and solutions gleaned from conducting a Delphi study on the most significant challenges to marketing can help direct attention to the structures, systems and practices that specifically facilitate or impede value creation. This information could then be applied using the market-back approach to provide guidance to

employees on the required next steps and to encourage entrepreneurship and self management as science museums increase their market orientation.

## Summary

U.S. science museums, as a result of stagnant attendance and severe cutbacks in donor support, are struggling to find ways to increase attendance and earned income in future years. In response to market pressures, managers of non-profits institutions -- including science museums -- have made significant strides in marketing, yet also have far to go if they are to achieve a true market orientation. Research suggests that creating a market orientation (an organizational culture that is entirely committed to the continuous creation of superior value for customers) depends on the influence of top managers and the ability of departments to work together to solve problems. In non-profit organizations, public relations practitioners are frequently called upon to integrate marketing philosophies throughout their organizations. Research has shown that the market-back approach, which assigns people to problem-solving contexts and encourages them to implement their experiences, is the best method because it is more incremental, more focused on specific problems and more entrepreneurial. Many science museums realize the need to increase industry efforts for sharing information and creating solutions to common marketing challenges.

Despite the need of the U.S. science museum industry for direction at this critical time, no known studies have been conducted on the most significant marketing challenges science museums will face in the near

future or the solutions that pose the greatest hope for future growth in attendance and earned income. Science museums have addressed micro-management problems but have not researched long-term marketing strategies for the entire industry. This is the primary reason why this study is needed at this time. Recommendations for the future of the industry, as formulated from solutions proposed in this study, could be implemented by science museum professionals using the tenets of the market-back approach, which assigns people to problem-solving contexts as the key to making continuous improvement. A Delphi study on the most significant challenges to marketing could point the direction for science museums to adapt their internal cultures and create entrepreneurial organizations which seek to enhance their market orientation.

The impressive advances in entrepreneurial spirit and the emerging acceptance of marketing within the science museum industry are positive signs that the findings of this study will be embraced by the industry at large. In envisioning the future direction of their industry, science museum professionals predicted an enhanced visitor-centered focus and an increased emphasis on business practices, specifically more careful marketing efforts (ASTC, 1989). The consensus called for further development of income-producing businesses, a more business-like approach to operations and more emphasis on entrepreneurial methods.

In order to accelerate the integration of marketing techniques in day-to-day practices, science museums first must examine their most significant marketing challenges. Both the most significant external challenges (factors originating from outside the organization) and internal challenges (those originating inside the organization) need to be considered in order to

address all obstacles to becoming a market-oriented organization. The survival of science museums depends on their ability to adapt to changes in their environment and to meet head-on their most significant marketing challenges of the 21st century.



## CHAPTER III

### METHODOLOGY

#### Overview

This chapter describes the research plan used in this study, including a description of the Delphi Technique as a data collection method for investigating the significant marketing challenges that U.S. science museums will face in future years. The chapter also includes the research questions, the method used to select panelists and specifics on the three rounds of questionnaires. In addition, the chapter reviews the research design, data collection plan and processing/analysis of the data.

#### Research Methodology

The Delphi Technique is a qualitative research method used for structuring a communication process that is effective in allowing a group of individuals, as a whole, deal with a complex problem or set of problems (Linstone and Turoff, 1975). To accomplish this "structured communication" the process provides: individual contributions of information and knowledge; some assessment of the group judgment or view; some opportunity for individuals to revise their views; and some degree of anonymity for the individual responses.

The first phase is characterized by exploration of the subject under discussion, wherein each panelist submits information he or she feels is pertinent. The second phase involves the process of reaching an understanding of how the group views the issue. The third and final phase occurs when all previously gathered information has been analyzed and then fed back to the panel for consideration.

According to Linstone and Turoff (1975), while many people label Delphi a forecasting procedure because of its significant use in that area, there are a surprising variety of applications in other areas, including examining the significance of historical events, evaluating budget allocations, establishing relationships in complex economic or social phenomenon and delineating the pros and cons of policy options (p. 4).

The Delphi Technique was selected for this study in light of the following factors: the problem does not lend itself to precise analytical techniques but can benefit from subjective judgments on a collective basis; more individuals are needed than can effectively interact in a face-to-face exchange; time and cost make frequent group meetings infeasible; disagreements among individuals or levels within the science museum industry must be refereed and anonymity assured; and the heterogeneity of the participants must be preserved to assure validity of the results.

In this study, the Delphi Technique was used to ask experts involved with U.S. science museums to identify the challenges facing their industry, rank those challenges in order of importance and offer solutions which may prove useful to the industry in overcoming the most significant marketing challenges it will face in future years.

## Selection of Subjects

Delphi methodology does not require that subjects be selected at random. More importantly, the technique asks that subjects be chosen because they "have information to share, are motivated to work on the problem and have the time to complete the tasks involved with the procedure" (Allen, 1978). A panel of 10 to 30 participants is suggested. For this study, panelists were selected based on their recognized expertise in the U.S. science museum field, either because of their status as mid- or upper-level management personnel at science museums, or as consultants who specialize in science museums, and/or as persons who have written about or researched future trends concerning science museums.

An initial group of 50 persons were invited to become panelists, with a goal of securing 25 for the study. Care was taken to assure a balance in those invited to participate so that different areas of expertise and different sizes of science museums were given equal opportunities. The group invited to participate consisted of 21 Executive Directors of science museums, 20 Public Relations/Marketing Directors, seven consultants who specialize in science museums, and two administrators with the Association of Science-Technology Centers (ASTC).

Selection of potential panelists also took into account the three categories of ASTC membership (Full, Associate and For-Profit). Full Members are larger, well-established science museums that offer extensive exhibitions, demonstrations, and educational programs to further the public understanding of science and technology (ASTC, 1993a). Associate Members are non-profit museums concerned with the public understanding

of science and technology. For-Profit Members are corporations, associations, private firms, government agencies and other organizations that demonstrate a strong interest in and support the purposes of ASTC. Of the 50 persons initially invited to become panelists in this study, 23 represented "Full Member" ASTC institutions, 18 represented "Associate Member" ASTC institutions, seven represented "For-Profit" Member ASTC organizations and two represented ASTC itself.

The 50 potential participants were contacted through a cover letter explaining the Delphi Technique and the study's research questions. The cover letter was accompanied by a copy of a letter from Bonnie VanDorn, executive director of ASTC, endorsing the study and encouraging those invited to participate. A stamped, self-addressed, return envelope and a number for faxing responses was included to encourage a better response rate from those solicited. Copies of the introductory cover letter and the ASTC endorsement letter are provided in Appendices B and C.

Of those invited to participate, 38 responded that they intended to join the panel. Of the 38, 28 completed Round I and advanced to Round II. The Round I cover letter, follow-up letter and survey instrument are provided in Appendices D, E and F. The panel's verbatim responses to Round I are provided in Appendix M. All 28 of the respondents from Round I also completed Round II and advanced to Round III. The Round II cover letter, follow-up letter and survey instrument are provided in Appendices G, H and I. The panel's responses to Round II are listed in Appendix N. Of the 28 participants, 27 completed Round III, the final phase of the study. The Round III cover letter, follow-up letter and survey instrument are provided in Appendices J, K and L. The panel's verbatim responses to Round III are

provided in Appendix O .While biographical information on the panelists who completed Round III is provided in Appendix A, a listing of these individuals, their title/position and the institution for which they work is as follows:

- Barbara Ando, director of public programs, Lawrence Hall of Science, University of California, Berkeley;
- Dr. Dan Appleman, director, Cranbrook Institute of Science, Bloomfield Hills, Michigan;
- Elizabeth W. Bleiberg, executive vice president of TI Founders IMAX® Theater, The Science Place, Dallas, Texas;
- Carrie Lee Booth, communications coordinator, North Carolina Museum of Life and Science, Durham, North Carolina;
- Minda Borun, director of research and evaluation, The Franklin Institute Science Museum, Philadelphia, Pennsylvania;
- Terri Coppersmith, marketing manager, Liberty Science Center, Jersey City, New Jersey;
- Dr. Valerie Crane, president, Research Communications Ltd., Dedham, Massachusetts;
- Dr. Alphonse T. DeSena, president, The Science Center, Inc., Wichita, Kansas;
- Jane Eastwood, director of marketing and communications, Science Museum of Minnesota, St. Paul;
- Dr. John H. Falk, president, Science Learning, Inc., Annapolis, Maryland;
- Sheila Grinell, executive director, Arizona Science Center, Phoenix, Arizona;

- Gloria Chun Hoo, marketing manager, The Tech Museum of Innovation, San Jose, California;
- Charles H. Howarth, Jr., principal, Gyroscope, Oakland, California;
- Janet Iggulden, director of marketing and community relations, St. Louis Science Center, St. Louis, Missouri;
- Susan Rachford Imre, director of marketing, The Children's Museum, Houston, Texas;
- John W. Jacobsen, president, White Oak Associates, Inc., Marblehead, Massachusetts;
- E. Verner Johnson, president/principal, E. Verner Johnson and Associates, Inc., Boston, Massachusetts;
- Wayne R. Kyle, managing partner, Woodburn Associates, Madison, Indiana;
- Carolee Lee, assistant director for marketing, The Carnegie Science Center, Pittsburgh, Pennsylvania;
- Laurie Linhart, director of development/marketing, Science Center of Iowa, Des Moines, Iowa;
- B. G. Metzler, vice president of marketing/public relations, The Discovery Place, Charlotte, North Carolina;
- Marvin Pinkert, vice president of programs, Museum of Science and Industry, Chicago, Illinois;
- Marilyn Rippee, executive director, Omniplex Science Museum, Oklahoma City, Oklahoma;
- Dr. Robert Semper, executive associate director, The Exploratorium, San Francisco, California;

- Roy L. Shafer, principal, The Roy L. Shafer Co., and former president/CEO, Ohio's Center of Science and Industry, Columbus, Ohio;
- Bob Tarren, director of marketing and public affairs, Science Museum of Virginia, Richmond, Virginia;
- Kathy Winklhofer, public relations officer, Kansas City Museum, Kansas City, Missouri.

An initial group of 50 people were invited to participate via an introductory letter and a stamped, return envelope. A list of those who were invited, including their responses to the invitation, are included in Appendix A. Of the 50, 38 science museum professionals and consultants who specialize in providing services to science museums agreed to participate in this study. Round I questionnaires were mailed to all 38. From this group, nine of the participants officially dropped out and one person left an executive position (and could not be reached) during Round I. Each of the nine participants who dropped out did not respond to a follow-up letter or follow-up phone calls. Therefore, 28 of the original 38 completed and returned the Round I questionnaire, for a return rate of 74 percent. All 28 of the respondents from Round I also successfully completed Round II for a return rate of 100 percent. Twenty-seven out of 28 returned Round III, for a return rate of 96 percent.

### Research Instrument

This study used three rounds of questionnaires as the survey instruments for the Delphi Technique. The first and third rounds consisted of open-

ended essay questions designed to collect the widest possible variety of opinions from the panelists, while the second round invited an examination and ranking of the responses from the first round. In all rounds, panelists offered their views anonymously. Their names were not revealed to other participants, nor were their names associated directly with their responses. In this way, participants had the greatest freedom to speak their minds honestly and openly. Each individual survey was labeled to allow the researcher to keep an organized record of the returned questionnaires.

Round I asked panelists to identify the most significant obstacles that could impede the marketing efforts of U.S. science museums to increase attendance and earned income in future years. Panelists were asked to address two open-ended questions: identify the five most significant "internal" obstacles to marketing and the five most significant "external" obstacles to marketing. Panelists were encouraged to be as specific as possible in regard to the way in which each obstacle will challenge marketing efforts. In addition, they were asked to avoid ranking their responses in Round I. The Round I instrument is provided in Appendix F.

Round II asked panelists to review a comprehensive list of the marketing obstacles identified in Round I. Participants used a five-point semantic differential scale to evaluate the level of significance for each obstacle identified in both the internal and external categories. The Round II instrument is provided in Appendix I.

Round III asked panelists to provide possible solutions for the five obstacles in each category (internal and external) that the group indicated were most significant in Round II. Open-ended questions were used to encourage honest responses. The panelists were also asked to provide



biographical information in this round. The Round III instrument is provided in Appendix L.

Each questionnaire was accompanied by a personally-addressed cover letter and a stamped, self-addressed return envelope. The Round I cover letter began by thanking the person for agreeing to participate and then provided details on the purpose of Round I, instructions for completing the questionnaire, the response deadline, a brief statement concerning Rounds II and III, the promise of anonymity among respondents during the study and the addresses and phone/fax numbers of the researcher. For Rounds II and III, the cover letters again thanked the person for participating and stated the purpose of the round, the response deadline, and the addresses and phone/fax numbers of the researcher. In Round III, panelists were asked to submit a brief biography/resume to allow for proper credit. The Round III letter also advised participants that they would receive a summary of the completed study in appreciation for their participation. Sample cover letters used in Rounds I, II and III are provided in Appendixes D, G, and J.

### Research Design

For this study on the future of marketing within the U.S. science museum industry, 27 experts involved with science museums predicted the most significant internal and external obstacles to marketing, evaluated the significance of each obstacle on a comprehensive list of those obstacles and then offered possible ways in which marketing efforts could help science

museums overcome each of those obstacles with the goal of increasing public usage and earned income.

These tasks were designed and arranged sequentially to direct the panel of science museum professionals in answering the specific research questions stated in Chapter 1. Research question #1 asks the panel to propose marketing challenges that U.S. science museums will continue to encounter in future efforts to meet the needs of visitors. Answers to this question were solicited in Round I of this study. Research question #2 asks the panel to indicate the significance of each challenge for the future of science museums, a task which was performed in Round II of this study. Finally, research question #3 asked: What are some possible solutions to these challenges? This question was answered by the panel in Round III, who offered creative solutions to the most significant challenges.

Experts were selected based on their recognized expertise in the U.S. science museum field, either because of their status as mid- or upper-level management personnel at science museums, or as consultants who specialize in science museums, or as persons who have written about or researched future trends concerning science museums. "Internal" obstacles were defined as conditions originating within the organization that could impede marketing efforts (stemming from areas such as admissions, education, exhibits, fundraising, marketing, membership, public relations, any other internal source or a combination of these sources). "External" obstacles were defined as conditions originating outside the organization that could impede marketing efforts (stemming from areas such as competitors, government, federal/state/local regulations, the marketplace, societal trends, museum visitors, any other external source or a combination of

these sources). Mail questionnaires, including stamped, self-addressed envelopes and the option of a facsimile response, were used to collect the data.

In Round I, panelists were asked to identify the most significant obstacles that could impede marketing efforts of U.S. science museums to increase attendance and earned income in future years. The questions were deliberately designed to be open-ended to avoid limiting panelists' responses, thereby providing the greatest freedom in determining the course of the study. In addition, panelists were encouraged in the Round I cover letter to speak "openly and honestly" when offering observations and opinions. In order to simplify the panel's consideration of all marketing challenges, the universe of challenges was divided into two categories: internal and external. Participants were instructed to direct their vision both outward and inward in order to survey all possible factors. Panelists were advised to refrain from ranking the obstacles or offering solutions, as these would be addressed in Rounds II and III.

Responses from Round I were consolidated and paraphrased into general categories, and then compiled anonymously to create the questionnaire for Round II. Panelists reviewed a comprehensive list of all marketing obstacles identified in Round I and rated each on a five-point semantic differential scale to evaluate its level of significance to marketing science museums in the future. If participants disagreed with the listing (for instance, if they didn't consider a particular listing to be an obstacle, or if they disagreed with a given presumption or perception), they were advised to mark closer to the "Insignificant" side (rather than the "Significant" side) of the scale.

In Round III, panelists were asked to offer possible solutions for those obstacles that made the top five in both categories (internal and external), based on the number of "points" each obstacle received. It was decided that the panel should only consider the top 10 marketing challenges due to time limitations. The open-ended questions of this round, as in the first round, were designed to encourage open and honest responses from the panelists. Participants' answers were in essay form, with the participants determining the length of their responses. Panelists were also asked to provide biographical information for inclusion in the final report.

### Data Collection Plan

The introductory letters inviting 50 individuals to participate in the study were mailed on January 2, 1995. The deadline for response was January 27, 1995. The 38 positive responses received exceeded the goal of 25 panelists for the study. Round I questionnaires were mailed to the 38 respondents on February 13, 1995, with a deadline of March 3, 1995. The 13 positive responses by the deadline prompted follow-up letters which were mailed on March 7, 1995 to the 25 non-respondents. In addition, non-respondents were contacted by phone and/or fax. This garnered an additional 15 positive responses, bringing the total to 28 (which again exceeded the goal of 25 participants). Round II questionnaires were mailed to 28 respondents on April 10, 1995, with a deadline of April 21, 1995. The 22 positive responses by the deadline prompted follow-up phone calls on April 28, 1995, and follow-up letters which were faxed on May 5, 1995 to the six non-respondents. This garnered a positive response from all six

non-respondents, bringing the total to 28 (which again exceeded the goal of 25 participants). Round III questionnaires were mailed to the 28 respondents on May 25, 1995, with a deadline of June 9, 1995. The 20 positive responses by the deadline prompted follow-up telephone calls on Friday, June 16 and follow-up letters which were faxed on June 30, 1995 to the eight non-respondents. This garnered an additional seven positive responses, bringing the total to 27 participants for the study (which again exceeded the goal of 25 participants).

### Data Processing and Analysis

In Round I, the listing of predicted obstacles to marketing were reported as nominal data. The frequency of the listed obstacles in both categories (internal and external) were tabulated. A "comprehensive list" of these marketing obstacles was compiled for distribution as the Round II survey instrument. Similar responses were consolidated and reworded as necessary. No statistical test was warranted, as the Delphi Study utilizes nominal data and the number of participants is too small for this type of analysis.

Responses from Round II were tabulated as score data, with the mean and standard deviation calculated for each listing. Responses on the semantic differential scales were scored based on a system of points wherein five points was assigned for the space closest to "Significant," down to one point for the space closest to "Not Significant." Totals were tabulated to select the 10 obstacles (five in each category) to be considered in Round III.

The Round III responses were reported as nominal data. The frequency of proposed solutions to the most significant obstacles in both categories (internal and external) were tabulated. As in Round I, a "comprehensive list" of these responses was compiled, with similar responses being consolidated and reworded as necessary. As in the analysis of Round I, no statistical test was warranted.

### Summary

A panel of experts in the U.S. science museum industry was selected based on their status as either mid- or upper-level management personnel at science museums, consultants who specialize in science museums, and/or persons who have written about or researched future trends concerning science museums.

For this study on the future of marketing within the U.S. science museum industry, the panel of experts predicted the most significant internal and external challenges to marketing, evaluated the significance of each challenge on a comprehensive list, and then offered possible ways in which marketing efforts could help science museums overcome the most significant challenges with the goal of increasing public usage and earned income in future years.

## CHAPTER IV

### ANALYSIS OF DATA

#### General

Thirty-eight science museum professionals and consultants who specialize in providing services to science museums agreed to participate in this study. Round I questionnaires were mailed to all 38. From this group, nine of the participants officially dropped out and one person left an executive position (and could not be reached) during Round I. Each of the nine participants who dropped out did not respond to a follow-up letter or follow-up phone calls. Therefore, 28 of the original 38 completed and returned the Round I questionnaire, for a return rate of 74 percent. All 28 of the respondents from Round I successfully completed Round II for a return rate of 100 percent. Twenty-seven out of 28 returned Round III, for a return rate of 96 percent.

#### Round I

The Round I survey instrument provided participants with two open-ended essay questions designed to collect the widest possible variety of opinions from the panelists. Panelists were asked to identify the most significant challenges that could impede marketing efforts of U.S. science

museums to increase attendance and earned income in future years. The first question asked participants to identify the five most significant "internal" challenges to marketing. The second asked them to identify the five most significant "external" challenges to marketing. Internal and external categories were used in order for the panelists to consider all possible challenges, no matter their origin. Panelists were encouraged to be as specific as possible in regard to the way in which each obstacle will challenge marketing efforts. In addition, panelists were advised to refrain from ranking the challenges or offering solutions, as these would be addressed in Rounds II and III.

### Potential "Internal" Challenges

The 28 panelists listed 42 answers to the question concerning the most significant internal challenges that could impede the marketing efforts of U.S. science museums. Similar answers were consolidated into a comprehensive list (see Appendix I) for use in Round II. Some responses, which mentioned more than one challenge or problem, were divided among more than one category. This listing illustrates the number of panelists who mentioned each challenge, either specifically or generally. The problems are listed below in the order in which they appeared on the Round II survey instrument.

#### Internal Challenge #1. Inadequate strategic planning.

Two people said that museums have not directed sufficient attention to



the development of long-range strategic plans in order to set the priorities for marketing efforts.

Internal Challenge #2. Profit centers lack entrepreneurial authority.

Four people noted that museums do not give the individuals in charge of a profit center the authority to make entrepreneurial business choices that might increase the profitability of their area.

Internal Challenge #3. Difficult to recruit and retain professionals.

Six people mentioned that low salaries and little room for advancement results in an inability to recruit and retain top-level marketers. Hence, marketing departments in science museums have not reached their potential.

Internal Challenge #4. Failure to consider marketability in key decisions.

Nine people mentioned that programs are created based on the educational mission without clear analysis and agreement on how to shape them to meet marketing needs. One person commented: "Museums still seem to subscribe to the "we'll build it and they'll come" philosophy."

Internal Challenge #5. Marketers lack training/experience to conduct research.

Four people mentioned that, too often, science museums equate "research" with a survey administered by a staff member who has no training or experience in conducting research.

Internal Challenge #6. Lack of museum networks.

One person pointed to the lack of museum networks. Science museums insist on independently producing their own exhibits and programs, even though the results are similar to that of other science museums. This person commented: "It is foolish, for instance, for every planetarium to create its own planetarium shows, but local staff always insist that their systems are unique and their local interests special . . . Why is everyone still inventing their own wheels? Because it seems like more fun to try making a movie than it is to operate a well-run movie house."

Internal Challenge #7. Science museums not viewed as a business.

Seven participants noted that staff members with a "non-profit" perspective are reluctant to see museums as competing with for-profit businesses. "Museums, to a lesser degree science museums, have been run much like Mom & Pop businesses for decades," one commented.

Internal Challenge #8. Staff resistant to new ideas.

Five people said staff members are resistant to new ideas for attracting new audiences or broadening existing audiences. New marketing ideas are perceived as being "radical" or "inappropriate" without proper consideration.

Internal Challenge #9. Defensive public relations.

One person noted that, in an era of increased scrutiny of museums (i.e., the Smithsonian's Enola Gay exhibit), there is a tendency to spend substantial efforts on averting crises.

Internal Challenge #10. Market research has focused on visitors only.

One person mentioned that, in conducting market studies, science museums have focused their efforts solely on demographic research involving visitors. "If they fail to conduct phone bank research, they have no knowledge of the impediments for non-visitors," this person noted.

Internal Challenge #11. Science museum culture not customer-oriented.

Five people said science museums do not devote adequate resources to customer service. Too often visitors leave the facility after unpleasant experiences (unfriendliness, unfair policies, etc.). One person commented: "Much more focus must be given to customer service; making a wide diversity of audiences feel welcome from the time they enter the door."

Internal Challenge #12. Marketing department too small.

Four people noted that, because there is a very small staff (many times one person) in the marketing department, they have a limited amount of time to spend on marketing. Therefore, science museums do not have the human resources necessary to do the job as it needs to be done.

Internal Challenge #13. Failure of imagination.

One person commented that the last "big" idea in science museums was IMAX®/OMNIMAX®. This person said: "Twenty years later there is still no successor to IMAX® as a reliable market draw with changeable media. While ideas for simulators and virtual experiences abound, the museum community appears unable to focus on shared platforms for attracting new audiences."

Internal Challenge #14. Market research not a priority.

Thirteen people mentioned that science museums do not make market research a priority. "Only a few of the largest museums that I'm aware of do any significant market research," one person noted.

Internal Challenge #15. Board not committed to marketing.

Two people said governing boards don't like to market the organization or see the need to spend dollars on marketing.

Internal Challenge #16. "Top down" vs. "team oriented" management.

One person mentioned that science museums still use a hierarchical management system rather than a team approach. Museums lag behind the corporate world in employing the new team philosophies (i.e., Total Quality Management, etc.), they indicated.

Internal Challenge #17. Uninviting facilities.

Three people commented that physical facilities of science museums are uninviting. This causes potential customers to spend their disposable income at locations that have more up-to-date facilities.

Internal Challenge #18. Failure to show relevance to everyday life.

Four people felt that science museums do not offer experiences that people perceive as being relevant to their everyday lives. Lack of response to relevant issues and interests causes the audience to ask "why should I care about this?," one person noted.

Internal Challenge #19. Staff indifferent to marketing.

Four people mentioned that, in a highly diffused environment, staff members often think marketing is "not my job." Staff does not realize the impact they can have on marketing by providing positive visitor experiences, interesting programs/exhibits, etc.

Internal Challenge #20. Insufficient advertising expenditures.

Twelve people indicated that, while media sponsorships and PSAs supplement the advertising budget, science museums do not devote sufficient advertising funds to ensure good public awareness. One commented: "There is a point at which more advertising expenditures will not pay off, but many museums are a long way from spending that much money."

Internal Challenge #21. Discord over sponsor/museum relationship.

One person noted that development, marketing and program staff have competing priorities in regard to sponsors. Departments cannot agree on type and level of sponsor acknowledgment within exhibit setting, in advertising, etc.

Internal Challenge #22. Stagnant exhibits.

Ten people mentioned the absence of an integrated and dynamic exhibit philosophy has allowed for some stagnation in exhibitry. Exhibits are out-of-date or simply ineffective, hence marketing has a problem convincing the public that they need to visit more often. "An obstacle will be old

exhibits . . . that fail to kindle the imagination of people already jaded with access to a multitude of new images," one person noted.

Internal Challenge #23. Lack of commitment to underserved audiences.

Nine people noted that science museums have developed "quick fix" programs to attract underserved audiences (minorities, lower socio-economic groups). Lack of attention to cultural diversity results in efforts that are inappropriate and unappealing to large segments of the potential audience.

Internal Challenge #24. Resistance to providing "entertainment" value.

Two people said museum staff members are resistant to providing experiences that are high enough on the "entertainment scale" to be appealing to large segments of the population.

Internal Challenge #25. Marketers unreceptive to staff's ideas.

One person mentioned that marketers often choose to "go it alone," which communicates to other staff members that their ideas are not welcome. By failing to consider their opinions, marketers lose valuable free input for marketing ideas.

Internal Challenge #26. Board not committed to museum.

Two people noted that board commitment is low as fewer people have the time to make a multi-year commitment and meetings are sparsely attended. This causes an increased burden on the staff to "fill in the gaps" and diminishes their ability to concentrate on marketing.

Internal Challenge #27. Programs lack originality and/or quality.

Six people said programs lack originality and/or quality sufficient to keep audiences interested. Science museums do not update their programs often enough to maintain their marketability.

Internal Challenge #28. Failure to consider mission in key decisions.

Eleven people mentioned that programs are created based on marketing needs without clear analysis and agreement on how to shape them to meet the educational mission. One person commented: "Is the program driving the message consistent with the institutional mission or is all done just to bring in people regardless of its educational message?"

Internal Challenge #29. Marketing not a budgetary priority.

Twenty people said that marketing is not a budgetary priority. One person noted: "Departmental territories and budgets are typically well-established and each is allocated resources from the overall revenue pool according to tradition (last year's budget), appropriateness (it would be unseemly for the marketing department to spend more money than the education department) and by planned activities."

Internal Challenge #30. Staff unaware of marketing principles.

Three people indicated that program staff are generally the ones who make product decisions . . . "however, they lack understanding of basic principles that might help them make decisions."

Internal Challenge #31. Elitist approach to visitor experience.

One person said science museums tend to speak over-the-heads and beyond-the-interest of the mass audience. Programs and exhibits do not reflect the public's interest and do not use language that is inclusive of a wide audience.

Internal Challenge #32. Marketers don't know science.

One person noted that marketers don't take time to learn the science behind the exhibits and the programs they sell. Because marketers don't know science, they don't look for the science angle and cannot effectively market science-based exhibits and programs.

Internal Challenge #33. Insufficient computer software/hardware for market research.

One person said science museums lack up-to-date computer systems necessary to track audiences, survey museum visitors, analyze demographics and provide critical data for making marketing decisions.

Internal Challenge #34. Too many products to promote.

Four people said that, despite a limited marketing budget, staff continues to create more events and programs. One person noted: "Most museums no longer view themselves as a single product . . . but rather as a collection of products -- large format theaters, stores, restaurants, classes, seminars, evening events, camp-ins, laser light shows and so on. Each product brings its own marketing challenges, fragmenting the resources - both financial and human - of the marketing department."



Internal Challenge #35. Inability to prove educational benefits.

Two people mentioned that science museums are unable to clearly and succinctly articulate to the public the educational benefits of a museum experience. This inability to document the nature and extent of learning in science museums has resulted in a museum field unable to fully market its exhibits and programs.

Internal Challenge #36. School visitation vs. general visitation.

One person commented that science museums are so crowded with school groups that general visitors complain about a poor visitor experience. This makes it difficult to market a "fun day at the museum" to the general visitor.

Internal Challenge #37. Marketing as part of development.

Two people mentioned this. One noted that "many mid-sized museums combine marketing and development in a single department. The chief fundraiser frequently lacks the experience and training to run a first-class marketing program."

Internal Challenge #38. Board reluctant to apply business expertise.

One person said that trustees often leave their business sense in their desk drawers when they come to a board meeting, believing that the economics of science museums are different from those of their own businesses.

Internal Challenge #39. Lack of communication.

Two people mentioned that ineffective communications within all departments impedes marketing efforts. Science museums lack defined communication paths for all staff members to keep the marketing division informed of upcoming exhibits, events and programs.

Internal Challenge #40. Failure to apply results of market research.

Two people noted that, after science museums conduct market research, they often fail to apply the lessons that could be gleaned from the information that has been gathered.

Internal Challenge #41. Increasing cost of educational programming.

One person mentioned the cost of some educational programming is far more than what science museums can expect their customers to pay. When programs that aren't cost-effective are eliminated, this disappoints the customer because the museum is unable to meet their needs.

Internal Challenge #42. Marketers lack experience "in the trenches."

One person said cross training is important for marketers so that they appreciate the strains success (and failure) make on the admissions staff. This person commented: "Marketing staff should know how to ring in the discounts for the coupons they issue, should have to explain to irate customers the policies they write, and should, in general, exult in the success and writhe in the failure of marketing as it affects the 'trenches'."

## Potential "External" Challenges

The 28 panelists listed 36 answers to the question concerning the most significant external challenges that could impede the marketing efforts of U.S. science museums. Similar answers were consolidated into a comprehensive list (see Appendix I) for use in Round II. Some responses, which mentioned more than one challenge or problem, were divided among more than one category. This listing illustrates the number of panelists who mentioned each challenge, either specifically or generally. The problems are listed below in the order in which they appeared on the Round II survey instrument.

### External Challenge #1. Staying close to home.

Twelve people said the advent of multimedia home entertainment (home computers, the information superhighway, cable TV, video rentals and home theaters) has caused a "cocooning" effect, in which families stay home to avoid the expense and inconvenience of going out.

### External Challenge #2. Negative attitudes toward technology.

Three people mentioned that science and technology are increasingly being seen as hazards to our future rather than sources of salvation. The public feels a high level of ambivalence about "progress" in science and technology. One person commented: "We can no longer assume that such trends as the excitement of the space program or the introduction of the personal computer will stimulate the interest and curiosity of the audience we have been attracting."

External Challenge #3. Proliferation of large-format theaters.

Two people noted that, in the 1990's, the number of large format theaters will continue to grow. The typical radius between theaters will decline significantly, with some cities having two or three large format screens competing for a diminished audience, one person wrote.

External Challenge #4. Retailers adopt "museum store" concept.

Two people said new retail stores in shopping malls offer the aura of being in a museum store and products that are similar to those available in museum stores. Competition from these stores has strained the ability of museum stores to attract consumers.

External Challenge #5. UBIT and other regulatory threats.

Two people noted that science museums, in attempting to compete with the "for-profit" sector, endanger their ability to maintain a not-for-profit status and avoid the federal UBIT (unrelated business income tax) and other regulatory threats.

External Challenge #6. Controversial topics/bad publicity.

Four people mentioned that controversial exhibit topics such as AIDS and teen pregnancy and bad publicity over the Enola Gay exhibit at the Smithsonian have generated a public backlash against the museum community.

External Challenge #7. Struggle to keep pace with technology.

Five people mentioned that video arcades, virtual reality, the Internet, digitized cameras and other emerging technologies are redefining what people expect from museums. Rapid technological advances and heightened visitor expectations will make "state of the art" exhibits obsolete in a short amount of time. One person commented: "Are museums yesterday's news, a worn-out technology that no one needs any longer? How do we fight that perception in the MTV era where much of the public has an attention span measured in milliseconds?"

External Challenge #8. Admission perceived as expensive.

Six people noted that consumers perceive admission fees as "too expensive" and/or feel that the science museum experience does not match their perceptions of a "good value." One person said, "The perceived value of the experience is a function of the ratio of perceived 'benefits' to perceived 'costs.' For many museum visitors, the ratio is perilously close to one, and the prospect is that cost may soon exceed benefits for all but the most dedicated."

External Challenge #9. Media not as interested in "good news."

Three people said that, aside from new program openings, science museums are seldom a source of "hot" news. As a result, the media does not give science museums coverage relative to their popularity and economic impact.

External Challenge #10. School needs vs. public needs.

One person noted that pressure from the schools to be responsive to their curricular needs is given priority, while the public's needs are overlooked or not addressed with the same emphasis.

External Challenge #11. Adverse political environment.

Ten people mentioned that, as governmental (federal, state, local) budgets are tightened, fewer arts and cultural attractions are afforded underwriting from government sources. This directly affects program availability, which in turn affects audience participation.

External Challenge #12. Competition from theme/amusement parks.

Seven people noted that for-profit amusement parks are aggressive and well-funded competitors in the tourism market. Science museums and their "educational" pull will have increasing difficulty competing against amusement parks that are promoting "fun and excitement." One person noted: "We are in a serious identity conflict trying to define just who we are."

External Challenge #13. Urban surroundings inaccessible and/or dangerous.

Four people said science museums in urban locations are perceived by suburban audiences as being inaccessible or dangerous to visit. Suburbanites are less willing to drive into the city and face inconveniences and risks.

External Challenge #14. Lack of support from chamber of commerce/tourism department.

One person noted that chambers of commerce and state tourism departments do not provide adequate promotional support for the science museums in their area.

External Challenge #15. Science museums are "just for kids."

One person mentioned the public perception that science museums are only for children or those with children. This keeps many adults - from high school students to senior citizens - from attending.

External Challenge #16. Educational reform.

One person said the "educational reform" movement that equates hours in the classroom with academic effort and equates scores on standardized tests with education is ultimately unfriendly to science museums.

External Challenge #17. Significant growth in minority audiences.

Ten people noted that minority groups do not have a strong, family-based "museum-going" tradition and have not been easy groups for museums to attract. Science museums face increasing under-utilization by this growing sector of the American public. One person commented: "Leisure patterns are strongly influenced by early childhood experiences. Unless children in underserved populations start visiting museums as part of family groups today, they will not bring their children to the museum in the future."

External Challenge #18. Lack of outside expertise.

One person mentioned that science museums lack sources of information outside the industry that have a perspective on the field and the business savvy necessary to help science museums broaden their appeal.

External Challenge #19. Lack of partnerships within the community.

One person said that marketers do not take full advantage of opportunities for cooperation and partnership -- with other attractions, with schools, with marketing partners. These partnerships engender a sense of ownership in the community and help to counteract funding shortages.

External Challenge #20. Commercial establishments offer education.

Thirteen people mentioned that commercial establishments have increasingly incorporated educational components to add value to entertainment-oriented attractions and the retail environment. One person said, "The lines between what a science museum does, and what a for-profit 'edutainment' organization (such as Disney) does, continues to blur . . . The boundaries are blurring because of efforts on the part of corporate America to cash-in on what they perceive to be a successful and lucrative way to capture leisure dollars. In a head-to-head battle, science museums are likely to come out the losers."

External Challenge #21. Decline in the number of families.

Three people noted that science museums draw heavily from young families, which are declining as a percent of the population. While there is



a baby boomlet allegedly underway, the absence of families could impact attendance, one person wrote.

External Challenge #22. Decreasing support from corporations.

Five people said that, more and more, non-profits rely on corporate dollars to balance their budgets. This places a strain on the corporate community and eventually leads to reduced funding for marketing initiatives.

External Challenge #23. In-the-home interactive programs.

One person noted that multi-media computers and CD ROM offer a variety of entertaining and educational programs that could be perceived by the public as a replacement for the interactive experience available in science museums.

External Challenge #24. Public does not know what "science museums" are.

Three people mentioned that the public is only dimly aware of the distinctions among different kinds of museums. Historic houses, art museums, children's museums, science museums, history museums and other institutions all blend together in their minds.

External Challenge #25. Extended working hours.

Three people said that, with the down-sizing of corporations and increased workloads, parents as well as adults without children are working

longer hours. This means less time to frequent cultural attractions such as museums.

External Challenge #26. Inadequate access to facilities.

Two people noted that the lack of public transportation, unimproved roads and lack of parking all keep people from being able to reach the museum.

External Challenge #27. Public does not understand educational benefits.

Four people mentioned that the general public does not clearly understand the educational benefits of a museum experience (what, if anything, they learn from the experience and, thus, what is the value of the experience).

External Challenge #28. Negative connotations of term "museum."

Two people mentioned that science centers inevitably fall into the "museum" category of leisure activities. "Museums" are regarded as stuffy and tiring places that appeal only to the elite and well-educated, they said. One person noted: "Compared to other leisure options such as sports activities, amusement or theme parks, the category of museums into which science centers inevitably fall contains many negative connotations."

External Challenge #29. Budget cuts in education.

Two people said that public education funding continues to be cut back severely. Schools are unable to take advantage of field trips due to the cost of bus transportation, museum fees, etc.

External Challenge #30. Society's lack of emphasis on the need for science education.

One person noted that society as a whole does not emphasize and support the need to develop tomorrow's generation of scientists to fill the void in an increasingly technological age.

External Challenge #31. Market saturation.

Two people said that science museums have a limited population base from which to draw visitors. Saturation of the available market has led to stagnant growth and an inability to increase attendance.

External Challenge #32. Competition from other museums.

Four people noted a proliferation of museums competing for public attendance, combined with more museums getting into the "education" business, have created greater competition for science museums.

External Challenge #33. The graying of America.

One person said that, because the population of senior citizens has been growing steadily for the past two decades and because senior citizens do not tend to visit science museums, this segment's growth relative to other segments poses a serious threat to attendance.

External Challenge #34. Commercial influence.

One person said, with corporate sponsors expecting more in return for the dollars they invest in museums, science museums are damaging the public's sense that they are neutral and objective sources of information.

This person commented: "Most corporate sponsors expect more in return for the dollars they invest in museums. True philanthropy is dying. Can we promote them and ourselves at the same time?"

External Challenge #35. Growth in the number of science museums.

Four people pointed to the significant growth in the number of science museums in recent years. This has reduced their unique attractiveness and reduced the size of the market for each facility.

External Challenge #36. Cities/promoters enter the exhibition business.

One person said that, in light of the popularity of blockbuster exhibits, city governments and private promoters have launched their own exhibitions in an effort to revive downtowns, increase tourism and make profits.

## Round II

Round II asked the 28 panelists to rate a comprehensive list of the marketing challenges identified in Round I by means of a semantic differential scale. All of the panelists completed the Round II questionnaire. For each challenge or problem, panelists checked one of five blanks between bipolar adjectives of "insignificant" and "significant." Panelists were instructed to mark closer to "insignificant" if they did not consider a particular challenge to be a problem or if they disagreed with a particular assumption or perception.

For statistical purposes, the blank closest to "significant" was scored a five, with the others scored in descending order down to one for the blank closest to "Insignificant."

### Rankings of Potential "Internal" Challenges

Table I lists the internal problems (as identified in Round I) in descending order from "significant" (5.00) to "insignificant" (1.00). In cases where the means of two or more problems are the same, the obstacle with the lowest standard deviation is listed first.

TABLE I  
RATINGS OF SIGNIFICANCE  
OF INTERNAL CHALLENGES  
TO MARKETING SCIENCE MUSEUMS

Challenge	Mean	SD
<u>IC #22.</u> Stagnant exhibits.	4.393	0.956
<u>IC #20.</u> Insufficient advertising expenditures.	4.357	0.78
<u>IC #1.</u> Inadequate strategic planning.	4.214	0.995
<u>IC #10.</u> Market research has focused on visitors only.	4.214	1.101
<u>IC #14.</u> Market research not a priority.	4.107	0.737
<u>IC #12.</u> Marketing department too small.	4.071	1.12

TABLE I (Continued)

Challenge	Mean	SD
<u>IC #29</u> . Marketing not a budgetary priority.	3.964	1.071
<u>IC #7</u> . Science museums not viewed as a business.	3.964	1.105
<u>IC #4</u> . Failure to consider marketability in key decisions.	3.964	1.17
<u>IC #19</u> . Staff indifferent to marketing.	3.929	0.94
<u>IC #13</u> . Failure of imagination.	3.929	0.979
<u>IC #39</u> . Lack of communication.	3.821	0.945
<u>IC #40</u> . Failure to apply results of market research.	3.786	0.995
<u>IC #5</u> . Marketers lack training/experience to conduct research.	3.786	1.101
<u>IC #27</u> . Programs lack originality and/or quality.	3.75	1.076
<u>IC #11</u> . Science museum culture not customer-oriented.	3.714	1.213
<u>IC #15</u> . Board not committed to marketing.	3.679	0.983
<u>IC #30</u> . Staff unaware of marketing principles.	3.643	1.162
<u>IC #42</u> . No experience "in the trenches."	3.607	1.066

TABLE I (Continued)

Challenge	Mean	SD
<u>IC #3.</u> Difficult to recruit and retain professionals.	3.607	1.286
<u>IC #8.</u> Staff resistant to new ideas.	3.5	1.139
<u>IC #34.</u> Too many products to promote.	3.5	1.262
<u>IC #24.</u> Resistance to providing "entertainment" value.	3.464	1.232
<u>IC #18.</u> Failure to show relevance to everyday life.	3.429	1.26
<u>IC #23.</u> Lack of commitment to underserved audiences.	3.429	1.26
<u>IC #2.</u> Profit centers lack entrepreneurial authority.	3.393	1.133
<u>IC #33.</u> Insufficient computer software/hardware for market research.	3.357	1.471
<u>IC #41.</u> Increasing cost of educational programming.	3.321	1.02
<u>IC #21.</u> Discord over sponsor/museum relationship.	3.321	1.09
<u>IC #6.</u> Lack of museum networks.	3.321	1.156
<u>IC #31.</u> Elitist approach to visitor experience.	3.321	1.278

TABLE I (Continued)

Challenge	Mean	SD
<u>IC #37</u> . Marketing as part of development.	3.286	1.182
<u>IC #16</u> . "Top down" vs. "team oriented" management.	3.286	1.329
<u>IC #28</u> . Failure to consider mission in key decisions.	3.25	1.266
<u>IC #17</u> . Uninviting facilities.	3.179	1.188
<u>IC #36</u> . School visitation vs. general visitation.	3.179	1.335
<u>IC #35</u> . Inability to prove educational benefits.	3.179	1.389
<u>IC #25</u> . Marketers unreceptive to staff's ideas.	3.107	1.343
<u>IC #38</u> . Board reluctant to apply business expertise.	2.964	1.201
<u>IC #32</u> . Marketers don't know science.	2.857	1.268
<u>IC #9</u> . Defensive public relations.	2.714	1.182
<u>IC #26</u> . Board not committed to museum.	2.679	1.467



Rankings of Potential "External" Challenges

Table II lists the external challenges (as identified in Round I) in descending order from "significant" (5.00) to "insignificant" (1.00). In cases where the means of two or more problems are the same, the challenge with the lowest standard deviation is listed first.

TABLE II  
RATINGS OF SIGNIFICANCE  
OF EXTERNAL CHALLENGES  
TO MARKETING SCIENCE MUSEUMS

Challenge	Mean	SD
<u>EC #7.</u> Struggle to keep pace with technology.	4.321	0.772
<u>EC #15.</u> Science museums are "just for kids."	4.286	0.854
<u>EC #29.</u> Budget cuts in education.	4.071	0.858
<u>EC #8.</u> Admission perceived as expensive.	4.036	1.105
<u>EC #13.</u> Urban surroundings inaccessible and/or dangerous.	4.000	1.089
<u>EC #25.</u> Extended working hours.	3.964	0.962
<u>EC #11.</u> Adverse political environment.	3.929	1.052
<u>EC #17.</u> Significant growth in minority audiences.	3.893	1.1

TABLE II (Continued)

Challenge	Mean	SD
<u>EC #22.</u> Decreasing support from corporations.	3.821	1.124
<u>EC #12.</u> Competition from theme/amusement parks.	3.714	1.213
<u>EC #30.</u> Society's lack of emphasis on the need for science education.	3.643	1.062
<u>EC #26.</u> Inadequate access to facilities.	3.643	1.193
<u>EC #28.</u> Negative connotations of term "museum."	3.571	1.069
<u>EC #20.</u> Commercial establishments offer education.	3.571	1.26
<u>EC #1.</u> Staying close to home.	3.536	1.071
<u>EC #4.</u> Retailers adopt "museum store" concept.	3.464	1.071
<u>EC #24.</u> Public does not know what "science museums" are.	3.464	1.319
<u>EC #18.</u> Lack of outside expertise.	3.393	1.315
<u>EC #14.</u> Lack of support from chamber of commerce/tourism department.	3.357	1.193
<u>EC #19.</u> Lack of partnerships within the community.	3.286	1.213
<u>EC #32.</u> Competition from other museums.	3.25	1.076

TABLE II (Continued)

Challenge	Mean	SD
<u>EC #3.</u> Proliferation of large-format theaters.	3.214	1.315
<u>EC #33.</u> The graying of America.	3.179	1.02
<u>EC #27.</u> Public does not understand educational benefits.	3.179	1.056
<u>EC #9.</u> Media not as interested in "good news."	3.179	1.156
<u>EC #36.</u> Cities/promoters enter the exhibition business.	3.179	1.156
<u>EC #10.</u> School needs vs. public needs.	3.143	1.208
<u>EC #31.</u> Market saturation.	3.071	1.016
<u>EC #21.</u> Decline in the number of families.	3.036	1.261
<u>EC #23.</u> In-the-home interactive programs.	2.964	1.036
<u>EC #34.</u> Commercial influence.	2.929	1.152
<u>EC #2.</u> Negative attitudes toward technology.	2.607	1.197
<u>EC #5.</u> UBIT, other regulatory threats.	2.571	1.103
<u>EC #35.</u> Growth in the number of science museums.	2.571	1.26
<u>EC #16.</u> Educational reform.	2.393	1.286

TABLE II (Continued)

Challenge	Mean	SD
<u>EC #6.</u> Controversial topics/bad publicity.	2.321	1.249

### Round III

In Round III, panelists were asked to offer possible solutions for those challenges that made the top five in both categories (internal and external), based on the number of "points" each challenge received on the semantic differential scales in Round II.

The challenges to marketing were scored based on five points for the blank nearest "significant" on the scale, down to one point for the blank nearest "insignificant." Points from all Round II surveys were tallied to arrive at the total score for each challenge. For example, a challenge that received seven marks in the blank nearest "significant" (for five points each) and four marks in the middle blank (for three points each) would have a total score of 47 points.

The five challenges to marketing that received the highest score in each category (internal and external) were considered by the panel in Round III. After the means were calculated in Round II for both internal and external categories, the difference between the means for challenges #5 and #6 in each category was found to be only 0.036. Challenges one through five were selected for consideration in Round III due primarily to time

limitations. Proposing solutions to 10 marketing challenges represented a substantial time commitment for the participants and the researcher.

The 10 challenges to marketing considered in Round III are:

### Most Significant Internal Challenges

(1.) **Stagnant exhibits.** Lack of development of an integrated and dynamic exhibit philosophy has allowed for some stagnation in exhibitry. Exhibits are out-of-date or simply ineffective, hence marketing has a problem convincing the public that they need to visit more often.

(2.) **Insufficient advertising expenditures.** While media sponsorships and PSAs supplement the advertising budget, science museums do not devote sufficient advertising funds to ensure good public awareness.

(3.) **Inadequate strategic planning.** Museums have not directed sufficient attention to the development of long-range strategic plans to set the priorities for marketing efforts.

(4.) **Market research has focused on visitors only.** In conducting market studies, science museums have focused their efforts solely on demographic research involving visitors. Marketers have no knowledge of why non-visitors do not choose their facility over other options.

(5.) **Market research not a priority.** Science museums do not make market research a priority.

### Most Significant External Challenges

(1.) **Struggle to keep pace with technology.** Video arcades, virtual reality, the Internet, digitized cameras and other emerging technologies are redefining what people expect from museums. Rapid technological advances and heightened visitor expectations will make "state of the art" exhibits obsolete in a short amount of time.

(2.) **Science museums are "just for kids."** The public perception is that science museums are only for children or those with children. This keeps many adults - from high school students to senior citizens - from attending.

(3.) **Budget cuts in education.** Public education funding continues to be cut back severely. Schools are unable to take advantage of field trips due to the cost of bus transportation, museum fees, etc.

(4.) **Admission perceived as expensive.** Consumers perceive admission fees as "too expensive" and/or feel that the science museum experience does not match their perceptions of a "good value."

(5.) **Urban surroundings inaccessible and/or dangerous.** Science museums in urban locations are perceived by suburban audiences as being inaccessible or dangerous to visit. Suburbanites are less willing to drive into the city and face inconvenience/risks.

## Solutions to the Challenges

Panelists offered solutions to the 10 "most significant" challenges that could impede science museums' marketing efforts to increase attendance and earned income in future years. Participants determined the length of their responses. Abbreviated versions are listed here, with verbatim responses provided in Appendix O.

### Internal Challenge #1: Stagnant exhibits.

Lack of development of an integrated and dynamic exhibit philosophy has allowed for some stagnation in exhibitry. Exhibits are out-of-date or simply ineffective, hence marketing has a problem convincing the public that they need to visit more often.

Solution #1. Give marketing a seat at the table. Integrate the enterprise, exhibition and education strategies into the exhibit/program development process so that factors such as audience research, surveys and concerns by marketing are considered in shaping future exhibits and exhibit programming.

Ten people mentioned the need to consider marketing research and concerns when developing exhibits and programs. One person noted, "'Build it and they will come' is well-recognized to be fallacious - that which is built must be understandable, dynamic, creative and engaging to today's audiences and likewise, must compete with other leisure-time attractions."

Solution #2. Initiate a program of rotating traveling exhibits to keep exhibitry fresh for visitors and to encourage repeat visits.

Three people cited this.

Solution #3. Develop a consortium of museums to share the expense of conceptualizing, researching, testing and building new exhibits which could then travel to member museums.

Five people said that museums should create a new system to share permanent exhibits, although one noted that "this could reduce creative input from in-house staff."

Solution #4. Link permanent exhibits with current events (such as solar eclipses) or cultural events (such as movies) to encourage greater public interest.

Three people suggested that museums should plan low-cost events, as warranted by public interest.

Solution #5. Select and develop exhibit topics that have a unique appeal or personal relevance for the local audience.

Eight people recommended that museums create exhibits that are relevant to visitors' lives.

Solution #6. Train staff/volunteers to increase interactive programming in the interest of engaging visitors in discussions and encouraging greater interest in permanent exhibits.



Seven people proposed this. "Rotate events, supplementary programs, and media to reinterpret content in a new light for a different audience segment. Plan for a 10% change in context annually," one person said.

Solution #7. Collaborate with outside professionals (designers, educators, manufacturers, theatrical presenters, scientists, engineers and fabricators) to bring fresh ideas and perspectives to the development of permanent exhibits.

Three people advised museums to collaborate with as many outside voices as possible. One person noted, "Closer links must be forged between active scientists and engineers and exhibit development, so that the public sees the museum as a place where the most exciting current science is entertainingly portrayed and explained."

Solution #8. Rethink permanent exhibits as open-ended resources with multiple outcomes (that allow visitors to explore phenomenon) rather than as "one-time experience" exhibits.

Four people cited this vision of permanent exhibits. One person advised that exhibits "need to be more like participating in sports - same game, but always new and challenging."

Solution #9. Shift funding of permanent exhibits from a capital consideration to operating budget. Reduce operating costs and revise budget to provide additional funds annually to develop new exhibits and to refurbish old exhibits.

Seven people mentioned this. "In order to free earned and invested resources to recapitalize the essential exhibition bases of these institutions, they must cut/reduce their operating costs significantly; perhaps by 1/3," one person said. "Most of these operating costs are "inertial" anyway and add little real value to the visitors' experiences."

Solution #10. Create an exhibit master plan (perhaps with assistance from professional exhibit design consultants) that would provide organizing principles for exhibit design and an implementation schedule for the exhibit program.

Seven people suggested that museums should engage in a long-term planning process for exhibit development and renewal with participation from all parts of the museum.

Solution #11. Develop a new model for museums with a built-in infrastructure to facilitate program change economically. This model would require that museum galleries be designed with considerably more built-in support systems such as that which exists in theaters to allow for frequent changes in exhibitry.

Three people recommended this. "The process of developing exhibits reflects the old goal of permanence, and the whole system needs to be rethought to facilitate change," one noted.

Solution #12. Display icons to help visitors identify "themed" exhibit areas so that the museum will be more memorable.

One person said this.

Solution #13. Install multi-venue programming such as an IMAX theater or other emerging technologies which utilize frequently-changing programs designed to attract new audiences.

One person suggested this.

Solution #14. Develop new interactive techniques for presenting scientific principles in permanent exhibits.

One person mentioned this.

Internal Challenge #2: Insufficient advertising expenditures.

While media sponsorships and PSAs supplement the advertising budget, science museums do not devote sufficient advertising funds to ensure good public awareness.

Solution #1. Track effectiveness of advertising and seek support from museum management to increase advertising expenditures.

Nine people mentioned that marketing professionals should provide management with evidence of the benefits of advertising in order to justify additional funding.

Solution #2. Arrange with corporations and media organizations to trade museum services (memberships, evening rentals, etc.) and promotional opportunities for advertising support.

Twelve people said that exchanging museum services and providing companies with an opportunity to promote their community involvement offers a win-win situation for both parties. "Sponsorship marketing is becoming the best way to stretch dollars," one wrote. "Teaming with

companies who would not give outright donations but are interested in sponsoring events or exhibits at the museum is a great way to get some 'free advertising.'"

Solution #3. Create a consortium of museums to share the expense of researching advertising's effect on attendance in order to establish industry standards for member museums.

Two people suggested that museums join forces on this issue. "I would like to see the development of industry standards and measurements that show how paid advertising affects attendance and revenue trends," one person said.

Solution #4. Concentrate advertising resources on marketing a finite number of programs which have a track record as successful advertising investments (IMAX® films, blockbuster exhibitions, etc.)

Two people recommended this. "One solution is to concentrate limited advertising resources to the promotion of a finite number of programs and recognize that other programs will have to depend on capturing visitors who are already at the museum," one person said.

Solution #5. Solicit the services of advertising agencies (pro bono, trade and/or paid) to assist the museum's marketing staff in creating advertising and placing advertising within the media.

Five people proposed this. One person commented, "This will: (1.) Save money and resources -- to be allocated to media space and time;

(2.) Get the best possible creative execution."

Solution #6. Offset lack of advertising with additional media exposure. Create newsworthy events or link museum's offerings to current/cultural events in the news.

Two people said this.

Solution #7. Appoint a board-level marketing committee to seek underwriting for advertising and promote the museum.

One person submitted that museums should create a new committee of the board of trustees to spearhead the search for advertising opportunities.

Solution #8. Extend advertising budget by joining with other cultural and/or civic organizations to sponsor promotional projects and increase advertising opportunities.

Three people said this. "In many cities, science museums are located in close proximity to other museums or entertainment venues," one person noted. "Teaming with these institutions and producing joint advertising is another way to stretch ad dollars."

Solution #9. Create an annual marketing plan to identify opportunities, outline strategies, manage expenditures and provide a basis for advertising and other initiatives.

Five people said an annual marketing plan is required for implementing an effective advertising program.

Solution #10. Allocate funds for advertising when developing budgets for new exhibits and programs.

Two people stated that museum personnel frequently overlook advertising expenditures when preparing budgets. "Many times this is left out and then the staff wonders why no one showed up for their event!," one person said.

Solution #11. Identify (and make sacrosanct) a percentage of annual earned revenue to be used for advertising expenditures.

Four people recommended that museums earmark a specific percentage of revenue to be used for advertising.

Solution #12. Reduce operational expenses and/or staff to increase funds available for advertising and marketing.

One person suggested that "while staff costs and ad budgets may not seem linked at first glance, keeping staff numbers low is the most important part of making sure that there are sufficient dollars left for advertising."

Solution #13. Shift advertising expenditures to less-expensive, non-traditional media that possess a defined readership and appeal to key target markets.

One person said this.

Solution #14. Strengthen initiatives in public relations to replace image advertising in the interest of creating a more receptive audience and minimizing expenditures required to promote involvement.

Two people said that a museum advertising budget should be used to complement a primary public relations effort.

### Internal Challenge #3: Inadequate strategic planning.

Museums have not directed sufficient attention to the development of long-range strategic plans to set the priorities for marketing efforts.

Solution #1. Establish a committee with representatives from each museum department and board representatives to work on developing a long-range plan for marketing, exhibits, programs and other areas.

Six people said that representatives from all departments and the board of trustees should come together to formulate a long-range strategic plan. "In order to position themselves for the 21st century, science museums must make strategic planning a priority," one person said. "A 'visioning' process is critical to developing long term strategic goals and objectives."

Solution #2. Solicit the services of consulting firms (pro bono, trade and/or paid) to assist the museum's marketing staff in auditing strategies and in developing a long-range strategic plan.

Thirteen people said this. "One option is the intervention of an outside consultant," one person wrote. "Several former CEOs of successful museums have recently entered the private consulting sector. Bringing in such an individual or even a marketing consulting agency to do an audit of marketing strategy may provide the fodder for a dialogue about the broader question of long-range strategic plans."

Solution #3. Seek support from museum management to initiate long-range strategic planning process.

Four people noted that upper management must initiate the strategic

planning process. "While some marketing directors may have the clout to convince their CEO and boards to engage in long-range strategic planning, most often this comes from the CEO," one person said.

Solution #4. Host a retreat or provide an out-of-office workday for senior management to develop goals for a long-range strategic marketing plan.

Two people recommended that upper management should be given the time to develop strategic plans.

Solution #5. Conduct demographic and psychographic research to reassess assumptions and understandings of the market and develop goals that could be included in a long-range plan.

Three people said that museums must base strategic planning on thorough research and analysis of the opportunities, strengths, weaknesses and challenges faced by the institution.

Solution #6. Ask board members or corporate leaders to loan their strategic planning personnel to the museum and guide the museum's staff through developing a long-range plan.

Four people said that board members and area industries can offer assistance in this area to museums.

Solution #7. Visit with museum professionals in other markets to research how they develop their long-range marketing plan and ask them to share a copy of their plan with your museum.



Two people suggested that museum professionals could learn from the experience of others in the field. "Organizations will not necessarily share their plans with you (however, if they're in a different market, they may), but you can at least get an idea of how they do their planning, who is involved in developing the plan, and how often they update their plans," one person said.

Solution #8. Bring in new, visionary leaders who will develop new paradigms for museums, motivate staff and create strategic plans that include marketing efforts.

One person submitted that museums "need to bring in new blood, new leadership and creative, visionary leaders who will provide breakthrough new thinking and see museums in a new context, playing new roles in their communities, providing increased benefit and value to their local/regional communities."

Solution #9. Integrate marketing staff in planning of future exhibits and events to consider marketability as a criteria for the potential success of programming and exhibitions.

One person mentioned this.

Solution #10. Develop annual budgets based on accomplishing long-range marketing goals, rather than allowing the budget to determine what marketing goals are adopted.

Two people recommended this.

Solution #11. Encourage national museum organizations (Association of Science-Technology Centers, American Association of Museums) to offer workshops on long-range strategic planning.

One person said that ASTC conferences should feature institutions that have "achieved success as a function of strategic planning."

Internal Challenge #4: Market research has focused on visitors.

In conducting marketing studies, science museums have focused their efforts solely on demographic research involving visitors. Marketers have no knowledge of why non-visitors do not choose their facility over other options.

Solution #1. Conduct research (phone surveys, off-site interviews, focus groups) with non-visitors to gain a better understanding on why they do not choose to visit the museum.

Eleven people advocated that museums initiate the process of conducting research with non-visitors. "Good market research, and focus group studies would help provide useful data . . . and help design marketing programs that appeal to the non-visitor," one wrote.

Solution #2. Solicit the services of consulting firms (pro bono, trade and/or paid) to assist the museum's marketing staff in conducting studies on non-visitors.

Seven people said museums should form relationships with research organizations to create opportunities for market research. "Find a market research firm that is willing to conduct a study at a reduced rate as a

contribution to the organization or to gain experience in cultural arts research," one person suggested.

Solution #3. Conduct research that goes beyond demographics to focus on the psychographics of non-visitors (their interests, values and preferences) to explore how they prefer to spend their leisure time, what ideas they attend to, how science and technology are situated in their cultures, etc.

Five people recommended that museum research explore the psychographics of non-visitors. One person wrote, "Telephone surveys, intercept surveys in public spaces and focus groups are techniques which can be use to gain information about the 'psychographics' (interest, values, and preferences) of non-visitors as well as visitors."

Solution #4. Link your research needs with those of other institutions to conduct an affordable, joint research project.

Eight people said this. Several noted that non-visitor studies are more expensive than visitor studies since special efforts are needed to reach these individuals. "Most often museums who do research do not include non-visitors because they think they cannot afford to do so," one person said. "If one can't afford to do a study alone, consider a partnership with one or more non-profit cultural institutions or with an interested organization such as the convention and visitors association."

Solution #5. Ask professors and/or graduate students at local colleges and universities to conduct pro bono or inexpensive research studies on non-visitors.

Three people said that colleges and universities are an excellent resource for market research.

Solution #6. Ask board members or corporate leaders to loan their research personnel to the museum and guide the museum's staff through developing a study on non-visitors.

One person mentioned that "major corporations in the region may have internal research departments that are willing to do the research pro bono or for out-of-pocket expenses only."

Solution #7. Appoint a marketing professional to a board position and have he/she oversee a committee (ad hoc or standing) to develop non-visitor research.

One person said this.

Solution #8. Encourage national museum organizations (Association of Science-Technology Centers, American Association of Museums, etc.) to conduct studies on non-visitors and why these individuals do not regard museums as attractive leisure time options.

One person said this is a national problem that effects a wide range of museums. "The national museum organizations . . . should take a role in identifying reasons" why some public sectors do not attend museums, this person wrote.

Solution #9. Establish an information clearinghouse for non-visitor research studies conducted by individual museums. These findings currently are not being published and could provide a basis for primary research.

One person offered this suggestion. "Don't rely exclusively on primary research," this person said. "Secondary research on both visitors and non-visitors is very valuable and can provide a basis for developing questions specific to individual markets."

Solution #10. Utilize a segmentation model and sampling methods to focus on non-visitors who match the demographic profile of existing visitors (local residents, with children, etc.).

One person recommended this.

Solution #11. If the museum receives tax dollars, reach non-visiting taxpayers by polling registered voters to monitor their perceptions of the museum.

One person said their museum regularly polls registered voters in order to monitor voter support. "They tell us if we are adequately serving those who financially support us . . . and let us know our standing if or when we would ever want to ask for a tax increase," this person wrote.

Solution #12. Ask a community newspaper to print a questionnaire prepared by the museum's staff for readers who are not among the museum's visitors.

One person suggested this.

Solution #13. Gather anecdotal data from acquaintances who do not attend the museum and ask them about their reasons for not attending. Look for patterns that call for scientific research.

One person said this.

Internal Challenge #5: Market research is not a priority.

Science museums do not make market research a priority.

Solution #1. Conduct accessible market research and seek support from museum management to make research a higher institutional priority.

Thirteen people recommended that marketing professionals persuade their colleagues of the importance of market research. "If the culture of the organization understands that the visitor is the reason for its existence, listening to the visitor will assume a higher place in the organization's priority list," one person stated.

Solution #2. Reduce other areas of the marketing budget (advertising, promotions, etc.) to increase funds available for market research.

One person suggested that museums should be willing to cut advertising and promotion budgets as necessary to preserve an adequate market research component.

Solution #3. Attend professional conferences, network with marketing executives at other institutions and read market research publications to explore effective methods.

Four people mentioned the importance of museums sharing information. "Comparing one's organization to other successful organizations in one's

market and around the country (benchmarking) is one of the best ways to determine how useful market research is and why the best ones do a great deal of it," one person said.

Solution #4. Encourage national museum organizations (Association of Science-Technology Centers, American Association of Museums, etc.) to publish articles/books and conduct workshops on market research techniques.

Four people advocated that museum associations should take a more active role in distributing information on market research. "Positive experiences shared at ASTC meetings, and in its newsletter can be helpful here," one person stated.

Solution #5. Establish an information clearinghouse for market research studies conducted by individual museums. These findings currently are not being published and could demonstrate to others the value of market research.

Five people proposed that museums share their research to demonstrate the value of conducting market research. "Secondary research is generally inexpensive and can provide a solid foundation for understanding more about the industry and the local community," one person noted.

Solution #6. Utilize the findings of current market research to emphasize importance, otherwise staff will consider research efforts to be idle exercises.

One person recommended this.

Solution #7. Use volunteers to assist in conducting market research (phone surveys, off-site interviews, etc.).

Two people said this.

Solution #8. Solicit the services of consulting firms (pro bono, trade and/or paid) to assist the museum's marketing staff in conducting market research.

Five people advised museums to secure professional services in this area.

Solution #9. Ask board members or corporate leaders to loan their research personnel to the museum and guide the museum's staff through the market research process.

One person said that museums should seek outside counsel "to help advise the organization about what types of research might be most useful and how to set up a research program that the organization can afford."

Solution #10. Ask professors and/or graduate students at local colleges and universities to conduct pro bono or inexpensive market research studies.

Three people suggested that museums can work work with college and university professors to identify research needs that can be integrated into an academic program.

Solution #11. Link your research needs with those of other institutions to conduct an affordable, joint research project.



One person said that "pooling resources may enable groups of museums or cultural institutions to conduct market research more cost-effectively."

Solution #12. Allocate funds for market research when developing budgets for new exhibits and programs.

One person mentioned that museums do not always include funding for market research among their budgetary considerations.

External Challenge #1: Struggle to keep pace with technology.

Video arcades, virtual reality, the Internet, digitized cameras and other emerging technologies are redefining what people expect from museums. Rapid technological advances and heightened visitor expectations will make "state-of-the-art" exhibits obsolete in a short amount of time.

Solution #1. Solicit the services of high-tech corporations and research firms (pro bono or trade) to offer technologies and assist the museum's staff in developing state-of-the-art permanent exhibits.

Eleven people said that strong relationships should be established with local high technology firms. "Ideally science centers should provide the link between the research community and the general public," one person noted. "To do this effectively, we need to be more closely tied with . . . R&D departments in local industry and business to gain their support in developing and funding exhibits that bring new technologies to the general public."

Solution #2. Use rising public expectations and the need for new technology as a platform for fundraising efforts to support state-of-the-art technologies.

Four people suggested that museums can leverage the public's understanding of the cost of keeping pace with technology to plan fundraising strategies.

Solution #3. Shift funding of permanent exhibits from a capital consideration to operating budget. Provide additional funds annually to develop new state-of-the-art exhibits.

One person said this.

Solution #4. Develop a new model for museums with a built-in infrastructure to facilitate program change economically. Museum galleries would be designed with considerably more built-in support systems such as that which exists in theaters to allow for frequent changes in technology.

Three people recommended that museums should develop a new style of exhibition gallery that provides for quicker, less costly updating in the future.

Solution #5. Develop a museum consortium in which members would create permanent exhibits representing state-of-the-art technology from their area and then share their exhibits with other member museums.

Three people stated that museums should come together to develop exhibits with higher production values than any single museum could afford. "This approach is best exemplified by IMAX® and other large

format film theaters," one person wrote. "Production of new films would be prohibitively expensive if museums tried to go it alone. The same approach has been used to a limited extent to develop new media-based exhibits and programs but could be greatly expanded."

Solution #6. Rethink permanent exhibits as open-ended resources with multiple outcomes (that allow visitors to explore phenomena) rather than as "one-time experience" exhibits.

Two people proposed this. One person said, "It is critical that the exhibits developed have elements of ingenuity that are seen as intrinsically valuable long after the 'state of art' components have become commonplace."

Solution #7. Create an exhibit master plan (perhaps with assistance from exhibit design consultants) that would provide strategies for incorporating technology in the exhibit program.

Two people said this. "Adopt long-range plans . . . that would put more money in exhibits which facilitate interactive learning with state-of-the-art technology," one person wrote.

Solution #8. Ask professors and/or graduate students at local colleges and universities to assist the museum's staff in developing state-of-the-art permanent exhibits.

Two people advised museums to seek help at colleges and universities in developing plans for exhibits.

Solution #9. Invest in technologies that have at least a five-year life expectancy and/or shorten the timeline from exhibit conceptualization to development in order to maximize life expectancy.

Two people suggested that museums seek ways to extend the active on-floor life of high-tech exhibits.

Solution #10. Attend professional conferences, network with marketing executives at other institutions and seek out publications to develop the staff's knowledge of technology and experience with interactive media.

Two people mentioned this. "The key lies in employing technologically skilled staff and making the commitment to invest in continued staff development for the personnel," one person wrote.

Solution #11. Conduct research on the public's perceptions of technology and expectations for the museum experience.

One person recommended that museums conduct research to guide exhibit development.

Solution #12. Install multi-venue programming such as an IMAX theater or other emerging technologies which utilize frequently-changing programs designed to attract new audiences.

One person said this.

Solution #13. Create an on-line computer network for museums to exchange information on existing and emerging technologies.

One person suggested this.

External Challenge #2: Science museums are "just for kids."

The public perception is that science museums are only for children or those with children. This keeps many adults - from high school students to senior citizens - from attending.

Solution #1. Create special museum events/programs designed for targeted, age-specific audiences which could be offered during non-peak hours (such as "date nights" for teenagers, late afternoon presentations for seniors, adult overnights, film series, etc.).

Seventeen people said that museums need to broaden events and programs to include older audiences. One person wrote, "Many teenagers would not want to be caught dead in a place filled with kids. Many adults would not want to be caught dead in a place filled with teenagers. Let's face it, some audiences are truly incompatible. I have heard about some very creative museum programs that age-segregate audiences . . . there is probably a lot of room for creative programming here."

Solution #2. Create museum exhibitions on topics with special appeal to targeted, age-specific audiences (such as historical science exhibits for seniors or a climbing wall just for teens).

Six people cited offering exhibits for non-children audiences.

Solution #3. Develop clearly-articulated positioning statements which define the museum's various audiences and inspire marketing and programming staff to consider audiences other than children.

Five people recommended this. "This positioning statement is spun off of

the mission statement which should clearly define the museum's audiences," one person noted. "Once this has been accomplished, then developing programs for specific adult and/or family audiences is easier."

Solution #4. Tailor advertising messages to reflect a fun experience for all age groups (including adults, teenagers and senior citizens) and advertise programs to targeted groups (such as retirement centers for seniors).

Eleven people suggested that museums must market to different age groups if they want to boost attendance. One person said, "Make sure that advertising and PR messages about the museum do not target just families and school-age children - be inclusive in your messages. Use humor (sophisticated) in your messaging, so that adults know they can have a good time during their visit."

Solution #5. Incorporate elements which appeal to each age group in family-oriented museum programs such as science demonstrations and planetarium shows.

Two people said museums need to present programs with a variety of topics, demonstrations, educational levels and hands-on activities to span a diverse group of visitors.

Solution #6. Increase the museum's number of volunteers within targeted age groups (teenagers, senior citizens, etc.) to make the environment more comfortable for these target audiences.

One person mentioned this.

Solution #7. Market after-hours facility rentals to clubs and organizations which represent target audiences (such as AARP for seniors) as a way to introduce them to the museum.

One person said this.

Solution #8. Enhance comfort and services for adults, such as places to rest, good shopping/dining experiences and easy-to-use facilities (box office, visitor guide, tour guides, etc.).

One person suggested this.

Solution #9. Arrange with corporations to underwrite "lifelong learning" programs for adults, senior citizens as a community relations effort.

One person offered this.

Solution #10. Install multi-venue programming such as an IMAX theater or other emerging technologies which utilize frequently-changing programs designed to attract new audiences (teenagers, adults, seniors).

Four people stated this. "Emphasize the range of other activities (special traveling exhibits, large format theater, simulator theater, sophisticated resources, etc.) that are available to attract secondary audiences, provided the core family audience is assured that there will be lots there for children to do," one person wrote.

Solution #11. Conduct demographic and psychographic research to assess needs and assumptions of targeted age groups and explore their specific needs, preferred leisure time activities, favored news media, etc.

Two people mentioned that market research would help museums understand the specific needs and wants of these audience segments.

Solution #12. Encourage national museum organizations (Association of Science-Technology Centers, American Association of Museums, etc.) to launch "science is not just for kids" campaign with media kits for member museums.

One person suggested this and wrote that "funds for 'image advertising' should be set aside or raised by ASTC and a plan or 'kit' developed to send to all science museums so . . . a consistent image could be promoted."

### External Challenge #3: Budget cuts in education.

Public education funding continues to be cut back severely. Schools are unable to take advantage of field trips due to the cost of bus transportation, museum fees, etc.

Solution #1. Arrange with businesses and corporations to underwrite field-trip transportation expenses as a community relations effort.

Sixteen people cited the need to cultivate relationships with companies that could result in underwriting for bus transportation. One person wrote, "New sources for subsidizing bus trips will have to be found. It may be that corporate sponsors will see unique PR opportunities in lending their names to this type of effort."

Solution #2. Arrange with businesses and corporations to underwrite museum outreach programs as a community relations effort.



Three people noted that companies also are potential sponsors for outreach programs to schools. "We have found that local business and industry is willing to provide funding for outreach programs . . . if we continue to demonstrate the benefits for students," one person said.

Solution #3. Enlist help from civic organizations, Parent-Teacher Associations (PTAs) and school foundations to underwrite field-trip transportation expenses.

Three people suggested this. "This requires close ties with community leaders, civic organizations and local industries to help find creative solutions to support education," one person wrote.

Solution #4. Cut educational programs that the schools won't support and create new programs (including outreach programs) tailored to the specific needs of area schools.

Fifteen people said, from a business perspective, education programs should be driven by school demand. "Too many museums maintain old education programs left from the days of easier school funding that teachers no longer want, such as classroom experiences offered within a museum," one person said. "A teacher may ask: 'Why should I spend the money to take my class to a museum only to sit in yet another classroom?' One museum we are working on plans to offer no educational programs for schools until the schools request specific programs and offer to cover the costs through fees."

Solution #5. Join with other cultural or educational institutions to offer full-day excursions and enhance the value of field trips as perceived by teachers, administrators and school boards.

Two people cited this.

Solution #6. Enlist help from teachers to hold fundraising events/have parents provide funds for transportation costs.

Two people said this.

Solution #7. Contract with local school systems for the museum to provide classroom instruction in hands-on science.

Three people said museums should pursue this type of linkage with schools. One person said, "Start partnerships with your school district now. Work at becoming the contract provider of Sex Education (as in North Carolina) or Planetarium programs (as in Texas) or in physics or whatever your strength in programming or exhibits may be. Make it good economic sense for the school system to let your center provide educational expertise in an area they can't afford or are unwilling to tackle."

Solution #8. Increase contacts with local/state leaders (secretary of education, legislators, etc.) and top school administrators to encourage their support for funding field trips.

Six people indicated that senior management should work the state political arena to encourage additional financing for field trips.

Solution #9. Poll other area cultural institutions to explore their admission prices for school groups and adjust the museum's fees accordingly to remain competitive in the market.

One person mentioned this.

Solution #10. Offer discounts during selected low-attendance periods and/or offer reduced rates for schools that bring more than a pre-determined quota of students per year.

Two people recommended this.

Solution #11. Conduct research on the value of the field trip/museum experience for school-aged children in order to make a stronger case for support of these programs.

Two people said this. "Museums have yet to make the definitive case for the value of field trips (though some data does exist, including some of my research)," one person wrote. "In the absence of such compelling data this will always be an issue (funding cut-backs or not)! The solution is do more research and market/promote the results."

Solution #12. Host free/inexpensive professional development workshops for teachers in order to demonstrate to them how the museum can be used as a resource.

Two people mentioned the need to host integrated teacher training programs to help maintain levels of school-based revenue.

Solution #13. Encourage ASTC to appoint a panel of museum professionals to develop a model plan in which science museums would serve as an offsite "interactive lab" for school districts.

One person proposed that ASTC develop a model plan created by science museum staff who have been successful in these partnerships. "There must be a public outcry for more educational funding -- without it, our future is compromised," this person said. "Use *Reinventing Education, Entrepreneurship in America's Public Schools* by Louis V. Gerstner, Jr. as a model. He might also be invited to be on the panel to create partnerships with science museums and public education."

Solution #14. Solicit ASTC-member museums to provide financial support for an additional lobbyist in Washington, D.C. who would focus on funding for school field trips.

One person recommended that ASTC employ an additional lobbyist to secure educational funding.

Solution #15. Develop a bus consortium which would allow schools to share transportation expenses for field trips.

One person said this.

Solution #16. Establish on-line computer programs and/or use other electronic means to bring some museum programs into the classrooms.

One person suggested this.

Solution #17. Shift museum's focus away from school groups to the general public -- a group which is more profitable and offers a better return on incremental effort and investment.

One person recommended this.

External Challenge #4: Admission perceived as expensive.

Consumers perceive admission fees as "too expensive" and/or feel that the science museum experience does not match their perceptions of a "good value."

Solution #1. Market the museum experience's distinct advantages (as an all-day, entertaining, educational experience) in comparison to other attractions in the market.

Ten people said this. "We need to change our key marketing messages to show that science centers aren't your typical museum and that it is an experience that gives them interactive fun and learning for the entire family," one person noted.

Solution #2. Investigate the admission fees of other area attractions, adjust the museum's fees if necessary and launch a marketing campaign that favorably compares the museum's prices to other options in the market.

Eight people said this. "Consider producing advertising or other marketing communications that compare the museum favorably to other consumer choices (i.e., movies, theme parks, video game arcades, hanging out at the mall, watching TV at home)," one person said.

Solution #3. Ensure that the museum's exhibits and programs provide the highest possible value to positively influence visitors' views of value.

Eight people cited this. One person wrote, "The real solution is to offer such high quality and interesting programs that visitors will feel they are getting their money's worth. When this is done, a visit to the museum will be perceived as a bargain, particularly when compared to movies and other, less open-ended forms of entertainment and enrichment."

Solution #4. Emphasize memberships and multi-visit discounts (such as season passes) to underscore the value of repeat visits to the museum.

Six people suggested this. "We can get repeat business by . . . offering incentives like specially priced seasonal passes, limited family passes, frequent visitor programs or memberships that provide extra value benefits," one person said.

Solution #5. Enhance the museum's services (by providing friendly staff, clean restrooms, comfortable surroundings, etc.) to positively influence visitors' perceptions of value.

Four people mentioned that museum services are the key to adding value to the visitor experience. "Our research tells us that visitors want friendly people, clean surroundings, clean restrooms, comfortable climate (this is Texas, remember!), safe fun for their kids," one person wrote. "Don't neglect the 'small' things -- like clean restrooms, friendly staff. Word of mouth and positive experience are the best boosters of your product."

Solution #6. Conduct demographic and psychographic research to assess the public's perceptions concerning the value of the museum and other attractions in the market.

Six people suggested that surveys, focus groups and other types of market research could help museums determine how to provide better value. "We need solid market research to match our customers' perceptions in terms of providing a good product, overall experience and value," one person said.

Solution #7. Offer coupons for the general public and/or reduced prices during selected low-attendance periods to enhance visitors' perceptions of value.

Three people stated that museums should offer coupons and discounts to make the visit more affordable and to combat the perception of inadequate value.

Solution #8. Communicate to visitors that admission revenue enables the museum to offer programs in support of its mission as a non-profit organization (for example, admission revenue supports discounted/free programs for school groups).

One person said this.

Solution #9. Communicate to visitors that admission revenue does not cover the museum's operating expenses and that others (private donors, corporations, government, etc.) have provided funding to make the museum experience available to them.

Two people proposed this. "Using a different tactic, Sturbridge Village makes sure that entering patrons are told that there are others (donors, foundations, government, etc.) that have underwritten a portion of their cost, so that they are not daunted by the steep ticket prices there," one person said.

Solution #10. Revise the budget to shift funding from programs that do not raise the level of perceived value to those which help to accomplish this goal.

Two people said museums should evaluate expenditures according to how each one adds value and, if it doesn't add value, don't do it.

Solution #11. Develop a consortium of museums to share the expense of conceptualizing, researching, testing and creating new exhibits and programs that could be shared with other member museums.

One person wrote that museums "need to share programming costs . . . more effectively in order to compete better on a price basis."

Solution #12. Install multi-venue programming such as an IMAX® theater to give visitors the opportunity to choose how much they wish to spend.

Two people recommended this. One person said, "Museum admissions are generally below the price of a movie -- if sufficient attention is paid to . . . program variety (exhibits, demonstrations, lectures, planetarium and OMNIMAX® shows, etc.) we should be more than competitive."



Solution #13. Simplify pricing structure (in which additional costs are added to the base price of an admission ticket) for visitors who may perceive options as being "nickled and dimed" on admission.

Two people cautioned that complex pricing structures perpetuate the idea that museums are expensive because everything adds to the base price of an exhibit ticket. "Visitors get the feeling that they are being 'nickled and dimed' at every turn and are not seeing the value of having choices in what they do, particularly if they are first timers who may not understand what is available or what we offer," one person said.

Solution #14. Arrange with corporations to underwrite "free admission" nights for low-income visitors.

Two people suggested this.

External Challenge #5: Urban surroundings inaccessible/dangerous.

Science museums in urban locations are perceived by suburban audiences as being inaccessible or dangerous to visit. Suburbanites are less willing to drive into the city and face inconveniences/risks.

Solution #1. Address safety problems concerning museum grounds and parking lots by providing accessible parking areas, adequate lighting and ample security.

Ten people suggested that museums first must address immediate safety problems. One person said, "The first step in addressing this problem is to deal with any elements of reality that lie behind the perception. If parking lots are not adequately lit, if pickpockets are common on busy days, etc., the first order of priority is addressing safety problems."

Solution #2. Enlist support from state/local leaders (transportation authority, mayor, council representatives, etc.) to rectify unsafe conditions by creating "crime-free" zones, increasing bus transportation and police presence, etc.

Five people mentioned this. "We can't solve all the problems of society," one person wrote. "Museums must work with the city government . . . to develop 'crime-free' cultural zones -- which exist already in many cities such as Washington, D.C., Detroit, Baltimore and Chicago."

Solution #3. Offer special services and opportunities for surrounding urban neighborhoods which would help strengthen the community's involvement and sense of pride in the museum.

Five people suggested this. "Urban museums need to cultivate an urban audience by building linkages to the local communities that surround the museum," one person noted. "We can't continue to serve the audience of the past, but need to find ways to reach the people who live in our neighborhood today. Long-term, multi-level relationships with families and community groups within the city can begin to build a new audience for the museum."

Solution #4. Join with the chamber of commerce and civic organizations to launch community programs such as "neighborhood watch" campaigns and to publicize the area as being clean and safe for visitors.

Three people said this.

Solution #5. Establish a visible presence at festivals, libraries and schools in suburban areas to send a message that the museum does not "belong to the inner city" but to the entire city/region.

One person wrote that, "Much of the outreach effort of museums in recent years has been directed at urban centers, especially large urban school districts. While this effort is commendable and important, it has accentuated the separation of suburban audiences from their regional museums."

Solution #6. Create a "safe zone" by working with neighboring institutions to create a unified appearance and coordinate the work efforts of security personnel at the various institutions.

Seven people cited the need to coordinate efforts with other attractions in the museum's vicinity. One person said, "The St. Louis Science Center has joined a Forest Park network of security personnel comprised of cultural institutions in the park . . . The institutions themselves use specially-marked security vehicles that also have a visible presence in and around this urban park."

Solution #7. Enhance directional signage in the museum's vicinity so that visitors can find the museum easily and without having to venture into unsafe neighborhoods.

Four people recommended this. One person said museums need to "work with the transit authorities to ensure . . . that roads into the area are clearly marked."

Solution #8. Conduct demographic/psychographic research with suburbanites to assess their perceptions and feelings about the accessibility and safety of the museum's surroundings.

One person said this.

Solution #9. Join with neighboring institutions to offer shuttle service to/from suburban shopping malls and the various institutions.

Three people proposed the creation of shuttle services to make the museum more easily accessible and to promote a feeling of safety, particularly at institutions that are located in questionable or unsafe neighborhoods.

Solution #10. Communicate to visitors that the museum has taken every possible precaution to create a safe environment (security guards, parking attendants, museum staff, etc.).

Six people said this. "Take advantage of every opportunity to provide customers with information about parking and access (good maps or brochures sent with ticket reservations)," one person said. "Work with bus companies who work for tour groups to ensure they know how to get to the museum and where to drop off visitors safely."

Solution #11. Create satellite museums or outreach programs at suburban sites (such as shopping malls) in order to promote attendance for the main museum.

Seven people recommended this. One person wrote, "Bring the museum to the community and present workshops and other outreach programs that

give people an idea of what the museum is about. When they know more about it they may feel more comfortable in attending."

Solution #12. Poll museum visitors to identify problems and make staff aware of areas in need of immediate action.

Two people said museums need to analyze visitor perceptions in order to minimize negative environmental effects and make visitors more comfortable upon arrival.

Solution #13. Appoint a committee with representatives from suburban communities to assess concerns and advise the museum's staff on possible improvements.

Two people cited this.

Solution #14. Offer discounts to museum visitors who utilize public transportation from suburban areas.

One person proposed this.

Solution #15. Extend educational programs/shows to the primary parking area or in front of the museum in order to enhance presence of personnel and attract potential visitors.

One person wrote, "We should work to remove any and all barriers . . . enhanced presence of program folk in the parking areas (not just security guards or parking attendants) so that the museum experience begins in the parking areas."

Solution #16. Offer valet parking at special events and parking escorts during daytime hours to increase the presence of museum personnel and enhance visitors' sense of security.

Two people mentioned this.

Solution #17. Create special experiences at the museum that will compel suburbanites to venture into urban surroundings.

Two people said this. "Try high-profile appearances -- when the perception of attraction outweighs the perception of danger, visitors will come," one person wrote.

Solution #18. Consider relocating to a new site if improvements cannot be made to the museum's current location.

One person said this.

## CHAPTER V

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### General

Charles Darwin, one of the greatest biologists of all time, was the first to propose that evolution generally proceeds through a process called "natural selection." Simply stated, natural selection implies that individuals with traits that better adapt them to a specific environment will survive and outnumber other, less well-suited individuals. Natural selection is based on four observations: (1.) *overproduction*, that is, when there exists far greater number of offspring than can survive; (2.) *limited resources*, or when the number of organisms exceed the food supply and other resources needed to sustain them; (3.) *genetic variation*, in which variations exist within the populations that make up a species; and (4.) *survival of the fittest*, which means those individuals with advantageous variations will survive in greater numbers.

The process of natural selection that controls the evolution of all living organisms also defines the life and determines the lifespan of organizations, businesses and corporations. They -- like their living, breathing counterparts -- are adversely affected by a proliferation of similar organizations (*overproduction*), diminished sources of revenue to sustain them (*limited resources*), competition from other variations within their

industry (*genetic variation*), and disadvantageous qualities that could cause their extinction (*survival of the fittest*). We live in the midst of constant change. Change is a pervasive, persistent and permanent condition for all organizations. The future of an organization depends on its managers' ability to master change. The free enterprise system generally eliminates from the economic scene those organizations -- whether for-profit or not-for-profit -- that do not adjust to market conditions.

U.S. science museums are not immune to their surroundings. Rather, museums as a whole (and science museums as a part of this "species" of non-profits) face significant challenges that threaten their prospect for growth -- and, for some, even existence -- in the 21st century. According to Terri Knoll, director of the California Association of Museums, "The word is out that museums must adapt to the changing times and promote themselves or many will have to cut services drastically or even go out of business." In response to environmental pressures, museums are evolving from institutions into businesses. These days, executive directors, board members and senior staff are painfully aware that they must adapt their organizations or else watch them suffer.

U.S. science museums are responding to substantial pressures within a dynamic, ever-changing marketplace. It is helpful to examine the specific challenges facing science museums through the framework of Darwin's theory of natural selection (overproduction, limited resources, genetic variation and survival of the fittest). That is, what are the environmental conditions in each of these categories that could influence the evolution of science museums in the next century?



## Overproduction

First of all, there has been a phenomenal proliferation of science museums in the past 20 years. Since its founding in 1973, the Association of Science-Technology Centers (ASTC) has more than tripled its membership as science museums have been founded in nearly every major U.S. city. With one quarter of the U.S. population visiting a science museum every year, almost as many Americans visit one as attend professional baseball, basketball and football games combined (Sagan and Druyan, 1995).

Yet, despite this proliferation, a series of studies conducted for the National Science Foundation showed the actual number of science museum visits for adults has declined slightly since 1983 (Miller, 1992a). Based on this data, the study's author concluded that the science museum industry is "no longer a growth enterprise." Contrary to Miller's findings, a study conducted by ASTC found that visits to science museums increased in the 1980s, even while a substantial percentage of science museums reported declines in attendance (ASTC, 1989). An independent review of this study found that almost 40 percent of science museums failed to show steady attendance growth during the years 1985-87 (St. John and Grinell, 1989). Similarly, the 1992 Survey of Public Participation in the Arts (conducted by the U.S. Census Bureau on behalf of the National Endowment for the Arts) revealed that per capita attendance at cultural attractions, including museums, declined in the 1980s (Robinson, 1994).

There is evidence to support the theory that, while the number of U.S. science museums has grown dramatically since the early 1960s, the American public is not using these institutions at a similar rate of growth.

## Limited Resources

At the same time, U.S. museums -- including science museums -- have been experiencing diminished sources of revenue to sustain them. First of all, for those museums with declining attendance, the resulting reduction in earned income has put substantial pressure on operations. Admission fees account for the highest percentage of earned income (ASTC, 1989).

In addition, revenue from corporations, government, foundations and private individuals has been reduced or has not kept pace with inflation. Corporate contributions to museums have declined by as much as 50 to 60 percent in the last five years (Toolen, 1994). At the 1993 ASTC convention, one development officer commented, "Flat or declining corporate giving - you'd better get used to it. It's a long-term trend" (Raymond, 1993). Support from the federal government has been reduced, with congress proposing additional budget cuts this year for the Institute of Museum Services (IMS) and the National Science Foundation (NSF) (AAM, 1995). State and local governments are in no better position to provide financial assistance for museums, with many being forced to raise taxes or slash programs. At the same time, decreased tax incentives for philanthropists and increased competition for donor support have contributed to a decline in private donations to museums. Even philanthropic foundations are complaining that, with interest rates low, their investments haven't yielding what they used to, reducing the funds they can make available to non-profits.

Since most science museums operate near the "break even" point (with income and expenses evenly matched), any threat to revenue can pose a considerable risk. In response to economic pressure, some science museums

have cut public programs, curtailed hours, reduced staff and even closed some exhibit areas to the public. Executive directors of museums have been painfully aware that "they must find new sources of income or watch their institutions suffer" (Toolen, 1994).

### Genetic Variation

Furthermore, U.S. science museums are threatened by competition from other "genetic variations" within the entertainment industry. In the late 1980s, a shift in U.S. demographics to more two-income families contributed to a decrease in the amount of leisure time available for American adults (Magiera, 1992), even while competition among entertainment-based attractions increased dramatically.

Entertainment options pervaded American life and competed for the public's diminishing number of leisure time hours. Theme parks and for-profit play centers offer features that are increasingly attractive to middle-class families with children -- the most profitable market segment for science museums (Mintz, 1994). To increase attendance, theme parks turned to education to make their entertainment-based experiences more useful to the public. For instance, Disney's EPCOT Center features "knowledge clusters" of exhibits and Sea World offers interactive educational displays on the environment. Adding to the competition, for-profit play centers have sprung up in shopping malls and feature user-friendly play spaces for children based on exhibits found in science museums. Partly in response to these environmental challenges, science museums have incorporated techniques typically reserved for theme parks (simulators, IMAX®/OMNIMAX® theaters, robotic creature exhibitions)

in order to make their educational experiences more attractive to audiences.

In order to keep pace, marketers of mass entertainment are spending more money than ever on advertising. Cumulatively, entertainment marketers spent \$2.1 billion on advertising in 1990, a robust 38 percent hike from 1987 (Magiera, 1992). Science museums, attempting to compete in this highly-competitive market, often must promote their exhibits and programs on a limited to non-existent marketing budget. For science museums, promotion is often a matter of collaboration and exchange with corporations and media in order to stretch the museum's dollars.

### Survival of the Fittest

Finally, U.S. science museums possess many advantageous qualities that could assure their success in spite of the environmental challenges they face in the marketplace. As pioneers in the development of informal learning methods, science museums offer educational and entertaining experiences that attract visitors of all ages and backgrounds. They function as a valuable educational resource for their communities and regions by complementing formal teaching methods and serving as adjuncts to educational systems. They increase the public understanding of science in order to prepare people for living in a world increasingly shaped by science and technology.

However, organizations most often survive because of their unique ability to recognize challenges where they exist and minimize disadvantageous qualities that could make them victims of the natural selection process. Some science museum industry professionals fear that,

because of the public's limited interest in science and technology, science museums have reached a saturation point in their markets or may not be offering experiences at a rate sufficient to stimulate increased usage (Miller, 1992a). Others wonder if large urban science centers -- particularly those with massive buildings and high overhead costs -- may be "dinosaurs that have outgrown their food base," making way for smaller, more-distributed science museums in the future (Borun, 1994). Still others feel that the developments of the past 10 years have been a natural part of the evolutionary process as science museums adapted to compete in the business world (Becker, 1994).

As the science museum industry faces the uncertainties of the future and searches for ways to adapt to environmental changes, one thing is certain: the evolutionary process that science museums undergo will be defined by the natural selection process. Those organizations that are most successful in adapting to changing conditions will survive and dominate.

Marketing offers the science museum industry's greatest hope for meeting its significant challenges in the 21st century. Sound marketing techniques can help science museums increase public usage and earned income. In response to market pressure, science museums' orientation to marketing has evolved. Increasingly, science museums aggressively promote blockbuster traveling exhibitions, launch entrepreneurial ventures such as IMAX®/OMNIMAX® theaters, and create spin-off enterprises to boost attendance and/or revenue. However, museums have far to go before they achieve a true market orientation.

This study was designed to help the science museum industry identify the most significant marketing challenges on the horizon, rank those challenges in order of importance and seek solutions that will help science museums adapt to meet these challenges and experience growth in coming years.

Using the Delphi Technique, a qualitative research method most often used to make predictions and propose solutions to problems, this study featured a structured communication process that allowed a panel of professionals associated with the science museum industry to deal with a complex set of marketing challenges. Participants included mid- and upper-level management personnel at science museums, consultants who specialize in science museums, and persons who have written about or researched future trends concerning science museums. Participants offered information on an equal basis, assessed the views of other panelists and then revised their personal views accordingly, all while maintaining anonymity to encourage the free expression of observations and ideas.

Twenty-eight science museum professionals and consultants participated in this study (with one participating in Rounds I and II only). Each panelist was asked to respond to three rounds of questionnaires. In Round I, the participants were asked to identify the 10 most significant challenges (five internal and five external) that could impede science museums' marketing efforts to increase attendance and earned revenue in future years. In Round II, panelists were asked to review a comprehensive list of the challenges identified by participants in Round I and indicate the significance of each challenge on a five-point semantic differential scale. In Round III, panelists examined a list of the 10 most significant challenges (the five internal and five external challenges that received the highest overall scores in Round

II) and, for each of these challenges, offered solutions which they believe could increase science museums' attendance and earned income in years to come.

### Summary and Conclusions

Twenty-seven panelists completed all three rounds of questionnaires in this study. One person completed Rounds I and II but did not complete Round III due to other professional commitments. However, this person's responses are included in the verbatim responses to Round I (Appendix M) and the responses to Round II (Appendix N).

The panel of science museum professionals addressed the following three research questions: What marketing challenges will U.S. science museums continue to encounter in future efforts to meet the needs of visitors? How significant is each challenge for the future of science museums? What are some possible solutions to these challenges? These questions were answered in Rounds I, II and III of this study, as the participants, respectively, proposed marketing challenges that U.S. science museums will continue to encounter in the future, indicated the significance of each challenge for the future of science museums, and offered creative solutions to the most significant challenges.

Although this study included science museum professionals, consultants and those who have written about or researched future trends among its panelists, no attempt was made to compare differences between these groups because many of the panelists belonged to more than one group. Several of the science museum professionals have served as consultants to

museums within the industry and a few of these have established their own consulting firms. Several of the consultants have written about or researched future trends within the industry. It is important to note that this study sought to identify a consensus within the group rather than contrast the ideas of one group versus another.

### Round I

Panelists were asked to identify the most significant challenges to marketing that originate within the organization (stemming from areas such as admissions, education, exhibits, fundraising, marketing, membership, public relations, any other internal source or a combination of these sources). The 28 panelists listed 42 different internal challenges to marketing science museums. Panelists were also asked to identify the most significant marketing challenges that originate outside the organization (stemming from areas such as competitors, government, the marketplace, societal trends, museum visitors, any other external source or a combination of these sources). The 28 panelists cited 36 different external challenges to marketing science museums. In both categories, similar answers were consolidated and panelists' responses that mentioned multiple challenges were divided among more than one category.

In order to simplify the panel's consideration of all marketing challenges, the universe of challenges was divided into two arbitrary groupings: internal and external. Furthermore, science museum professionals were asked to provide marketing challenges within these two categories in order to emphasize that they not only must look outside their



organizations but also inside to their own philosophies, personnel and procedures in order to identify marketing challenges. Participants were instructed to direct their vision both outward and inward in order to survey all possible factors.

### Internal Challenges

Internal challenges cited by the panel can be divided into the following categories: marketing staff/other museum staff, research, business/management, service and exhibits/programs.

Issues involving the museum's staff are the single largest category, comprising 12 of the 42 internal challenges. Panelists cited six issues regarding marketing staff in particular: six people said that low salaries and little room for advancement results in an inability to recruit and retain marketers; and four panelists suggested that marketing departments are too small and have limited time to spend on projects. In addition, individual participants said marketers: lack experience working "in the trenches" with admission staff; often choose to "go it alone," which communicates to other staff members that their ideas are not welcome; are not familiar with science and cannot effectively market science-based programs; and spend too much effort on averting crises.

In terms of the overall staff, six different challenges were mentioned: five people indicated that staff members are resistant to new ideas for attracting audiences or broadening existing audiences; four said staff members often think that marketing is "not my job"; three stated that program staff are generally the ones who make product decisions . . . "however, they lack an understanding of basic marketing principles that

might help them make these decisions"; and two suggested that staff members are resistant to providing experiences that are high enough on the "entertainment scale" to be appealing to audiences. In addition, individual panelists said the chief fundraiser frequently lacks the experience necessary to run a first-class marketing program and that ineffective communication between other departments and marketing staff impedes efforts.

Internal marketing challenges also included five research-related issues. Market research is not a priority at science museums, 13 panelists indicated. "Only a few of the largest museums that I'm aware of do any significant market research," one person noted. In addition, marketers lack the expertise necessary to conduct research (five panelists said); marketing research has focused on visitors only and has failed to determine the reasons why people do not choose to visit science museums (one person); and science museums lack sufficient computer software/hardware to track audiences, survey museum visitors, analyze demographics and provide critical data for marketing decisions (one person). Science museums have failed to apply the market research they've conducted within the decision-making process, two panelists indicated.

Nine business-related internal challenges were mentioned. Seven panelists noted that science museum professionals tend to view their institutions as non-profits and not as businesses that have to compete with for-profits. It is interesting to note that 20 panelists (representing the highest level of consensus on any of the internal challenges) said that science museums have not made marketing a budget priority. "It would be unseemly for the marketing department to spend more money than the education department," one panelist noted. Other business challenges cited: museums

have not directed sufficient attention to the development of long-range strategic plans to set priorities for marketing efforts (two people); even though media sponsorships and public service announcements supplement the advertising budget, science museums do not devote sufficient advertising funds to ensure public awareness (12 panelists); science museums still use a hierarchical management system rather than a team approach (one person); and museums do not give individuals in charge of a profit center the authority to make entrepreneurial choices that could increase the profitability of their area (four respondents). Individual panelists also said that board members are not sufficiently committed to marketing, do not apply their business expertise to the science museum they serve and do not offer their time, talent and resources to assist with marketing efforts.

Seven service-related issues were represented among the internal marketing challenges: science museums, five people said, should devote more attention to customer service; physical facilities are uninviting (three people said); science museums have taken an elitist approach in speaking to visitors (one person); science museums do not offer experiences that people perceive as being relevant to their everyday lives (four panelists); a lack of attention to cultural diversity has resulted in efforts that are inappropriate for segments of the potential audience (nine respondents); science museums are unable to clearly and succinctly articulate their educational benefits to the public (two participants); and science museums are so crowded with school groups that general visitors complain about a poor experience (one person).

Finally, science museum exhibits and programs represent another category of internal challenges facing science museums (with six different challenges cited). Ten panelists said the absence of an integrated and dynamic exhibit philosophy has allowed for some stagnation in exhibitry. With exhibits out-of-date or simply ineffective, marketing faces the challenge of convincing the public that they need to visit more often, they said. Other exhibit/program challenges cited: programs lack the originality and/or quality sufficient to keep audiences interested over the long-term (six panelists mentioned this); despite a limited marketing budget, the programming staff continues to create more events and programs, "fragmenting resources -- both financial and human -- of the marketing department" (four respondents); and the cost of some educational programming is far more than what science museums can successfully pass along to their customers (one person).

There is ample evidence of the discord between marketing departments and departments involved in exhibit/program development. Nine panelists said that programs are created based on the educational mission without clear analysis and agreement on how to shape them to meet marketing needs; while 11 participants said just the opposite: that programs are created based on marketing needs without considering how to shape them to meet the educational mission. This dichotomy is particularly interesting in light of the debate within the science museum industry over serving the entertainment versus the educational needs of visitors.

Also cited as internal challenges: a lack of museum networks to share the expense of program and exhibit development; a failure of imagination in creating new platforms for attracting new audiences; and disagreement

among development, marketing and programming staff over the type and level of appropriate sponsor acknowledgment for exhibits and programs.

### External Challenges

External challenges cited by the panel can be divided into the following categories: social, competitive, demographic, political and corporate.

Social issues represented the single largest category of the external marketing challenges identified by panelists, with 12 of the 36 entries. Panelists cited social trends such as: the "cocooning" effect, in which families stay home and avoid the expense and inconvenience of going out (twelve respondents said this); negative attitudes about technology, in which people see science as an environmental hazard rather than as a source of salvation (three panelists); the view that science museums are only for children or those with children, which keeps many adults from attending (one person); the feeling among suburban audiences that science museums in urban locations are inaccessible or dangerous to visit (four participants); and the perception that admission fees are too expensive or that the science museum experience is not a "good value" (six panelists). One person noted, "The perceived value of the experience is a function of the ratio of perceived 'benefits' to perceived 'costs.' For many museum visitors, the ratio is perilously close to one, and the prospect is that cost may soon exceed benefits for all but the most dedicated."

Other social issues identified as challenges include: the public's inability to distinguish science museums from other museums (three participants said this); extended working hours, brought on by corporate downsizing and increased workloads, which means less time for people to frequent

cultural attractions (three people); a lack of understanding and appreciation for the educational benefits of a museum experience (four panelists); the negative connotations of the word "museum" and the perception that these are "stuffy" and "tiring" places that appeal only to the elite and well-educated (two respondents); and society's lack of emphasis on the need for science education to develop tomorrow's generation of scientists (one person).

In addition, two social issues involving the media were mentioned: four people said that controversial exhibit topics (such as AIDS and negative publicity over the Enola Gay exhibit at the Smithsonian Institution) have generated a public backlash against the museum community; and three panelists indicated that, aside from new exhibit and program openings, science museums are seldom a source of "hot" news for the media.

Competition-related issues comprised the second largest category of external marketing challenges cited by panelists. Overall, 10 competitive issues were mentioned: the trend among entertainment-oriented attractions to incorporate educational components and add value to their experiences (13 people said this); the struggle to keep pace with rapid technological advances and heightened visitor expectations brought on by video arcades and theme parks (five panelists); competition from for-profit theme/amusement parks promoting "fun and excitement" (seven participants); the proliferation of large-format theaters, with some cities having two or three large format screens competing for a diminished audience (two people); competition with other museums for public attendance, combined with more museums getting into the "education" business (four respondents); growth in the number of science museums,

which has reduced their unique attractiveness and reduced the size of the market for each facility (four panelists); cities/private promoters entering the exhibition business in an effort to revive downtowns, increase tourism and make profits (one person); and competition from in-home, interactive computer programs as a replacement for the hands-on experiences available in science museums (one person).

In addition, two competitive issues involving museum stores were cited: two people said new, for-profit retail stores "offer the aura of being in a museum store" and sell similar products (two respondents); and that science museums, in attempting to compete with the "for-profit" sector, endanger their ability to maintain a not-for-profit status and avoid the federal UBIT (unrelated business income tax) and other regulatory threats (two panelists).

Four demographic factors also were noted as being external marketing challenges: significant growth in minority audiences which do not have a strong, family-based "museum-going" tradition and have not been easy groups for museums to attract (10 panelists cited this); a decline in the number of families (three people); population growth of senior citizens, a group that does not tend to visit science museums (one person); and market saturation due to a limited population base from which to draw visitors (two participants).

Five political factors involving federal, state and local governments were noted among the external marketing challenges. Ten panelists said that, as governmental (federal, state, local) budgets are tightened, fewer arts and cultural attractions are being provided government funds. In addition, respondents said budget cuts for public education have made it difficult for

schools to continue field trips (two people mentioned this); the "educational reform" movement that equates hours in the classroom with academic effort is ultimately unfriendly to science museums (one person); chambers of commerce and state tourism departments do not provide adequate promotional support for science museums (one panelist); and the lack of public transportation, improved roads and adequate public parking keep people from being able to reach the museum (two participants).

Two corporate factors were cited by panelists as challenges to marketing: the strain on the corporate community to provide support for museums, which eventually leads to reduced funding for marketing initiatives (five participants); and the tendency of corporate sponsors to expect more in return for the dollars they invest in museums, thereby damaging the public's sense that museums are neutral and objective sources of information (one person).

Other external marketing challenges mentioned by individual panelists: school needs vs. public needs, in which schools are given priority, while the public's needs are not addressed with the same emphasis a lack of information sources outside the industry that have a perspective on the field and the business savvy necessary to help science museums broaden their appeal; and a lack of opportunities for partnership with other attractions, schools and community organizations.

## Round II

In Round II, the panel was asked to review a comprehensive list of the challenges identified by participants in Round I and indicate the



significance of each challenge on a semantic differential scale with five choices between the bipolar opposites of "significant" and "insignificant." The means (as listed in Table I), calculated from the cumulative scores for each challenge as provided on the semantic scales, revealed the most significant internal and external marketing challenges.

### Internal Challenges

- #1: Stagnant exhibits.
- #2: Insufficient advertising expenditures.
- #3: Inadequate strategic planning.
- #4: Market research has focused on visitors only.
- #5: Market research not a priority.

Other internal challenges were rated in Round II as being highly significant to marketing, but did not rank among the top five. These challenges are:

- Small marketing departments which do not have adequate time to handle all of the organization's needs (#6);
- Marketing is not a budget priority and among the first to be sacrificed when the budget gets tight (#7);
- Science museum professionals see their institutions as not-for-profit institutions rather than as businesses in competition with others (#8);
- Failure to consider marketability in key decisions. Programs are created based on the educational mission without clear analysis and agreement on how to shape them to meet marketing needs (#9);
- And staff attitudes of indifference to marketing or the mindset that marketing is "not my job" (#10).

While staff-related issues were mentioned most often in Round I, they did not receive uniformly high rankings when reviewed by the entire panel in Round II. Among those related to the marketing staff, only the challenge that the marketing department is too small for the organization's needs received a high ranking (#6). The next two were ranked #19 (no experience "in the trenches") and #20 (difficult to recruit and retain marketing professionals) among the 42 challenges. The remaining three challenges (marketers unreceptive to staff's ideas, marketers don't know science, and efforts spent on averting crises) were ranked among the last (numbers 38, 40 and 41, respectively).

As for the museum's staff overall, two of the six challenges received high rankings. Staff attitudes of indifference to marketing was ranked highest (#10), along with ineffective communication between other departments and marketing staff (#12). The other three were ranked in the middle - #18 (staff unaware of marketing principles), #21 (staff resistant to new ideas) and #23 (staff resistant to providing entertainment value). The charge that the chief fundraiser frequently lacks the experience necessary to run a first-class marketing program received the lowest ranking of this set (#32). The comparatively higher rankings for challenges involving the overall staff (versus those involving the marketing staff) is most likely due to the perspectives of the panelists, the majority of whom are marketing professionals.

Research-related issues were ranked very high among the internal challenges, indicating that science museums are in dire need of marketing research. Two of these were ranked among the top five: market research has focused on visitors only (#4) and market research not a priority (#5).

Research challenges also placed #13 (failure to apply the results of market research) and #14 (marketers lack training/experience to conduct research). The panelists saw computer software/hardware as much less of an issue when it comes to conducting research (ranked #27).

Business-related challenges also produced two of the top five internal marketing challenges, suggesting that science museums should review their budgeting and strategic planning processes. In addition to #2 (insufficient advertising expenditures) and #3 (inadequate strategic planning), two other business-related issues were ranked in the top 10: marketing not a budgetary priority (#7) and science museums not viewed as a business (#10). None of the board-related business issues placed high on the list. The challenge that the board is not committed to marketing was ranked #17, whereas the other two (board reluctant to apply business expertise and board not committed to museum) received very little support (ranked numbers 39 and 42, respectively).

None of the seven service-related internal challenges received substantial scores in the rankings. The charge that the science museum culture is not customer-oriented was ranked highest (#16). Three of these challenges were ranked very low by the panel (numbers 35-37, respectively): uninviting facilities, school visitation vs. general visitation, and inability to prove educational benefits.

One of the issues involving exhibits and programs (stagnant exhibits) was ranked as the most significant internal marketing challenge. Lack of an integrated and dynamic exhibit philosophy was cited as the most significant internal issue for marketers. Exhibits are out-of-date or simply ineffective, panelists indicated, hence marketing has a problem convincing the public

that they need to visit more often. As additional evidence of the importance of this issue, failure to consider marketability in key decisions was ranked #9 among the challenges. Marketing staff often are excluded from decisions, which results in programs that are not as marketable as possible, the panelists suggested. Finally, internal challenge #15 (programs lack the originality and/or quality sufficient to keep audiences interested over the long-term) and #22 (despite a limited marketing budget, the programming staff continues to create more events and programs) provide further support for the perceived importance of these exhibit- or program-related issues.

### External Challenges

- #1: Struggle to keep pace with technology.
- #2: Science museums are "just for kids."
- #3: Budget cuts in education.
- #4: Admission perceived as expensive.
- #5: Urban surroundings inaccessible and/or dangerous.

Other external challenges were rated in Round II as being highly significant to marketing, but did not rank among the top five. These challenges are:

- Extended working hours due in part to corporate downsizing and increased workloads, which has resulted in fewer leisure time hours for families (#6);
- An adverse political environment, as government (federal, state and local) budgets are tightened and cultural attractions receive less government funding (#7);

- Significant growth in minority audiences, which are groups that do not have a strong tradition of attending museums and have not been easy for museums to attract (#8);
- Decreasing support from corporations. With more non-profits relying on corporate dollars to balance their budgets, a strain has been placed on the corporate community that has led to reduced funding (#9);
- Competition from for-profit theme/amusement parks, which are aggressive and well-funded competitors in the tourism market (#10).

Not only did social issues represent the single largest category of external marketing challenges identified by panelists, this group also produced three of the five most significant external challenges in the survey, namely, the perceptions that: science museums are "just for kids" (#2), that admission to science museums is expensive (#4), and that urban surroundings are inaccessible and/or dangerous (#5). Social issues also were ranked #6 (extended working hours), #11 (society does not emphasize the need for science education), #15 (the "cocooning" effect, in which families stay home and avoid going out) and #17 (the public's inability to distinguish science museums from other museums). The panelists did not agree that the public has a negative attitude toward technology (ranked #32). Overall, issues involving public perceptions represent one of the most significant external areas in need of attention from marketing professionals.

A competition-related issue (the struggle to keep pace with technology) was ranked as the #1 external marketing challenge. Rapid technological advances and heightened visitor expectations will make state-of-the-art exhibits obsolete in a short amount of time, the panelists indicated.

Competition from theme/amusement parks was ranked #10. Participants believe that science museums' educational features will have increasing difficulty competing against entertainment offered by amusement parks. Furthermore, the challenge of commercial establishments (such as Disney, Wal-Mart, etc.) offering educational components was ranked #14 and "mall retailers imitating museum stores" was ranked #16. Competition from other museums and among large-format theaters were ranked #21 and #22, respectively. All of this underscores the fact that science museums are experiencing rising levels of competition on all fronts.

Among the demographic factors, only the challenge of significant growth in minority audiences received a high ranking (#8). Participants did not feel that increasing numbers of senior citizens, market saturation, or a decline in the number of families pose a significant challenge to marketing (numbers 23, 28 and 29, respectively).

Of the political factors, budget cuts in education was ranked as the #3 most significant external challenge. Funding reductions for public education threaten school field trips to museums, the panelists indicated. An "adverse political environment" was also ranked as being among the most significant (#7) external challenges. Two others -- a "lack of public transportation, improved roads and adequate parking" (#12) and a lack of support from the chamber of commerce/tourism department (#19) -- were deemed to be less important. Overall, federal, state and local political issues require renewed attention from science museums, the panel indicated.

Of the two corporate factors cited by panelists, strain on the corporate community to provide support for museums was cited as #9 among the external challenges. Among the remaining external challenges, a lack of

information sources outside the industry was ranked #18 and a lack of opportunities for partnership with other attractions, schools and community organizations was ranked #20.

### Round III

In Round III, the panelists examined a list of the 10 most significant challenges (the five internal and five external challenges that received the highest overall scores in Round II) and, for each of these challenges, offered solutions which they believe could increase science museums' attendance and earned income in future years. For the solutions to both internal and external challenges, similar answers were consolidated and panelists' responses that mentioned multiple solutions were divided among more than one category.

It should be noted that, after the data was analyzed in Round II, the difference between the means for challenges #5 and #6 was only 0.036. This is true for both internal and external categories. The reason that challenges one through five were chosen for consideration in Round III (and not challenge #6 or subsequently ranked challenges) is due primarily to time limitations. Proposing solutions to 10 marketing challenges represented a substantial commitment for the participants and the researcher. It was believed that including more of the challenges for consideration could negatively impact the study's participation rate. Therefore, only the five internal and the five external challenges that received the highest rankings in Round II were considered in Round III.

## Solutions to Internal Challenges

### Internal Challenge #1: Stagnant exhibits.

Two panelists disagreed with the statement that exhibits are stagnant. "Is it really true that the single biggest obstacle to marketing in science museums is the quality of the exhibits?," one wrote. "If science center exhibits as presently conceived are highly popular, as attendance data suggests, then it would be a mistake to look for radical changes."

Overall, 14 separate solutions were listed for the challenge of stagnant exhibits. The most frequently mentioned solution (noted by 10 panelists) involves integrating the enterprise, exhibition and education strategies into the exhibit/program development process so that marketing factors are considered in shaping future exhibits and programming. Eight participants recommended selecting and developing exhibit topics that have a unique appeal or personal relevance for the local audience. Training staff/volunteers to increase interactive programming was mentioned by seven participants. Seven people mentioned that science museums should shift funding of permanent exhibits from a capital consideration to the operating budget. Seven panelists also suggested that science museums should create an exhibit master plan (perhaps with assistance from professional exhibit design consultants) to guide efforts.

### Internal Challenge #2: Insufficient advertising expenditures.

Three panelists indicated there is no possible solution to this challenge. "For most science centers located in sophisticated media markets, I would assert that advertising expenditures will always be insufficient to 'ensure good public awareness'," one person said. "Science center managers'



expectations are often way out of line with reality - hoping to create the same level of ad awareness in a three-month traveling show as in a breakfast cereal with a twelve-month shelf-life (and a multi-billion dollar corporation to stand behind it)."

Overall, 14 separate solutions were listed for the challenge of insufficient advertising expenditures. The most frequently mentioned solution calls for making arrangements with corporations and media organizations to trade museum services (memberships, evening rentals, etc.) and promotional opportunities for advertising support. Twelve people said that providing companies with an opportunity to promote their community involvement offers "a win-win situation." Nine people mentioned that marketing professionals should track the effectiveness of advertising and provide management with evidence of its benefits. Science museums should solicit the services of advertising agencies (pro bono, trade and/or paid) to assist the staff in creating and placing advertising, according to five people. Five participants recommended that science museums should create an annual marketing plan to provide a basis for advertising and other initiatives. Science museums should identify (and make sacrosanct) a percentage of annual earned revenue to be used for advertising expenditures, four people said.

### Internal Challenge #3: Inadequate strategic planning.

Overall, 11 different solutions were listed for the challenge of inadequate strategic planning. The most frequently mentioned solution involves soliciting the services of consulting firms (pro bono, trade and/or paid) to assist the museum's marketing staff in auditing strategies and developing a

long-range strategic plan. Thirteen people recommended this solution. Establish a committee to work on developing a long-range plan for marketing, exhibits, programs and other areas, six people advised. Four panelists said that marketing professionals should seek support from museum management to initiate the long-range strategic planning process. Ask board members or corporate leaders to loan their strategic planning personnel to the museum and guide the museum's staff through developing a long-range plan, four participants suggested. Three panelists proposed that science museums should conduct demographic and psychographic research to reassess their understanding of the market and develop goals that could be included in a long-range plan. One respondent said that museums must base strategic planning on thorough research and analysis of the opportunities, strengths, weaknesses and challenges faced by the institution.

Internal Challenge #4: Market research has focused on visitors only.

Three panelists disagreed with this statement. "I don't agree that there have been no studies done on non-visitors, but it is most prevalent to focus on visitors," one person wrote. Two others were concerned about a proposed shift from conducting research on visitors. "It would be a diversion to spend a lot of money on who doesn't come when we haven't mined who does," one respondent commented. "We'd probably be better off figuring out how to get visitors to repeat than trying to coax a brand new visitor."

Overall, 13 separate solutions were provided by panelists. The most frequently mentioned solution calls for conducting research with non-

visitors to gain a better understanding on why they do not choose to visit the museum. Eleven people advocated that museums initiate this process. Eight participants recommended that science museums link their research needs with those of other institutions to conduct an affordable, joint research project. Solicit the services of consulting firms (pro bono, trade and/or paid) to assist the museum's marketing staff in conducting studies on non-visitors, seven panelists recommended. Five respondents submitted that science museums should conduct research that goes beyond demographics to focus on the psychographics of non-visitors.

Internal Challenge #5: Market research is not a priority.

Overall, 12 separate solutions were provided by panelists. Thirteen panelists recommended that marketing professionals should conduct accessible market research and seek support from museum management to make research a higher institutional priority. This was the most frequently mentioned solution overall. Establish an information clearinghouse for market research studies conducted by individual museums, five panelists proposed. Five respondents recommended that science museums solicit the services of consulting firms (pro bono, trade and/or paid) to assist the museum's marketing staff in conducting market research. Attend professional conferences, network with marketing executives at other institutions and read market research publications to explore effective methods, four participants suggested. Four people advocated national museum organizations (Association of Science-Technology Centers, American Association of Museums, etc.) should publish articles/books and conduct workshops on market research techniques. Ask professors and/or

graduate students at local colleges and universities to conduct pro bono or inexpensive market research studies, three people said.

### Solutions to External Challenges

External Challenge #1: Struggle to keep pace with technology.

Eight different panelists expressed the need for science museums to establish a separate niche than technology-based attractions. One respondent said, "I do not believe that museums should compete in the marketplace on the basis of their technological prowess. The private sector is capable of getting new media technologies out well before the museum culture can respond. While the media of delivery should be up-to-date, the 'gee whiz' aspects should not be relied on as the marketing hook to attract attendance."

Also seeking to reinterpret the challenge of keeping pace with technology, four panelists said that hands-on exhibits offer a valuable alternative to technology-based exhibits. "While new technology provides exciting opportunities for new media and novel presentations, direct hands-on experiences with three-dimensional objects are becoming scarce and valuable," one participant advised. "People appreciate the old science center experiments more than a purely electronic environment."

Overall, 13 different solutions were offered for the challenge of keeping pace with rapid technological advances and heightened visitor expectations. The most frequently mentioned solution, offered by 11 panelists, is for science museums to solicit the services of high-tech corporations and research firms (pro bono or trade) to offer technologies and assist the staff in developing state-of-the-art permanent exhibits. Four participants said science museums should use rising public expectations and the need for new

technology as a platform for fundraising efforts to support state-of-the-art technologies. Develop a new model for museums with a built-in infrastructure to facilitate program change economically, three respondents proposed. Museum galleries would be designed with considerably more built-in support systems such as that which exists in theaters to allow for frequent changes in technology, they indicated. Three people said science museums should develop a museum consortium in which members would create permanent exhibits representing state-of-the-art technology from their region and then share their exhibits with other member museums.

External Challenge #2: Science museums are "just for kids."

Four panelists disagreed that this perception represents a marketing challenge. "What great news! Science centers are for kids and for families, a market that even Las Vegas is killing itself to attract. And we should be upset about this market perception?," one respondent commented.

"Seriously, the family audience is the core for science museums and that's great news." Another wrote, "Maybe we should just live with the situation. Clearly science museums have been very successful at attracting their primary audiences, and there is a risk that in trying to be all things to all people we end up diluting our impact. Very few institutions in society actually succeed in reaching everyone. On the contrary, most successful organizations identify a particular audience and then set out to meet the needs of the audience. Why should museums be different?"

Overall, 12 separate solutions were offered for overcoming the perception that science museums are only for children. The most frequently cited solution (mentioned by 17 panelists) calls for science

museums to create special museum events/programs designed for targeted, age-specific audiences which could be offered during non-peak hours (such as "date nights" for teenagers, late afternoon presentations for seniors, adult overnighters, film series, etc.). Tailor advertising messages to reflect a fun experience for all age groups (including adults, teenagers and senior citizens) and advertise programs to targeted groups (such as retirement centers for seniors), 11 respondents said. Six participants recommended that science museums create museum exhibitions on topics with special appeal to targeted, age-specific audiences (such as historical science exhibits for seniors or a climbing wall just for teens). Develop clearly-articulated positioning statements which define the museum's various audiences and inspire marketing and programming staff to consider audiences other than children, five people said. Four participants indicated that science museums should install multi-venue programming such as an IMAX® theater or other emerging technologies which utilize frequently-changing programs designed to attract new audiences (teenagers, adults, seniors).

### External Challenge #3: Budget cuts in education.

One panelist disagreed with this challenge. "I think this is an advantage, not a problem," this person said. "Schools are being cut back, so they are looking more and more to science museums to provide the exciting introduction to hands-on science for their kids. Bus transportation/museum fees are far cheaper than good science teachers."

Other panelists, however, considered this to be a serious issue. Overall, this challenge prompted more solutions than all but one other challenge considered in this study. Seventeen solutions were identified. The most

frequently mentioned solution is to solicit businesses and corporations to underwrite field-trip transportation expenses as a community relations effort. Sixteen people cited this solution. Three participants said that science museums should solicit financial support from businesses and corporations to underwrite museum outreach programs as well. Fifteen panelists advocated cutting educational programs that the schools won't support and creating new programs (including outreach programs) tailored to the specific needs of area schools. Increase contacts with local/state leaders (secretary of education, legislators, etc.) and top school administrators to encourage their support for funding field trips, six people recommended. Three participants said science museums should contract with local school systems for the museum to provide classroom instruction in hands-on science.

#### External Challenge #4: Admission perceived as expensive.

One person disagreed with this statement. "I depart with my colleagues on the prioritization of this issue," this person wrote. "Price is less of an issue in this industry than in just about any other business I can think of. Commercial ventures, like the virtual arcades in the malls, will readily charge \$5 for a five-minute, pure-entertainment experience . . . while museums wring their hands over assessing an additional \$2 for a forty-minute, one-of-a-kind science adventure. All of the studies I have seen indicate a positive correlation between museum admission and duration of stay, museum admission and store sales, and museum admission and food service sales . . . there is no indication that the average visitor behaves as though price was a disincentive to enjoyment of the experience."

Overall, this challenge prompted 14 separate solutions. The most frequently mentioned solution (cited by 10 panelists) is for science museums to market the museum's distinct advantages (as an all-day, entertaining, educational experience) in comparison to other attractions in the market. Eight respondents recommended that science museums investigate the admission fees of other area attractions, adjust the museum's fees if necessary, and launch a marketing campaign that favorably compares the museum's prices to other options in the market. Ensure that the museum's exhibits and programs provide the highest possible value to positively influence visitors' views of value, eight panelists indicated. Six people suggested that science museums emphasize memberships and multi-visit discounts (such as season passes) to underscore the value of repeat visits to the museum. Six panelists also proposed that science museums should conduct demographic and psychographic research to assess the public's perceptions concerning the value of the museum and other attractions in the market. Enhance the museum's services (by providing friendly staff, clean restrooms, comfortable surroundings, etc.) to positively influence visitors' perceptions of value, four panelists recommended.

External Challenge #5: Urban surroundings inaccessible/dangerous.

One panelist disagreed with this statement. "This may be a problem for some museums, but many inner city museums seem to do just fine," this person noted. "Smithsonian Air and Space claims 7+ million visitors a year, the Museum of Science and Industry in Chicago and Museum of Natural History in New York are both over 2 million, while Franklin



Institute and Liberty Science Center are both close to one million. All are in downtown locations. Would they really do better in the suburbs?"

However, this challenge prompted more solutions than any other in this study. Eighteen solutions were offered, with the most frequently mentioned solution being that science museums should address safety problems concerning the museum's grounds and parking lots by providing accessible parking areas, adequate lighting and ample security. Ten people suggested this. Seven panelists recommended that science museums establish a "safe zone" by working with neighboring institutions to create a unified appearance for security personnel from the various institutions. Create satellite museums or outreach programs at suburban sites (such as shopping malls) in order to promote attendance for the main museum, seven people suggested. Six panelists said science museums should communicate to visitors that the museum has taken every possible precaution to create a safe environment (security guards, parking attendants, museum staff, etc.). Enlist support from state/local leaders (transportation authority, mayor, council representatives, etc.) to rectify unsafe conditions by creating "crime-free" zones and increasing bus transportation and police presence, five panelists said. Five respondents proposed that science museums should offer special services and opportunities for surrounding urban neighborhoods which would help strengthen the community's involvement and sense of pride in the museum. Three respondents said that science museums should join with neighboring institutions to offer shuttle service to and from suburban shopping malls and among the various institutions.

## Recommendations for Implementation

While this study was designed to assist science museum professionals in reaching a consensus on marketing challenges they will face in coming years, no one can predict future trends with certainty. Those challenges which the industry actually will encounter will be shaped in part by unforeseeable events. However, this study's findings -- the 10 most significant marketing challenges and the 138 solutions offered by panelists -- should be of interest to science museum professionals who seek assistance as they prepare for the future.

Rather than just the top 10 challenges, science museum professionals should examine all of the 78 challenges mentioned by panelists in this study. Management and marketers can learn what others in the field are experiencing and develop a sense of the industry's current marketing topography. Mapping a course for the future then becomes that much easier. The challenges listed in this study are not the only issues that science museums will face as they approach the 21st century, but many of these challenges have spawned lively discussions in the ASTC newsletter, White Oak's *Forum '94* and other trade publications, excerpts of which are cited in Chapters I and II. This study continued these discussions and helped a group of knowledgeable and experienced science museum professionals arrive at a consensus on their most significant marketing challenges and the best solutions to those issues.

When divided into their various themes, the 138 solutions recommended by the panel offer several maxims for science museums to follow: establish greater relationships with the surrounding community; join with other

institutions (locally, regionally and nationally) to share the expense of research, advertising, exhibit creation and other mutually-beneficial ventures; further enhance the museum's services for visitors; create events, exhibits and programs to attract new audiences; seek the services of consulting firms, universities and corporations to assist the museum's staff in a number of projects; reposition the museum within the market; and adjust funding patterns within the budget to focus on initiatives that will increase attendance and maximize earned income. Each of the 10 most significant challenges, however, inspired the panel to offer a set of solutions tailored to its unique characteristics. These solutions offer a substantial number of specific recommendations for implementation that should be considered by science museum professionals.

### Recommendations for Internal Challenges

#### Internal Challenge #1: Stagnant exhibits.

Stagnant exhibits, due to the lack of an integrated and dynamic exhibit philosophy, was seen as the most significant internal marketing challenge. In response, the experts indicated that science museums should integrate the enterprise, exhibition and education strategies into the exhibit/program development process so that marketing factors such as audience research, surveys and concerns are considered in shaping future exhibits and programming. One person noted, "At the macro level, a marketing perspective should be a part of the positioning of the institution - whom do we serve, how do we define our uniqueness, etc. At a more detailed level, the marketing perspective has something to offer in establishing an agenda for new exhibit development, analyzing points of attachment or entry for

the visitor, and identifying those factors that contribute to a perception of stagnation."

In addition, science museum professionals should select and develop exhibits and programs that address the unique interests of local audiences. For instance, science museums should offer permanent exhibits that focus on industries and products for which their region is well-known.

Science museums also should train staff/volunteers to increase interactive programming in the interest of engaging visitors in discussions and encouraging greater interest in permanent exhibits. "Not only does the presentation -- canned or spontaneous -- of a lively, informed person spur the visitor to greater interest, the facilitator 'owns' the exhibit or exhibit area," one panelist said. "There is thus someone to prompt exhibit staff or janitorial folks to clean, repair or remove exhibits that have been 'loved to death'."

In addition, science museums should shift funding of permanent exhibits from a capital consideration to the operating budget. "Most science centers have developed operating cost bases which require all of their earned and invested (contributed) resources to support," one participant said. "In order to free earned and invested resources to recapitalize the essential exhibition bases of these institutions, they must cut/reduce their operating costs significantly; perhaps by 1/3. Most of these operating costs are 'inertial' anyway and add little real value to the visitors' experiences."

An exhibit master plan should be developed (perhaps with assistance from professional exhibit design consultants) to provide organizing principles for exhibit design and an implementation schedule for the exhibit program. "The management of the institution has to commit to keeping its

product-exhibits dynamic and meaningful for its visitors," one participant said.

Further development of museum consortiums to share the expense of conceptualizing, researching, testing and building new exhibits which could then travel to member museums was proposed by the experts. "Exhibit collaboratives offer museums the opportunity to participate in developing new traveling exhibitions, sharing expenses as well as providing learning opportunities for all," one panelist wrote. "Not only does this provide a number of exhibitions that can travel to all participating museums, but it allows program and exhibit staff to learn methods to enhance a museum's permanent galleries."

Science museums should rethink permanent exhibits as open-ended resources with multiple outcomes (that allow visitors to explore phenomenon) rather than as "one-time experiences." One respondent said, "J. Newlin at Minnesota Science Center with his experiment benches and Boston Museum of Science's Discovery Rooms are examples of these 'fourth generation' open-ended exhibits which allow visitors to explore a phenomena rather than being limited to a single outcome, one-shot experience."

Perhaps, the panel suggests, the science museum industry should develop a new model for museums with a built-in infrastructure to facilitate program change economically. "If we think of a museum as a theater, then changing the 'play' inside becomes part of normal operations, rather than an extraordinary capital project," one panelist said. "Theaters have grids, lighting systems . . . and trained staff to support change, and theaters have

a community profile where regular change is expected. Many process changes need to happen before this can be accomplished."

The panel also recommended that science museums need to:

- Initiate a program of rotating traveling exhibits to keep exhibitry fresh for visitors and encourage repeat visits;
- Link permanent exhibits with current events (such as solar eclipses) or cultural events (such as movies) to encourage greater public interest;
- Display icons to help visitors identify "themed" exhibit areas so that the museum will be more memorable;
- Install multi-venue programming such as an IMAX® theater or other emerging technologies which utilize frequently-changing programs designed to attract new audiences;
- Develop new interactive techniques for presenting scientific principles in permanent exhibits;
- And collaborate with outside professionals (designers, educators, manufacturers, theatrical presenters, scientists, engineers and fabricators) to bring fresh ideas and perspectives to the development of permanent exhibits. "Insist that exhibit designers and educators fish in new waters," one panelist said. "Remind them that the museum is competing with movies, theme parks, laser arcades, etc.."

**Internal Challenge #2: Insufficient advertising expenditures.**

In regard to overcoming insufficient advertising expenditures (the second most significant internal challenge), the experts advised science museums to make arrangements with corporations and media organizations to trade museum services (memberships, evening rentals, etc.) and

promotional opportunities for advertising support. "Sponsorship marketing is becoming the best way to stretch dollars," one panelist wrote. "Teaming with companies who would not give outright donations but are interested in sponsoring events or exhibits at the museum is a great way to get some 'free advertising'."

Marketing professionals should track the effectiveness of advertising and provide management with evidence of its benefits, the experts said. "I have often seen several hundred thousand dollars cut out of an advertising budget with the assumption that 'free' publicity and promotions will achieve the same effect," one respondent noted. "Publicity and promotions are most effective when they are leveraging an existing paid advertising budget. All these media need to work together."

In addition, science museums should solicit the services of advertising agencies (pro bono, trade and/or paid) to assist the museum's marketing staff in creating advertising and placing advertising within the media. One panelist commented, "This will: (1.) Save money and resources -- to be allocated to media space and time; (2.) Get the best possible creative execution."

Creating an annual marketing plan to identify opportunities, outline strategies, manage expenditures and provide a basis for advertising and other initiatives should be a priority. "View advertising as the foundation for which all marketing programs can be built on (not just based on the need to generate last-minute traffic or to quickly spend grant money)," one respondent commented. "Advertising has a cumulative effect and if you have a plan, and then react to opportunities in a way consistent with the plan, each expenditure builds on each other."

Science museums should identify (and make sacrosanct) a percentage of annual earned revenue to be used for advertising expenditures, the experts indicated. Advertising dollars should be considered as a subset of marketing resources, and in large museums, marketing resources can run from 10% to 15% of expected gross earned revenue, one panelist noted. Another said, "Once priorities and targets have been established, develop a formula to routinely take a certain part of the admission dollar to set aside for advertising. As attendance grows, so does the budget."

Reducing operational expenses and/or staff to increase funds available for advertising and marketing is a good idea, the panel indicated. One person suggested that, "Staff expenses should remain in the 50% to 60% range, leaving sufficient operating cash for new programming, marketing expenses, etc. While staff costs and ad budgets may not seem linked at first glance, keeping staff numbers low is the most important part of making sure that there are sufficient dollars left for advertising."

In addition, the experts recommended that science museums should:

- Extend their advertising budget by joining with other cultural and/or civic organizations to sponsor promotional projects and increase advertising opportunities;
- Concentrate advertising resources on marketing a finite number of programs which have a track record as successful advertising investments (IMAX® films, blockbuster exhibitions, etc.);
- Remember to allocate funds for advertising when developing budgets for new exhibits and programs;
- Create newsworthy events or link the museum's offerings to current/cultural events in the news;



- Appoint a board-level marketing committee to seek underwriting for advertising and promote the museum;
- Create or join a museum consortium to share the expense of conducting research on advertising's effect on attendance in order to establish industry standards for member museums;
- Shift advertising expenditures to less-expensive, non-traditional media that possess a defined readership and appeal to key target markets;
- And strengthen initiatives in public relations to replace image advertising in the interest of creating a more receptive audience and minimizing expenditures required to promote involvement.

### Internal Challenge #3: Inadequate strategic planning.

The third most significant internal marketing challenge is inadequate strategic planning. The panel advocated that science museums solicit the services of consulting firms (pro bono, trade and/or paid) to assist the marketing staff in auditing strategies and developing a long-range strategic plan. "One option is the intervention of an outside consultant," one person wrote. "Several former CEOs of successful museums have recently entered the private consulting sector. Bringing in such an individual or even a marketing consulting agency to do an audit of marketing strategy may provide the fodder for a dialogue about the broader question of long-range strategic plans."

Science museums should also establish a committee with representatives from each museum department as well as board representatives to develop a long-range plan for marketing, exhibits, programs and other areas. "In order to position themselves for the 21st century, science museums must

make strategic planning a priority," one person said. "A 'visioning' process is critical to developing long term strategic goals and objectives . . . this planning process requires commitment and buy-in from all department heads as well as board and top management."

Marketing professionals should seek support from museum management to initiate the long-range strategic planning process, the experts said.

"While some marketing directors may have the clout to convince their CEO and boards to engage in long-range strategic planning, most often this comes from the CEO," one person noted.

Museum professionals should ask board members or corporate leaders to loan their strategic planning personnel to the museum and guide the museum's staff through developing a long-range plan. "Ask the most powerful person on your board to loan his/her strategic planning person/team to the museum for a three-week period," one person said. "Set aside this time to do a long-range plan, and nothing else, then have it reviewed and adopted at the board level."

Conducting demographic and psychographic research is essential to reassess assumptions and understandings of the market and develop goals that could be included in a long-range plan, the panel indicated. One respondent said that museums must base strategic planning on thorough research and analysis of the opportunities, strengths, weaknesses and challenges faced by the institution.

Visit with museum professionals in other markets to research how they develop their long-range marketing plan and ask them to share a copy of their plan with your museum, the panel recommended. "Organizations will not necessarily share their plans with you (however, if they're in a

different market, they may), but you can at least get an idea of how they do their planning, who is involved in developing the plan and how often they update their plans," one person indicated.

The experts also advised science museums to bring in new, visionary leaders who will develop new paradigms for museums, motivate staff and create strategic plans that include marketing efforts. One person submitted that museums "need to bring in new blood, new leadership and creative, visionary leaders who will provide breakthrough new thinking and see museums in a new context, playing new roles and providing increased benefit and value to their local/regional communities."

In addition, the experts recommended that science museums should:

- Host a retreat or provide an out-of-office workday for senior management to develop goals for a long-range strategic marketing plan;
- Develop annual budgets based on accomplishing long-range marketing goals, rather than allowing the budget to determine what marketing goals are adopted;
- Integrate marketing staff in the planning of future exhibits and events to consider marketability as a criteria for the potential success of programs and exhibits;
- And encourage national museum organizations (Association of Science-Technology Centers, American Association of Museums) to offer additional workshops on long-range strategic planning.

**Internal Challenge #4: Market research has focused on visitors only.**

The fourth most significant internal marketing challenge is that market research has focused on visitors only. The panel recommends that science

museums undertake conducting research (phone surveys, off-site interviews, focus groups) with non-visitors to gain a better understanding on why they do not choose to visit the museum. "Good market research, and focus group studies would help provide useful data . . . and help design marketing programs that appeal to the non-visitor," one person wrote.

Science museums should link their research needs with those of other institutions to conduct an affordable, joint research project. Several participants noted that non-visitor studies are more expensive than visitor studies since special efforts are needed to reach these individuals. "Most often museums who do research do not include non-visitors because they think they cannot afford to do so," one person said. "If one can't afford to do a study alone, consider a partnership with one or more non-profit cultural institutions or with an interested organization such as the convention and visitors association."

In turn, science museums should solicit the services of consulting firms (pro bono, trade and/or paid) to assist the marketing staff in conducting studies on non-visitors, the experts recommended. "Find a market research firm that is willing to conduct a study at a reduced rate as a contribution to the organization or to gain experience in cultural arts research," one person said.

Rather than conduct research on demographics alone, science museums need to consider the psychographics of non-visitors (their interests, values and preferences) to explore how they prefer to spend their leisure time, what ideas they attend to and how science and technology are situated in their cultures. One person wrote, "Telephone surveys, intercept surveys in public spaces and focus groups are techniques which can be use to gain

information about the 'psychographics' (interest, values, and preferences) of non-visitors as well as visitors."

Science museums could ask board members or corporate leaders to loan their research personnel to the museum and guide the museum's staff through developing a study on non-visitors, the panel offered. One person mentioned that "major corporations in the region may have internal research departments that are willing to do the research pro bono or for out-of-pocket expenses only."

The experts would also like to encourage national museum organizations (Association of Science-Technology Centers, American Association of Museums, etc.) to conduct studies on non-visitors and why these individuals are not drawn to science museums. One person wrote, "This is also a national problem and one that affects a wide range of museums. The national museum organizations (AAM, ASTC, AZA, etc.) should take a role in identifying reasons why some public sectors do not regard their member institutions as attractive leisure time options."

Another solution recommended for implementation: the industry should establish an information clearinghouse for non-visitor research studies conducted by individual museums. These findings currently are not being published and could provide a basis for primary research. One person offered, "Don't rely exclusively on primary research. Secondary research on both visitors and non-visitors is very valuable and can provide a basis for developing questions specific to individual markets."

In addition, the experts advised science museums to:

- Ask professors and/or graduate students at local colleges and

universities to conduct pro bono or inexpensive research studies on non-visitors;

- Appoint a marketing professional to a board position and have them oversee a committee (ad hoc or standing) to develop non-visitor research;
- Utilize a segmentation model and sampling methods to focus on non-visitors who match the demographic profile of existing visitors (local residents, with children, etc.);
- Gather anecdotal data from acquaintances who do not attend the museum and ask them about their reasons for not attending in order to look for patterns that call for scientific research;
- And, if the museum receives tax dollars, reach non-visiting taxpayers by polling registered voters to monitor their perceptions of the museum. One person said their museum regularly polls registered voters in order to monitor voter support. "They tell us if we are adequately serving those who financially support us . . . and let us know our standing if or when we would ever want to ask for a tax increase," this person wrote.

Internal Challenge #5: Market research not a priority.

Finally, the fifth most significant internal marketing challenge is that market research is not a priority. The panel advised marketing professionals to conduct accessible market research and seek support from museum management to make research a higher institutional priority. "Until marketers can convince managers and board members that research is important, science centers will continue to be product oriented and not customer oriented," one person noted. "We cannot possibly understand the needs of visitors or potential visitors without good research. We can try to

present evidence from other industries and we can continue to educate them as to the importance of understanding customer needs . . . build the case for making research a priority in the future."

Establish an information clearinghouse for market research studies conducted by individual museums, the experts proposed. These findings currently are not being published and could demonstrate to others the value of market research. "Secondary research is generally inexpensive and can provide a solid foundation for understanding more about the industry and the local community," one person noted.

Science museums also should solicit the services of consulting firms (pro bono, trade and/or paid) to assist the marketing staff in conducting market research. Attending professional conferences, networking with marketing executives at other institutions and reading market research publications to explore effective methods can offer ideas for implementation, the panel said. "Comparing one's organization to other successful organizations in one's market and around the country (benchmarking) is one of the best ways to determine how useful market research is and why the best (science museums) do a great deal of it," one person said.

Experts advocated that national museum organizations (ASTC, AAM, etc.) should increase their efforts to publish articles/books and conduct workshops on market research techniques. "Over the last decade there's been a lot of talk about formative research in our field," one person said. "Actually, I think we'd be better off doing market research - with the focus on the audience(s) and not on the artifacts. A few 'how-to' publications and workshops would go far to helping here. (This is a business opportunity for marketers or ASTC)."

The panel also suggests that marketers should ask professors and/or graduate students at local colleges and universities to conduct pro bono or inexpensive market research studies. Museums can work with college and university professors to identify research needs that can be integrated with an academic program, they said.

Other proposed solutions to the challenge of making research a priority:

- Utilize the findings of current market research to emphasize importance, otherwise staff will consider research efforts to be idle exercises;
- Use volunteers to assist in conducting market research (phone surveys, off-site interviews, etc.);
- Link your research needs with those of other institutions to conduct an affordable, joint research project;
- Reduce other areas of the marketing budget (advertising, promotions, etc.) to increase funds available for market research;
- Allocate funds for market research when developing budgets for new exhibits and programs;
- And ask board members or corporate leaders to loan their research personnel to the museum and guide the museum's staff through the market research process.

### Recommendations for External Challenges

External Challenge #1: Struggle to keep pace with technology.

The most significant external marketing challenge facing the science museum industry is the struggle to keep pace with technology. The panel recommended that science museums solicit the services of high-tech



corporations and research firms (pro bono, trade or paid) to offer technologies and assist the staff in developing state-of-the-art permanent exhibits. "Ideally science centers should provide the link between the research community and the general public," one person noted. "To do this effectively, we need to be more closely tied with . . . R&D departments in local industry and business to gain their support in developing and funding exhibits that bring new technologies to the general public."

Science museums also should use rising public expectations and the need for new technology as a platform for fundraising efforts to support state-of-the-art technologies. "The public understands the cost of keeping pace with technology, therefore, museums can leverage this understanding to plan fundraising strategies . . .," one panelist stated.

Develop a new model for museums with a built-in infrastructure to facilitate program change economically, the panel suggested. Museum galleries should be designed with considerably more built-in support systems such as that which exists in theaters to allow for frequent changes in technology, they indicated. "Capital needs to be invested in an exhibition development process which provides for quicker, less costly updating in the future," one panelist advised. "Some changes in context and look as well as technology can be done at a much lower cost than simply replacing the entire exhibition."

The experts indicated that science museums should join or develop museum consortiums in which members would create permanent exhibits representing state-of-the-art technology from their region and then share their exhibits with other members. Museums could come together to develop exhibits with higher production values than any single museum

could afford, they noted. "This approach is best exemplified by IMAX® and other large format film theaters," one person wrote. "Production of new films would be prohibitively expensive if museums tried to go it alone. The same approach has been used to a limited extent to develop new media-based exhibits and programs but could be greatly expanded."

Science museums need to rethink permanent exhibits as open-ended resources with multiple outcomes (that allow visitors to explore phenomena) rather than as "one-time experience" exhibits, the panel said. One person noted, "It is critical that the exhibits developed have elements of ingenuity that are seen as intrinsically valuable long after the 'state-of-the-art' components have become commonplace."

Other proposed solutions to the challenge of keeping pace with technology:

- Invest in technologies that have at least a five-year life expectancy and/or shorten the timeline from exhibit conceptualization to development to maximize life expectancy;
- Create an exhibit master plan (perhaps with assistance from exhibit design consultants) that would provide strategies for incorporating technology in the exhibit program. "Adopt long-range plans . . . that would put more money in exhibits which facilitate interactive learning with state-of-the-art technology," one person wrote;
- Ask professors and/or graduate students at local colleges and universities to assist the museum's staff in developing state-of-the-art permanent exhibits;
- Attend professional conferences, network with marketing executives at other institutions and seek out publications to develop the staff's knowledge

of technology and experience with interactive media. "The key lies in employing technologically skilled staff and making the commitment to invest in continued staff development for the personnel," one person wrote;

- Shift funding of permanent exhibits from a capital consideration to the operating budget. Provide additional funds annually to develop new state-of-the-art exhibits;
- Conduct research on public's perceptions of technology and expectations for the museum experience;
- Install multi-venue programming such as an IMAX® theater or other emerging technologies which utilize frequently-changing programs designed to attract new audiences;
- And create an on-line computer network for museums to exchange information on existing and emerging technologies.

#### External Challenge #2: Science museums are "just for kids."

In regard to the second most significant external marketing challenge, that science museums are viewed as being "just for kids," the panel recommended that science museums create special museum events and programs designed for targeted, age-specific audiences which could be offered during non-peak hours (such as "date nights" for teenagers, late afternoon presentations for seniors, adult overnights, film series, etc.). One person wrote, "Many teenagers would not want to be caught dead in a place filled with kids. Many adults would not want to be caught dead in a place filled with teenagers. Let's face it, some audiences are truly incompatible. I have heard about some very creative museum programs

that age-segregate audiences . . . there is probably a lot of room for creative programming here."

Tailor advertising messages to reflect a fun experience for all age groups (including adults, teenagers and senior citizens) and advertise programs to targeted groups (such as retirement centers for seniors), the panel advised. One person commented, "Make sure that advertising and PR messages about the museum do not target just families and school-age children - be inclusive in your messages. Use humor (sophisticated) in your messaging, so that adults know they can have a good time during their visit." Another noted, "Even simple strategies can help, e.g. in ongoing publicity, feature photographs of adults having a good time at the museum as well as photographs of children, or in marketing selected programs, express the target audience (e.g. for a lecture or other adult activity) as 'designed for ages \_\_\_\_ and up'."

Science museums should create museum exhibitions on topics with special appeal to targeted, age-specific audiences. "Plan exhibits that meet the needs of both kids and adults," one panelist noted. "For example we developed "Kidsburgh" and a special climbing wall to supplement our latest traveling exhibit, Antarctica. The changes made the exhibit more attractive to younger kids, teens, and still maintained the interest of a wide range of adult age groups."

Develop clearly-articulated positioning statements which define the museum's various audiences and inspire marketing and programming staff to consider audiences other than children, the experts suggested. "This positioning statement is spun off of the mission statement which should clearly define the museum's audiences," one person noted. "Once this has

been accomplished, then developing programs for specific adult and/or family audiences is easier."

Science museums should install multi-venue programming such as an IMAX® theater or other emerging technologies which utilize frequently-changing programs designed to attract new audiences (teenagers, adults, seniors). "Emphasize the range of other activities (special traveling exhibits, large format theater, simulator theater, sophisticated resources, etc.) that are available to attract secondary audiences, provided the core family audience is assured that there will be lots there for children to do," one panelist said.

The experts said that museums also should incorporate elements which appeal to each age group in family-oriented museum programs such as science demonstrations and planetarium shows. "We have tried to ensure a variety of topics, demonstrations and programs, educational levels, and hands-on activities in our programs and exhibits to span a diverse group of visitors," one respondent wrote.

The panel encouraged science museum professionals to lobby national museum organizations (Association of Science-Technology Centers, American Association of Museums, etc.) to launch a "science is not just for kids" campaign with media kits for member museums. "Funds for 'image advertising' should be set aside or raised by ASTC and a plan or 'kit' developed to send to all science museums so they could utilize 'science is not just for kids' and a consistent image could be promoted," one person said.

Other recommended solutions for overcoming the perception that science museums are only for kids:

- Conduct demographic and psychographic research to assess the needs and assumptions of targeted age groups and explore their specific needs, preferred leisure time activities, favored news media, etc.;
- Increase the museum's number of volunteers within targeted age groups (teenagers, senior citizens, etc.) to make the environment more comfortable for these target audiences;
- Market after-hours facility rentals to clubs and organizations which represent target audiences (such as AARP for seniors) as a way to introduce them to the museum;
- Enhance comfort and services for adults, such as places to rest, good shopping/dining experiences and easy-to-use facilities (box office, visitor guide, tour guides, etc.);
- And arrange with corporations to underwrite "lifelong learning" programs for adults and senior citizens as a community relations effort.

### External Challenge #3: Budget cuts in education.

Budget cuts in education was cited as the third most significant external marketing challenge to the science museum industry. The experts agreed that science museums should solicit businesses and corporations to underwrite field-trip transportation expenses as a community relations effort. One person wrote, "New sources for subsidizing bus trips will have to be found. It may be that corporate sponsors will see unique PR opportunities in lending their names to this type of effort." Another suggested, "Sponsorships and partnerships! The museum has something that many corporations want -- high traffic in a targeted audience."

Science museums should solicit financial support from businesses and corporations to underwrite museum outreach programs as well. "We have found that local business and industry is willing to provide funding for outreach programs . . . if we continue to demonstrate the benefits for students," one person said.

Cutting educational programs that the schools won't support and creating new programs (including outreach programs) tailored to the specific needs of schools was another recommendation from the experts. From a business perspective, education programs should be driven by school demand, they said. "Too many museums maintain old education programs left from the days of easier school funding that teachers no longer want, such as classroom experiences offered within a museum," one person wrote. "A teacher may ask: 'Why should I spend the money to take my class to a museum only to sit in yet another classroom?' One museum we are working with plans to offer no programs for schools until the schools request specific programs and offer to cover the costs through fees."

Increase contacts with local/state leaders (secretary of education, legislators, etc.) and top school administrators to encourage their support for funding field trips, the panel advocated. "This requires close ties with community leaders . . . to help find creative solutions to support education," one panelist noted. "We can leverage funds from such groups to support education and help the museum."

If possible, science museums should contract with local school systems for the museum to provide classroom instruction in hands-on science. One person said, "Start partnerships with your school district now. Work at becoming the contract provider of Sex Education (as in North Carolina) or

Planetarium programs (as in Texas) or in physics or whatever your strength in programming or exhibits may be. Make it good economic sense for the school system to let your center provide educational expertise in an area they can't afford or are unwilling to tackle."

The experts also stated that museums should enlist help from civic organizations, Parent-Teacher Associations (PTAs) and school foundations to underwrite field-trip transportation expenses.

Other recommended solutions to this challenge:

- Join with other cultural or educational institutions to offer full-day excursions and enhance the value of field trips as perceived by teachers, administrators and school boards;
- Enlist help from teachers to hold fundraising events or have parents provide funds for transportation costs;
- Poll other area cultural institutions to explore their admission prices for school groups and adjust the museum's fees accordingly to remain competitive in the market;
- Offer discounts during selected low-attendance periods and/or offer reduced rates for schools which bring more than a pre-determined quota of students per year;
- Host free/inexpensive professional development workshops for teachers in order to demonstrate to them how the museum can be used as a resource;
- Conduct research on the value of the field trip experience for school-aged children in order to make a stronger case for support of these programs. "Museums have yet to make the definitive case for the value of field trips (though some data does exist, including some of my research),"



one person wrote. "In the absence of such compelling data this will always be an issue (funding cut-backs or not)! The solution is do more research and market/promote the results";

- Encourage ASTC to appoint a panel of museum professionals to develop a model plan in which science museums would serve as an offsite "interactive lab" for school districts. "There must be a public outcry for more educational funding -- without it, our future is compromised," this person said. "Use *Reinventing Education, Entrepreneurship in America's Public Schools* by Louis V. Gerstner, Jr. as a model. He might also be invited to be on the panel to create partnerships with science museums and public education";

- Solicit ASTC-member museums to provide financial support for an additional lobbyist in Washington, D.C. who would focus on funding for school field trips;

- Develop a bus consortium which would allow schools to share transportation expenses for field trips;

- Establish on-line computer programs and other electronic means to bring some museum programs into the classrooms;

- And shift museum's focus away from school groups to the general public -- a group which is more profitable and offers a better return on incremental effort and investment.

External Challenge #4: Admission perceived as expensive.

The fourth most significant external marketing challenge involves countering the perception that museum admission is expensive or not a "good value." The panel's consensus calls for science museums to market

their distinct advantages (as an all-day, entertaining, educational experience) in comparison to other attractions in the market. "We need to change our key marketing messages to show that science centers aren't your typical museum and that it is an experience that gives them interactive fun and learning for the entire family," one person noted. Another said, "It's never an issue of price, it's only an issue of value. If your price-value ratio is out of whack then you need to change the product and perception in the marketplace. It's almost never the price; most science centers and museums have far more price elasticity than they imagine."

Experts recommended that science museums investigate the admission fees of other area attractions, adjust the museum's fees if necessary and launch a marketing campaign to highlight the museum's advantages over other options in the market. "Consider producing advertising or other marketing communications that compare the museum favorably to other consumer choices (i.e., movies, theme parks, video game arcades, hanging out at the mall, watching TV at home)," one person said. Another commented, "Break admission costs down into cents/hour, or in the case of membership, \$/month to make the perceived cost smaller. Where else can you spend \$1.50 an hour and have such fun (and learn at the same time!)"

Ensure that the museum's exhibits and programs provide the highest possible value to positively influence visitors' views, the panel indicated. One person wrote, "The real solution is to offer such high quality and interesting programs that visitors will feel they are getting their money's worth. When this is done, a visit to the museum will be perceived as a bargain, particularly when compared to movies and other less open-ended forms of entertainment and enrichment." Another person agreed, "In

general, I would argue, however, that when the visitor tells you that the experience was not a 'good value' . . . it is time to raise value, not lower price." Science museums should emphasize memberships and multi-visit discounts (such as season passes) to underscore the value of repeat visits to the museum. "We can get repeat business by . . . offering incentives like specially priced seasonal passes, limited family passes, frequent visitor programs or memberships that provide extra value benefits," one person said.

The panel also recommended that science museums conduct demographic and psychographic research to assess the public's perceptions concerning the value of the museum and other attractions in the market. Surveys, focus groups and other types of market research could help museums determine how to provide better value, they said. "We need solid market research to match our customers' perceptions in terms of providing a good product, overall experience and value," one person noted. Another commented, "Science museums have to conduct focus groups and other types of market research to determine how to provide better value for the experience. As long as museums focus on price, they'll just be 'hand-wringing' rather than doing something substantive."

Enhance the museum's services (by providing friendly staff, clean restrooms, comfortable surroundings, etc.) to positively influence visitors' perceptions of value, experts recommended. "Our research tells us that visitors want friendly people, clean surroundings, clean restrooms, comfortable climate (this is Texas, remember!), safe fun for their kids," one person wrote. "Don't neglect the 'small' things -- like clean restrooms,

friendly staff. Word of mouth and positive experience are the best boosters of your product."

Other recommended solutions to overcoming the perception that admission fees are expensive:

- Offer coupons for the general public and/or reduced prices during selected low-attendance periods to enhance visitors' perceptions of value;
- Communicate to visitors that admission revenue enables the museum to offer programs in support of its mission as a non-profit organization (for example, admission revenue supports discounted/free programs for school groups);
- Communicate to visitors that admission revenue does not cover the museum's operating expenses and that others (private donors, corporations, government, etc.) have provided funding to make the museum experience available to them. "Using a different tactic, Sturbridge Village makes sure that entering patrons are told that there are others (donors, foundations, government, etc.) that have underwritten a portion of their cost, so that they are not daunted by the steep ticket prices there," one person said;
- Revise the budget to shift funding from programs which do not raise the level of perceived value to those which help to accomplish this goal. Museums should evaluate expenditures according to how each one adds value and, if it doesn't, don't do it, the experts said;
- Develop a consortium of museums to share the expense of conceptualizing, researching, testing and creating new exhibits and programs that could be shared with other member museums. One person wrote, "A major reason why museum costs are so high is the continuing insistence to do everything uniquely. Our commercial competition,

however is not so egocentric. Discovery Zones, for instance, number in the hundreds, and their program development costs can be amortized over numerous installations. We need to share programming costs among museums more effectively in order to compete better on a price basis";

- Install multi-venue programming such as an IMAX® theater to give visitors the opportunity to choose how much they wish to spend. One person said, "Museum admissions are generally below the price of a movie -- if sufficient attention is paid to . . . program variety (exhibits, demonstrations, lectures, planetarium and OMNIMAX® shows, etc.) we should be more than competitive";

- Arrange with corporations to underwrite "free admission" nights for low-income visitors;

- And simplify the pricing structure (in which additional costs are added to the base price of an admission ticket) for visitors who may perceive options as being "nickled and dimed" on admission. The panel cautioned that complex pricing structures perpetuate the idea that museums are expensive because everything is added on the base price of an exhibit ticket. "Visitors get the feeling that they are being 'nickled and dimed' at every turn and are not seeing the value of having choices in what they do, particularly if they are first timers who may not understand what is available or what we offer," one person said.

External Challenge #5: Urban surroundings inaccessible and/or dangerous.

Finally, the perception of suburban audiences that the urban surroundings of science museums are inaccessible and/or dangerous is the fifth most significant external marketing challenge cited by the experts.

The panel recommended that science museums begin by addressing safety issues concerning the museum's grounds and parking lots and by providing accessible parking areas, adequate lighting and ample security. One person said, "For those institutions that do have a problem with location, the most critical point is to control the reality of the situation -- the museum and its grounds must absolutely be safe, well lit, clean and well manicured -- and then worry about the perception."

Science museums, the experts indicated, should establish a "safe zone" for visitors by working with neighboring institutions to create a unified appearance and coordinate the work efforts of security personnel with other institutions in their immediate vicinity. One person said, "The St. Louis Science Center has joined a Forest Park network of security personnel comprised of cultural institutions in the park . . . The institutions themselves use specially-marked security vehicles that also have a visible presence in and around this urban park."

Create satellite museums or outreach programs at suburban sites (such as shopping malls) in order to promote attendance for the main museum, the panel suggested. One person wrote, "Bring the museum to the community and present workshops and other outreach programs that give people an idea of what the museum is about. When they know more about it they may feel more comfortable in attending."

Science museums should communicate to visitors that the museum has taken every possible precaution to create a safe environment (security guards, parking attendants, museum staff, etc.), the experts recommended. "Take advantage of every opportunity to provide customers with

information about parking and access (good maps or brochures sent with ticket reservations)," one person said. "Work with bus companies who work for tour groups to ensure they know how to get to the museum and where to drop off visitors safely."

Enlist support from state/local leaders (transportation authority, mayor, council representatives, etc.) to rectify unsafe conditions by creating "crime-free" zones and increasing bus transportation and police presence, the panel advised. "We can't solve all the problems of society," one person wrote. "Museums must work with the city government . . . to develop 'crime-free' cultural zones -- which exist already in many cities such as Washington, D.C., Detroit, Baltimore and Chicago." Another offered this advice: "You may want to enlist support from City Hall and the police department to help ensure that unsafe conditions are rectified. (To enlist the support of City Hall, you'll want to prove how valuable the museum is as an agent for economic development - jobs, tourism-in the community and also the extent of community support for the museum, as evidenced by attendance, funding, etc.)."

Science museums should offer special services and opportunities for surrounding urban neighborhoods which would help strengthen the community's involvement and sense of pride in the museum. "Urban museums need to cultivate an urban audience by building linkages to the local communities that surround the museum," one person noted. "We can't continue to serve the audience of the past, but need to find ways to reach the people who live in our neighborhood today. Long-term, multi-level relationships with families and community groups within the city can begin to build a new audience for the museum."

In addition, science museums should join with neighboring institutions to offer shuttle service to and from suburban shopping malls and other institutions in their vicinity. "Several institutions within the city might share in the cost for providing a shuttle bus service between participating institutions to make them more easily accessible and also promote a feeling of safety, particularly at institutions that are located in questionable or unsafe neighborhoods," one person noted.

Other recommendations to meet the challenge of urban surroundings being perceived as inaccessible or dangerous:

- Enhance directional signage in the museum's vicinity so that visitors can find the museum easily and without having to venture into unsafe neighborhoods;
- Join with the chamber of commerce and civic organizations to launch community programs such as "neighborhood watch" campaigns and to publicize the area as being clean and safe for visitors;
- Establish a visible presence at festivals, libraries and schools in suburban areas to send a message that the museum does not "belong to the inner city" but to the entire city/region. One person wrote, "Much of the outreach effort of museums in recent years has been directed at urban centers, especially large urban school districts. While this effort is commendable and important, it has accentuated the separation of suburban audiences from their regional museums";
- Conduct demographic/psychographic research with suburbanites to assess their perceptions and feelings about the accessibility and safety of the museum's surroundings;



- Poll museum visitors to identify problems and make staff aware of areas in need of immediate action;
- Appoint a committee with representatives from suburban communities to assess concerns and advise the museum's staff on possible improvements;
- Offer discounts to museum visitors who utilize public transportation from suburban areas;
- Extend educational programs/shows to the primary parking area or in front of the museum in order to enhance presence of personnel and to attract potential visitors. One person wrote, "We should work to remove any and all barriers . . . enhanced presence of program folk in the parking areas (not just security guards or parking attendants) so that the museum experience begins in the parking areas";
- Offer valet parking at special events and parking escorts during daytime hours to increase the presence of museum personnel and enhance visitors' sense of security;
- Create special experiences at the museum that will compel suburbanites to venture into urban surroundings. "Try high-profile appearances -- when the perception of attraction outweighs the perception of danger, visitors will come," one person wrote;
- And, if necessary, consider relocating to a new site if improvements cannot be made to the museum's current location, one panelist said.

### Recommendations for Further Research

No matter how educated or experienced, no group of experts can predict the future of their industry with complete accuracy. This Delphi Study

represents the consensus opinion of this particular group and their "best guess" of solutions to the marketing challenges they believe pose the most significant threat to science museums. Furthermore, the Delphi Technique was not designed to produce predictions that can be generalized to all science museum professionals. Although panelists were selected based on their experience in the industry, they were not selected randomly.

Challenges cited by the panelists in this study may or may not be the most significant challenges all U.S. science museums are facing or will continue to face in future years. What's important is that this group of experts based their answers on their extensive experience in and knowledge of the industry, and on their personal experience as well as experiences related to them by other science museum professionals.

The experts repeatedly underscored the science museum industry's need for new, research-based initiatives on all levels (within and outside museums) and called for future research in a number of key areas. Two of the 10 most significant marketing challenges cited by the panel pertained directly to research. These challenges involved the low prioritization of market research initiatives and the tendency to focus on visitors more than non-visitors in market research. Recommendations for overcoming these challenges were outlined in the previous section. However, the proposed solutions contained several suggestions for future research. First of all, researchers should explore the demographic as well as psychographic profiles of non-visitors to determine who is not using science museums and, more importantly, why. Second, the industry should establish an information clearinghouse in which museums could share research findings and distribute articles and information which could be of interest to others.

Third, science museum professionals need to encourage professional associations such as the Association of Science-Technology Centers and the American Association of Museums to offer additional workshops on research methods and conduct research studies with non-visitors. The experts suggested that science museums also could partner with universities, consulting firms, board members, corporations and other non-profit institutions to make research studies possible.

While future museum studies might concentrate on the psychographics of non-visitors, other suggested areas for further study by museums are:

- A study on the opinions of individuals from different departments within science museums (marketers, exhibit managers, educators, volunteer coordinators, etc.) to see how they differ in their perceptions of marketing challenges and solutions.
- Another Delphi Study to look at some of the remaining 128 marketing challenges that were cited by the panel but, due to the limitation of considering only the 10 most significant issues, were not considered during the problem-solving round of this study.
- Research studies conducted by marketing professionals at individual museums to identify their organization's specific challenges and the museum staff's proposals for solutions.

In addition, universities and consulting firms -- and professional organizations such as ASTC or AAM -- could engage in a number of interesting and informative research studies, including:

- An examination of the existing internal cultures of science museums and, in a broader sense, all museums as non-profits that have not been studied to the extent of other non-profits (hospitals, universities, etc.).

Internal culture shapes and defines an organization's orientation to marketing. Defining this culture could provide useful information for science museums as they strive to adopt marketing practices.

- Attitudinal studies to explore the dichotomous opinions of science museum educators and marketers in regard to incorporating marketing in day-to-day business practices. The panel expressed a strong voice that marketing deserves "a seat at the table" so that marketability will be considered in all aspects of the museum's operation. At the same time, many museum professionals shun marketing as being beneath their dignity. These opposing viewpoints have fueled the debate over education versus entertainment in the science museum industry.

- Research projects similar to this study for other types of non-profit organizations, such as hospitals and universities (and sub-categories within these groups). Studies could be conducted to help administrators identify and rank their marketing challenges and then pose creative solutions.

Because so little research has been conducted in the area of non-profit organizations, there is much that professionals working within these organizations and academicians could do to research existing conditions and trends that directly affect the implementation of a marketing orientation.

### In Conclusion

Two decades ago the term "marketing" was all but unknown in science museums. What happened? As environmental conditions changed, so did science museums. Science museums watched as income sources dwindled and funds declined, and then adapted to these conditions by renewing their

emphasis on increasing earned income and attracting new audiences. Because marketing served these dual goals and held forth the promise of helping museums prosper despite these adverse conditions, science museums turned to marketing techniques such as those used in the for-profit sector. Some would say that marketing poses a risk to the future of science museums by diverting the institution from its mission. However many believe that marketing's strengths can be harnessed to serve the mission by generating earned income for educational programs and allowing the institution to reach a broader cross-section of the public.

As science museums continue to evolve in response to environmental conditions, they must adapt as marketers of entertaining and educational experiences for the public. No one in this study, the author included, would predict that science museums face extinction because of adverse environmental conditions. There are many healthy signs for the industry, including their vitality as educational institutions and their ability to attract large audiences, which indicate that science museums are here to stay and will continue to prosper in the future. However, while these institutions possess many advantageous qualities which could assure their success in spite of the challenges they face, they are not immune to market conditions. It is important to remember that all species experience threats to prosperity. Similarly, for all institutions -- whether for-profit or not-for-profit -- their degree of success depends on their ability to recognize challenges and minimize disadvantageous qualities which are liabilities in the evolutionary process.

The future health of the science museum industry calls for efforts to make science museums an even more attractive and educational alternative

that is even more relevant and integral to visitors' lives. Science museums cannot be everything to everyone but they can do more than they are presently able to do -- provided that additional financial resources and new audiences are generated to make that happen. This study is intended to move science museums closer to realizing their fullest potential so they may go on helping individuals of all ages, nationalities and socio-economic levels reach their fullest potential.

According to the American Association of Museums, the financial stability of museums in the 21st century "will depend on their capacity to address their economic prospects methodically and with an innovative eye." Marketing can offer solutions to the dual challenges of increasing attendance and income, and represents the industry's greatest hope for meeting the significant challenges it will confront in the 21st century.

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## APPENDIXES

## APPENDIX A

### THE PANELISTS: BIOGRAPHICAL INFORMATION

An initial group of 50 people was asked to participate in this study. Twenty-seven of the following 28 participants completed all three rounds of the study. One participant (Mark St. John) completed Rounds I and II, but did not complete Round III due to other professional commitments.

**Barbara Ando** is director of public programs for Lawrence Hall of Science, University of California in Berkeley. Ando is responsible for planning, development, and management of public programs, including marketing, public relations, special events and museum operations as well as managing a staff of 40 full-time and part-time equivalents. Her marketing responsibilities include developing exhibit sponsorships, marketing plans and cross promotions.

**Dr. Dan Appleman** is director of Cranbrook Institute of Science and vice president of Cranbrook Educational Community in Bloomfield Hills, Michigan. For more than 19 years, Appleman served as research geologist and associate director for science at the Smithsonian Institution's National Museum of Natural History in Washington, D.C. He has also served as a research geologist for the U.S. Geological Survey for about 18 years, as a professional lecturer at the George Washington University and as visiting professor at Princeton University. Appleman holds a bachelor's degree in

geology from the California Institute of Technology (1953), and both a master's in geology and a Ph.D. in geology and crystallography from Johns Hopkins University in Baltimore, Maryland. His bibliography contains approximately 80 publications. He is a fellow of the Mineralogical Society of America and a member of the State of Michigan Governor's Advisory Commission on AIDS policy.

**Elizabeth Bleiberg** is executive vice president of TI Founders IMAX® Theater at The Science Place in Dallas, Texas. Bleiberg previously served as executive vice president of marketing for The Science Place before the museum completed construction of its IMAX theater in 1995. With over 14 years experience in science centers, Bleiberg has served as a senior administrator in marketing for the Museum of History and Science in Louisville, Kentucky, and the North Carolina Museum of Life and Science in Durham, North Carolina. Her professional affiliations include service on the program committee for the Association of Science-Technology Centers and on the non-print media committee for the American Association of Museums. Bleiberg is a graduate of Leadership Dallas and serves on the public relations committee for the Dallas Memorial Center for Holocaust Studies.

**Carrie Lee Booth** is communications coordinator for the North Carolina Museum of Life and Science, Durham, North Carolina, where her duties include public relations, marketing, media relations, writing/editing museum publications, special events/promotions planning, advertising and facility rentals. Booth is a graduate of Duke University, Trinity College of Arts and Sciences.

**Minda Borun** is director of research and evaluation for The Franklin Institute Science Museum, Philadelphia, Pennsylvania. She is responsible for designing and conducting exhibit/program evaluation and research studies on museum-based learning. Previously Borun oversaw museum programs including school and group programs, weekend workshops, overnight camp-ins, traveling science shows and a youth science club. She currently chairs the Committee on Research and Evaluation of the American Association of Museums. She has served as an evaluation consultant and conducted workshops on exhibit and program evaluation for museums. Borun has published numerous articles and three monographs on studies of visitor learning in the museum setting.

**Terri Coppersmith** is marketing manager for Liberty Science Center, Jersey City, New Jersey. Coppersmith worked for over 10 years in account management at various advertising agencies in Manhattan before joining the museum. At Liberty, her responsibilities include developing and implementing cooperative promotions and sponsorships with corporations, market research and the selection and marketing of IMAX® films.

**Dr. Valerie Crane** is president of Research Communications Ltd., a communications research company in Dedham, Massachusetts which she founded in 1980. Crane's firm conducts research on a wide range of educational media projects for public television programs, broadcast and cable television programs and networks, international media and science museums. She currently serves on the Committee for Public Understanding of Science and Technology for the American Association for the Advancement of Science. Crane's numerous publications include *Challenges in Audience Research for Informal Learning*. Crane holds a bachelor's

degree from Bennington College (1966), a master's degree from the University of Vermont (1968) and a Ph.D. from Fordham University (1972).

**Dr. Alphonse T. DeSena** is president of The Science Center, Inc. and the Children's Museum of Wichita, Kansas. He is guiding the development of a new 90,000 square foot science center/children's museum and park adjacent to the Arkansas River across from downtown Wichita. DeSena joined the center's planning team in January, 1994, from Carnegie Science Center in Pittsburgh, Pennsylvania, where he oversaw the establishment of a new \$40 million facility, while also directing all operations of the existing Buhl Science Center. He has more than 20 years experience in science education. DeSena holds an undergraduate degree in chemistry from Fordham University in New York and a doctorate in education from the University of Pittsburgh in Pennsylvania.

**Jane Eastwood** is director of marketing and communications for the Science Museum of Minnesota in St. Paul. She is responsible for strategic planning for marketing and communications and manages the functions of advertising, promotions, public relations, publications, graphic design, membership, corporate/group sales and facility rentals. She has been in her present position since 1992, prior to which she was responsible for sponsorship development and major gifts at the museum. Eastwood has also worked in sports marketing and in marketing, public relations and special projects for government and other non-profits.

**Dr. John H. Falk** is president of Science Learning, Inc., Annapolis, Maryland. Falk has led a distinguished career which includes serving the Smithsonian Institution as director of the Office of Educational Research,

as assistant secretary for research and as special assistant for education. He is one of the most widely-published and well-respected researchers on science learning outside of the classroom. In particular, he has performed extensive studies on learning that takes place in museums as well as visitor evaluations at individual museums around the world. With a Ph.D. in biology from the University of California, Berkeley, Falk is also the author of numerous articles on ecology and the environment, and has developed curriculum materials for teaching science.

**Sheila Grinell** is executive director of the Arizona Science Center in Phoenix. Grinell has over 25 years experience in the development of science centers. Educated at Harvard and the University of California at Berkeley, Grinell began her career at the Exploratorium in San Francisco in 1969. Serving as co-director for exhibits and programs in the museum's initial years, she developed practices that have since been widely emulated by science centers around the world. Grinell also helped start the Hall of Science in New York City and served as executive director of the Association of Science-Technology Centers in Washington, D.C. A leading authority on science centers, Grinell has served as a consultant to numerous museums, lectures widely and is the author of myriad articles and a recent book, *A New Place for Learning Science*, about science centers and their role in conveying technical subjects to the public.

**Gloria Chun Hoo** is marketing manager for The Tech Museum of Innovation, San Jose, California and principal of Gloria Chun Communications, a consulting firm offering management and training services. In addition to serving as a producer with WNEV-TV in Boston, Massachusetts, Hoo has worked as manager of training and development

and manager of communications with The Gillette Company, Safety Razor Division, of Boston, Massachusetts and as a communications specialist with The John Hancock Mutual Life Insurance Company.

**Charles H. Howarth, Jr.**, principal of Gyroscope in Oakland, California, is a museum planner with extensive experience in museum management, master planning and program development. From 1987 to 1993 he was founding president and chief executive officer of Liberty Science Center, New Jersey. In that capacity, Howarth managed and directed construction of the 170,000 sq. ft. facility as well as creation of the science center's business/marketing plans, exhibits and programs. Liberty Science Center was designed to maximize earned income in order to reduce pressure on future fundraising needs. Howarth has spoken and written on many aspects of museum education and exhibitry and has consulted on start-up museum projects, covering master planning, programming and other aspects of creating a museum.

**Janet Iggulden** is director of marketing and community relations for the St. Louis Science Center in Missouri. A member of the center's senior staff, she participates in annual and long-range institutional planning, oversees marketing and promotions, advertising, public and media relations, facility rentals and group sales. For the center's recent expansion, she developed a unified marketing plan for the final and public phase of the \$34 million capital campaign. Iggulden has served as a panelist at several annual conferences of the Association of Science-Technology Centers and the American Association of Museums, addressing such topics as marketing and visitor research, special events that attract new audiences and building funding partnerships in the community.



**Susan Rachford Imre** is director of marketing for The Children's Museum of Houston, Texas. She is responsible for all marketing activities, including public relations, promotions, advertising and special events as well as implementation and evaluation of all earned income programs. Imre has 13 years experience as a marketing communications professional for a variety of companies including Compaq Computer Corporation.

**John W. Jacobsen** is president of White Oak Associates, Inc., Marblehead, Massachusetts. His firm specializes in strategic planning and feasibility studies for museums and large format theaters. White Oak has been involved with many new science centers, is responsible for over 40 theater studies, publishes the International Inventory of Special Format Theaters and is executive producer of *The Living Sea*, a film for large format theaters. Prior to White Oak, Jacobsen was associate director of the Boston Museum of Science in charge of theaters and marketing and executive producer of their new wing, including the Mugar Omni Theater. He frequently offers consultations on the marketing process and has also been involved in numerous museum marketing launches, including the Mugar Omni Theater, the Carnegie Science Center in Pittsburgh, The Franklin Institute's Future's Center in Philadelphia, and Liberty Science Center in New York City/New Jersey.

**E. Verner Johnson** is president/principal of E. Verner Johnson and Associates, Inc., Boston, Massachusetts. Johnson's museum research, planning and design work started in 1961. Since 1965, when he established the firm, he has been involved with the architectural design and comprehensive master planning of over 120 museums, and has designed many OMNIMAX® and IMAX® theaters and several planetariums. As a

museum planner, he assists museums with conceptualizing and defining their missions, roles and activity programs and relates them to staffing requirements and a physical facility program.

**Wayne R. Kyle**, managing partner of Woodburn Associates, Madison, Indiana, is founding partner of the firm with almost 20 years experience. His prime responsibilities for the firm include: conducting campaign planning studies, providing campaign supervision, making presentations and launching new services. Kyle serves as a board member of the American Association of Fund-Raising Counsel's Trust for Philanthropy and the Gurin Forum which promotes ethical fundraising practices.

**Carolee Lee** is assistant director for marketing at The Carnegie Science Center, Pittsburgh, Pennsylvania. Lee joined the center in 1995 with over eight years experience in marketing and planning and over 15 years experience in research and medical technology. Her responsibilities include planning, group sales, community relations, publications, media relations and advertising. Lee received her master of business administration and bachelor of science degrees from the University of Utah. Prior to joining the center, she served as director of marketing for Ethix National and senior associate for Legacy Health Systems.

**Laurie Linhart** is director of development/marketing for the Science Center of Iowa in Des Moines. A member of the museum's senior management team, her major duties include fundraising, grant writing, community relations, marketing, supervision of external communications and long-range strategic planning. In addition to teaching sociology at Drake University in Des Moines, Linhart has served as executive director of B.L. Recovery Inc., a residential treatment facility for chemically-

dependent women, for which she oversaw fundraising, community relations, marketing, long-range planning and other administrative duties.

**B. G. Metzler** is vice president of marketing/public relations for The Discovery Place, Charlotte, North Carolina, where she has also served as director of development/marketing. A former weather anchor, producer and public affairs coordinator for WPCQ-TV in Charlotte, Metzler also worked as an account executive for Cohn & Wolf Public Relations in Charlotte and has served as museum reviewer for the American Association of Museums since 1990.

**Marvin Pinkert** is vice president of programs at the Museum of Science and Industry, Chicago, Illinois. In addition to overseeing all of the museum's exhibit, education and film projects, Pinkert has partnered with marketing directors on the design and analysis of market research and the development of marketing/pricing strategies. He drafted and implemented the Thematic Zone plan, a blueprint for development of new, contemporary exhibits on science and technology. Pinkert holds a master's degree in non-profit management and marketing from the J.L. Kellogg School of Management at Northwestern University.

**Marilyn Rippee** is currently executive director of Omniplex Science Museum and has been with the organization for nine years. Prior to joining the museum, Rippee had 23 years corporate management experience in the for-profit world. She attended University of Central Oklahoma and Oklahoma State University, Oklahoma City, and is active in civic affairs in Oklahoma City.

**Dr. Robert Semper** is executive associate director for The Exploratorium, San Francisco, California. Semper received his Ph.D. in

solid state physics from Johns Hopkins University in 1973, where he performed nuclear physics and medical physics research as well as taught college physics. Semper joined the Exploratorium in 1977 to train college teachers in interactive exhibit development, and now is responsible for all program activities including exhibits, education and media. He also serves as head of the museum's new Center for Media and Communication which is developing interactive media for the museum and networks. In 1988, during a leave, he was director of a creative collaboration between Apple Computers and Lucasfilm Ltd., concerning the development of interactive multimedia education projects combining computer graphics and film/video technology.

**Roy L. Shafer** is principal of The Roy L. Shafer Co. and former president/chief executive officer of Ohio's Center of Science and Industry (COSI), Columbus, Ohio. An internationally-recognized leader in the field of science-technology museums, Shafer has over 31 years experience in the industry. He and his firm specialize in numerous areas including strategic planning and implementation, leadership development, financial strategies for non-profits and developing science center facilities, exhibits and programs. A former director of development and marketing, Shafer served as president/CEO of COSI from 1983-95 during which time the museum's annual attendance began a steady climb and more than doubled in the late 1980's, reaching over 740,000 in 1993. Shafer is immediate past president of the Association of Science-Technology Centers; has served on the board and currently serves on committees for the American Association of Museums; and is currently serving a presidential appointment to the National Museum Services Board.

**Mark St. John** is founder and president of Inverness Research Associates, Inverness, California. In addition to large policy studies and evaluations in the domain of formal K-12 education, St. John and his group have been involved in studies of the private and public investments made into the informal educational domain. Some recent projects include a study of the professional development institutes of the ASTC teacher educators network and a national study of the National Science Foundation's support for new science centers. Other informal science education projects include evaluations of multiple exhibit development projects, planning efforts for new institutions and studies of "spin-off" programs connected with national television series such as "3-2-1 Contact," "Square One Math" and "The Magic School Bus."

**Bob Tarren** is director of marketing and public affairs for the Science Museum of Virginia in Richmond. He is responsible for strategy, promotions, public relations and advertising for more than 250 permanent and traveling exhibits, programs, OMNIMAX films, planetarium shows and special events. With a master's degree in marketing communications from the University of Florida, Tarren has over 20 years marketing experience as both business owner and marketing professional. His clients have included IBM, Lee Apparel, Intelsat, Guinness and the U.S. Bobsled Federation. He previously served as president of Kalman Tarren Marketing and co-founder and vice president of VATEX AMERICA. Tarren recently served as president of the Advertising Club of Richmond and is active in local professional and museum organizations.

**Kathy Winklhofer** is public relations officer for the Kansas City Museum in Missouri. Winklhofer is in charge of local, regional and

national media placements/relations, publications, marketing partnerships and special events. Prior to joining the museum in 1991, she worked in the public relations departments of The Nelson-Atkins Museum of Art in Kansas City and the Kansas State University News Service in Manhattan. She graduated from Kansas State University with a bachelor of arts degree in journalism and mass communications.

The following individuals, after receiving the introductory letter, chose not to participate:

**Dr. Margaret Conover** is director of the Science Museum - Shoreham-Wading River Schools in Shoreham, New York.

**Robert Content** is director of the Science Museum of Connecticut in West Hartford.

**Dr. Marian C. Diamond** is director of the Lawrence Hall of Science in Berkeley, California. Diamond asked **Barbara Ando**, director of public programs, to represent the museum in the study.

**Bill Follis** is marketing director for the Discovery Center in Fort Collins, Colorado.

**Cynthia Fox** is assistant director of external affairs/marketing for SciTrek - The Science and Technology Museum in Atlanta, Georgia.

**Dr. Alan J. Friedman** is executive director of the New York Hall of Science in Corona Park, New York.

**Joyce Gardella** is vice president of marketing for the Museum of Science in Boston, Massachusetts.

**Todd Hansen** is director of marketing for Orlando Science Center, Orlando, Florida. Hansen asked **Mary Sellers**, special markets manager

for the museum, to participate in his place.

**Margaret A. Hiers** is director of the Fernbank Science Center in Atlanta, Georgia.

**Steven Himmelrich** is director of marketing at the Maryland Science Center in Baltimore.

**Kevin Hughes** is director of public affairs at the Pacific Science Center in Seattle, Washington.

**Margaret Martin** is director of public relations/marketing at the North Carolina Museum of Life and Science in Durham, North Carolina. Martin asked **Carrie Lee Booth**, the museum's communications coordinator, to participate in her place.

**Freda H. Nicholson** is executive director of The Discovery Place in Charlotte, North Carolina. Nicholson asked **B.G. Metzler**, the museum's vice president of marketing/public relations, to participate in her place.

**Dr. Douglas R. Noble** is director of the Memphis Pink Palace Museum and Planetarium in Memphis, Tennessee.

**Denise O'Neal** is assistant director of marketing for The Carnegie Science Center in Pittsburgh, Pennsylvania. O'Neal left her position after the invitation was sent. **Carolee Lee**, the museum's new assistant director of marketing, took O'Neal's place in the study.

**Joyce Parker-Johnson** is director of marketing and public affairs at the Science Museum of Virginia in Richmond. Parker-Johnson asked **Bob Tarren**, the new director of marketing and public affairs, to take her place in the study.

**Dr. Chris Raymond** is director of publications and information services for the Association of Science-Technology Centers (ASTC),

Washington, D.C.

**Peter V. Sterling** is president of The Children's Museum of Indianapolis in Indiana. Sterling asked **Julia Watson**, the museum's director of marketing, to take his place in the study.

**Bonnie Van Dorn** is executive director for the Association of Science-Technology Centers (ASTC), Washington, D.C.

**Peter Woodburn** is president of Woodburn Associates in Madison, Indiana. Woodburn asked **Wayne R. Kyle**, managing partner for the firm, to take his place in the study.

The following persons, after receiving the Round I questionnaire, chose not to participate:

**Barbara Bantivoglio** is vice president of marketing for Liberty Science Center in Jersey City, New Jersey. Bantivoglio asked **Terri Coppersmith**, manager of marketing at Liberty Science Center, to take her place in the study.

**Gail R. Becker** is executive director for the Museum of History and Science, Louisville, Kentucky. Becker asked **Arricka Dunsford**, the museum's director of marketing, to participate in her place. Dunsford never returned the Round I questionnaire nor did she respond to fax and telephone follow-up calls.

**Christopher B. Cable** is executive director of The Imaginarium, Anchorage, Alaska.

**Lou Casagrande** is executive director of The Children's Museum, Boston, Massachusetts.



**Dwight S. Crandell** is executive director for the St. Louis Science Center in Missouri. Crandell asked **Janet Iggulden**, director of marketing and community relations, to represent the museum in his place.

**Kim Maher** was senior vice president for the Museum of Discovery and Science in Fort Lauderdale, Florida. Maher left her position after agreeing to participate in the study and before completing the Round I questionnaire.

**Michelle Marquart** is vice president of marketing/public relations at the Oregon Museum of Science and Industry in Portland.

**Joseph D. Moore** is acting president of The Franklin Institute Science Museum in Philadelphia, Pennsylvania.

**Jeffrey N. Rudolph** is executive director of the California Museum of Science and Industry in Los Angeles.

**Mary Sellers** is special markets manager for the Orlando Science Center in Orlando, Florida.

**Robert Sullivan** is president/chief executive officer of Cumberland Science Museum in Nashville, Tennessee.

**Julia Watson** is director of marketing for The Children's Museum of Indianapolis in Indiana.

## APPENDIX B

### INTRODUCTORY LETTER

Dear Dr. Appleman:

The number of science museums in the U.S. has grown dramatically since 1973, the year the Association of Science-Technology Centers (ASTC) was founded. However, despite the success of over 200 science museums in the U.S. today, a study conducted by Dr. Jon D. Miller (*ASTC Newsletter*, March/April 1992) found that the number of science museum visits per 100 adults has declined slightly over the past 10 years. As a result, science museums have renewed their interest in marketing to attract new audiences and to entice existing audiences to visit more frequently.

Science museums will grow and prosper only if they take advantage of the marketing opportunities to attract new audiences and to entice existing audiences to visit more frequently.

As Director of Public Relations for Omniplex Science Museum in Oklahoma City, and as a graduate student at Oklahoma State University in Stillwater, I am interested in studying this phenomenon in order to offer solutions that will help science museums meet the marketing challenges of the 21st century. ASTC is endorsing my study, as you will note in the enclosed letter from Bonnie Van Dorn, executive director of ASTC.

I would like to invite you to participate in a Delphi study on the future of marketing within the science museum industry. The Delphi method involves a selective panel of up to 30 participants who engage in a group communication process designed to deal with a complex problem. You have been chosen as a prospective panelist based on your recognized expertise in the science museum field.

Your participation will involve completing three brief questionnaires, each designed to take a minimal amount of time (and sent to you over the next five months). Participants will be free to express their observations and ideas. All responses will be distributed anonymously to the panel. (At no time will your name be directly associated with your responses.) The final report will name you as a participant and include a description of your professional experience. As a participant, you will receive a summary of the study's findings.

I would appreciate a response as to your willingness to participate by **Friday, January 27**. A reply form and a pre-addressed, stamped envelope are provided for your convenience. If you have any questions or prefer to respond by phone or by fax, please call me at one of the numbers listed below. Or, if you feel that another individual within your organization is better suited to participate in this study, please call me to discuss this possibility. Thank you for your consideration of this important study.

Sincerely,

Tony Zodrow  
13515 Country Place  
Oklahoma City, OK 73131  
Home phone: (405) 478-0352

Omniplex Science Museum  
2100 NE 52nd Street  
Oklahoma City, OK 73111  
Work phone: (405) 424-5545  
Fax number: (405) 424-5106

## APPENDIX C

### ASTC ENDORSEMENT LETTER

January 4, 1995

Dear ASTC friends and colleagues:

Science centers, working to remain healthy in this climate of increasingly scarce resources, face dual marketing challenges -- expanding audiences and increasing earned revenue and support. I am writing to encourage you to participate in a study designed to point the way for our community by sharing marketing expertise and devising new and creative approaches for the future.

Tony Zodrow of Omniplex Science Museum in Oklahoma City is embarking on a masters thesis study that he has designed to assist our field in taking a serious look at marketing opportunities which can provide future growth. For the study to be successful, he needs your participation as part of an expert panel of science museum professionals.

We at ASTC endorse this effort and feel that it could be a valuable study of strategic benefit to our members. We plan to work with Tony to report the findings in a publication or through the annual conference.

I hope that as a colleague you will accept Tony's invitation to take part in the study. Through our joint efforts we can increase the body of knowledge, vision and expertise that will help science museums continue to flourish.

Sincerely,

Bonnie VanDorn  
Executive Director

## APPENDIX D

### ROUND I COVER LETTER

Dear Ms. Eastwood:

Thank you for agreeing to participate in this Delphi study on the future of marketing within the science museum industry. I value your opinion and sincerely appreciate your contribution to this research.

Enclosed is the first of three rounds of questionnaires which you will be asked to complete over the next few months. The purpose of this first round is to identify the most significant obstacles that could impede science museums' marketing efforts to increase attendance and earned income in future years.

This round involves two open-ended questions. For each question, use the back of the pages and extra paper if needed. Please type or print legibly. While answer sheets are provided, you do not have to use these. You may instead choose to produce your answers on your word processor and use your own paper. I encourage you to speak openly and honestly in offering your observations and opinions. The deadline for this round is **Friday, March 3.**

Rounds II and III will involve ranking the obstacles mentioned in Round I, indicating which of these problems should receive priority attention, and discussing possible solutions to those problems.

Your name is listed on the front page of the answer sheets so I can keep an organized record of the returned questionnaires. However, during the course of this study, your name will not be revealed to other participants, and your name will not be associated directly with your responses. In my final report, I will include a list of the participants and their professional experience. Thank you again for your participation.

With regards,

Tony Zodrow  
13515 Country Place  
Oklahoma City, OK 73131  
Home phone: (405) 478-0352

Omniplex Science Museum  
2100 NE 52nd Street  
Oklahoma City, OK 73111  
Work phone: (405) 424-5545  
Fax number: (405) 424-5106

## APPENDIX E

### ROUND I FOLLOW-UP LETTER

Dear Mr. Kyle:

As of today, I have not received your response for Round I of my Delphi study on the future of marketing within the science museum industry. I know you have expressed an interest in participating. I need your reply in order to continue with Round II. Please mail/fax your response by Wednesday, March 15. (The original deadline was March 3.)

In case you need another copy of the questionnaire, the two questions are:

U.S. science museums face two significant challenges to their continued growth and success in the 21st century: increasing attendance and public usage in a highly competitive environment, and augmenting earned income in an era of increasingly scarce resources.

#### **QUESTION #1:**

List the five most significant **internal** obstacles that will impede science museums' marketing efforts to increase attendance and earned income in future years. Internal obstacles are defined as conditions originating within the organization that could impede marketing efforts. Be as specific as possible in regard to the way in which each obstacle will challenge marketing efforts.

#### **QUESTION #2:**

List the five most significant **external** obstacles that will impede science museums' marketing efforts to increase attendance and earned income in future years. External obstacles are defined as conditions originating outside the organization that could impede marketing efforts. Be as specific as possible in regard to the way in which each obstacle will challenge marketing efforts.

Do not attempt to rank the obstacles or offer solutions for overcoming them; these issues will be addressed in Rounds II and III. For each question, please type or print legibly and list your name on your answer sheets so I can keep an organized record of the returned questionnaires. If you have already forwarded your responses, I thank you for your effort. If not, I ask that you please take the time to do so at your earliest convenience. Thank you.

With regards,

Tony Zodrow  
13515 Country Place  
Oklahoma City, OK 73131  
Home phone: (405) 478-0352

Omniplex Science Museum  
2100 NE 52nd Street  
Oklahoma City, OK 73111  
Work phone: (405) 424-5545  
Fax number: (405) 424-5106

## APPENDIX F

### ROUND I SURVEY INSTRUMENT

U.S. science museums face two significant challenges to their continued growth and success in the 21st century: increasing attendance and public usage in a highly competitive environment, and augmenting earned income in an era of increasingly scarce financial resources.

#### **QUESTION #1:**

In order to meet these marketing challenges, science museums must address **internal** obstacles to marketing. Internal obstacles are defined as **conditions originating within the organization that could impede marketing efforts to increase attendance and earned income**. These conditions could stem from admissions, education, exhibits, fund raising, marketing, membership, public relations or any other internal source (or a combination of these sources).

List the five most significant **internal** obstacles that will impede science museums' marketing efforts to increase attendance and earned income in future years. **Be as specific as possible** in regard to the way in which each obstacle will challenge marketing efforts. Do not attempt to rank the obstacles or offer solutions for overcoming them; these issues will be addressed in Rounds II and III.

#### **QUESTION #2:**

In order to meet these marketing challenges, science museums must address **external** obstacles to marketing. External obstacles are defined as **conditions originating outside the organization that could impede marketing efforts to increase attendance and earned income**. These conditions could stem from competitors, government, federal/state/local regulations, the marketplace, societal trends, museum visitors or any other external source (or a combination of these sources).

List the five most significant **external** obstacles that will impede science museums' marketing efforts to increase attendance and earned income in future years. **Be as specific as possible** in regard to the way in which each obstacle will challenge marketing efforts. Do not attempt to rank the obstacles or offer solutions for overcoming them; these issues will be addressed in Rounds II and III.

**NOTE:** Each question was listed on a separate page.

## APPENDIX G

### ROUND II COVER LETTER

Dear Dr. Crane:

Welcome to Round II of my Delphi study on the future of marketing within the science museum industry. Thank you for returning your Round I questionnaire.

Enclosed is the second of three rounds of questionnaires. Please don't be alarmed by the number of pages included in this document, as it does not contain any open-ended essay questions. The estimated time for completion is 20 to 30 minutes.

As with Round I, the obstacles are divided into "internal" and "external" categories (depending on their point of origin). The answers you and other participants provided in Round I have been consolidated and paraphrased to produce this comprehensive list. If you don't think all of your answers from Round I are included, look closer - they may have been reworded. Round I's responses provided a great deal of consensus on some of the obstacles that science museums will confront in the 21st century. Your complete responses will be included verbatim in my final report.

The deadline for this round is **Friday, April 21**. Please respond by using the enclosed stamped envelope or by faxing your response to me at the number listed below. Your name is listed on the front page of the questionnaire so I can keep an organized record of those that have been returned.

In Round III, we will get to the most important part of this study: creative solutions for those obstacles that the group indicates to be the most significant in Round II. Thank you again for your continuing participation.

With regards,

Tony Zodrow  
13515 Country Place  
Oklahoma City, OK 73131  
Home phone: (405) 478-0352

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2100 NE 52nd Street  
Oklahoma City, OK 73111  
Work phone: (405) 424-5545  
Fax number: (405) 424-5106

## APPENDIX H

### ROUND II FOLLOW-UP LETTER

Dear Mr. St. John:

As of today I have not yet received your response to Round II of my Delphi Study on the future of marketing for science museums. If you have already placed your completed questionnaire in the mail, please disregard this letter.

If you have not yet mailed your questionnaire, please do so as soon as possible. If you prefer, you can fax your questionnaire to me at (405) 424-5106.

If you did not receive the questionnaire or need another copy (or if you do not plan to continue as a participant in the study), please call me at (405) 424-5545.

I need to hear from you in order to continue on to Round III of the study.

Thank you,

Tony Zodrow  
13515 Country Place  
Oklahoma City, OK 73131  
(405) 478-0352

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APPENDIX I

ROUND II SURVEY INSTRUMENT

**SECTION #1: INTERNAL OBSTACLES**

The following is a comprehensive list of the internal obstacles to marketing that were identified by panelists in Round I of this study.

**In your opinion, how significant is each internal obstacle to the future marketing efforts of science museums?**

Rank each obstacle by placing an "X" on a five-point scale that indicates its **level of significance** to science museums' future marketing efforts. If you don't consider a particular listing to be a problem or if you disagree with a particular presumption or perception, then mark closer to the "insignificant" side of the scale.

---

(1.) **Inadequate strategic planning.** Museums have not directed sufficient attention to the development of long-range strategic plans to set the priorities for marketing efforts.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(2.) **Profit centers lack entrepreneurial authority.** Museums do not give the individuals in charge of a profit center the authority to make entrepreneurial business choices that might increase the profitability of their area.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(3.) **Difficult to recruit and retain professionals.** Low salaries and little room for advancement results in an inability to recruit and retain top-level marketers. Hence, marketing departments in science museums have not reached their potential.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(4.) **Failure to consider marketability in key decisions.** Programs are created based on the educational mission without clear analysis and agreement on how to shape them to meet marketing needs. Marketing staff are excluded from decisions, which results in programs that are not as marketable as they could be.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(5.) **Marketers lack training/experience to conduct research.** Too often, science museums equate "research" with a survey administered by a staff member who has no training or experience in conducting research.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(6.) **Lack of museum networks.** Science museums insist on independently producing their own exhibits and programs, even though the results are similar to that of other science museums. Science museums lack networks to pool resources, share the workload and maximize ability to offer marketable products.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(7.) **Science museums not viewed as a business.** Staff members with a "non-profit" perspective are reluctant to see museums as competing with for-profit businesses. As a result, there is inadequate emphasis on using business principles in managing museums.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(8.) **Staff resistant to new ideas.** Staff members are resistant to new ideas for attracting new audiences or broadening existing audiences. New marketing ideas are perceived as being "radical" or "inappropriate" without proper consideration.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(9.) **Defensive public relations.** In an era of increased scrutiny of museums (i.e., the Smithsonian's Enola Gay exhibit), there is a tendency to spend substantial efforts on averting crises. This detracts from focusing on marketing.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(10.) **Market research has focused on visitors only.** In conducting market studies, science museums have focused their efforts solely on demographic research involving visitors. Marketers have no knowledge of why non-visitors do not choose their facility over other options.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(11.) **Science museum culture not customer-oriented.** Science museums do not devote adequate resources to customer service. Too often visitors leave the facility after unpleasant experiences (unfriendliness, unfair policies, etc.).

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(12.) **Marketing department too small.** Because there is a very small staff (many times one person) in the marketing department, they have a limited amount of time to spend on marketing. Science museums do not have the human resources necessary to do the job as it needs to be done.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(13.) **Failure of imagination.** The last "big" idea in science museums was IMAX/OMNIMAX. Twenty years later there is still no successor to IMAX as a reliable market draw with changeable media. While ideas for simulators and virtual experiences abound, the museum community appears unable to focus on shared platforms for attracting new audiences.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(14.) **Market research not a priority.** Science museums do not make market research a priority.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(15.) **Board not committed to marketing.** Governing boards don't like to market the organization or see the need to spend dollars on marketing. This lack of commitment has a negative impact on marketing.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(16.) **"Top down" vs. "team oriented" management.** Science museums still use a hierarchical management system rather than a team approach. Museums lag behind the corporate world in employing the new team philosophies (i.e., Total Quality Management, etc.).

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(17.) **Uninviting facilities.** Physical facilities are uninviting. This causes potential customers to spend their disposable income at locations that have more up-to-date facilities.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(18.) **Failure to show relevance to everyday life.** Science museums do not offer experiences that people perceive as being relevant to their everyday lives. Lack of response to relevant issues and interests causes the audience to ask "why should I care about this?"

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(19.) **Staff indifferent to marketing.** In a highly diffused environment, staff members often think marketing is "not my job." Staff does not realize the impact they can have on marketing by providing positive visitor experiences, interesting programs/exhibits, etc.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(20.) **Insufficient advertising expenditures.** While media sponsorships and PSAs supplement the advertising budget, science museums do not devote sufficient advertising funds to ensure good public awareness.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(21.) **Discord over sponsor/museum relationship.** Development, marketing and program staff have competing priorities in regard to sponsors. Departments cannot agree on type and level of sponsor acknowledgment within exhibit setting, in advertising, etc.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(22.) **Stagnant exhibits.** Lack of development of an integrated and dynamic exhibit philosophy has allowed for some stagnation in exhibitry. Exhibits are out-of-date or simply ineffective, hence marketing has a problem convincing the public that they need to visit more often.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(23.) **Lack of commitment to underserved audiences.** To attract underserved audiences (minorities, lower socio-economic groups), science museums have developed "quick fix" programs. Lack of attention to cultural diversity results in efforts that are inappropriate and unappealing to large segments of the potential audience.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(24.) **Resistance to providing "entertainment" value.** Museum staff members are resistant to providing experiences that are high enough on the "entertainment scale" to be appealing to large segments of the population.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(25.) **Marketers unreceptive to staff's ideas.** Marketers often choose to "go it alone," which communicates to other staff members that their ideas are not welcome. By failing to consider their opinions, marketers lose valuable free input for marketing ideas.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(26.) **Board not committed to museum.** Board commitment is low as fewer people have the time to make a multi-year commitment and meetings are sparsely attended. This causes an increased burden on the staff to "fill in the gaps" and diminishes their ability to concentrate on marketing.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(27.) **Programs lack originality and/or quality.** Programs lack originality and/or quality sufficient to keep audiences interested. Science museums do not update their programs often enough to maintain their marketability.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(28.) **Failure to consider mission in key decisions.** Programs are created based on marketing needs without clear analysis and agreement on how to shape them to meet the educational mission. Program staff are excluded from decisions, which results in programs that do not serve the educational needs of the public.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(29.) **Marketing not a budgetary priority.** Effective marketing should generate more resources than it consumes. Even so, marketing is among the first to be sacrificed when the budget gets tight.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(30.) **Staff unaware of marketing principles.** Staff members who create programming and exhibits do not understand basic marketing principles. Therefore, the frame of reference from which staff members approach programming decisions is based on academics, not marketing.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(31.) **Elitist approach to visitor experience.** Science museums tend to speak over-the-heads and beyond-the-interest of the mass audience. Programs and exhibits do not reflect the public's interest and do not use language that is inclusive of a wide audience.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(32.) **Marketers don't know science.** Marketers don't take time to learn the science behind the exhibits and the programs they sell. Because marketers don't know science, they don't look for the science angle and cannot effectively market science-based exhibits and programs.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(33.) **Insufficient computer software/hardware for market research.** Science museums lack up-to-date computer systems necessary to track audiences, survey museum visitors, analyze demographics and provide critical data for making strategic marketing decisions.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(34.) **Too many products to promote.** Despite limited marketing budget, staff continues to create more events and programs. Each product brings its own marketing challenges, fragmenting the resources - both financial and human - of the marketing department.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(35.) **Inability to prove educational benefits.** Science museums are unable to clearly and succinctly articulate to the public the educational benefits of a museum experience. This inability to document the nature and extent of learning in science museums has resulted in a museum field unable to fully market its exhibits and programs.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(36.) **School visitation vs. general visitation.** Science museums are so crowded with school groups that the general visitors complain about a poor visitor experience. This makes it difficult to market a "fun day at the museum" to the general visitor.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(37.) **Marketing as part of development.** Museums often combine marketing and development in a single department, despite the fact that these are two different disciplines. This lack of autonomy results in a poorly-focused marketing program.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing



(38.) **Board reluctant to apply business expertise.** Trustees often leave their business sense in their desk drawers when they come to a board meeting, believing that the economics of science museums are different from those of their own businesses.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(39.) **Lack of communication.** Ineffective communications within all departments impedes marketing efforts. Science museums lack defined communication paths for all staff members to keep the marketing division informed of upcoming exhibits, events and programs.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(40.) **Failure to apply results of market research.** After science museums conduct market research, they often fail to apply the lessons that could be gleaned from the information that has been gathered.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(41.) **Increasing cost of educational programming.** The cost of some educational programming is far more than what science museums can expect their customers to pay. When programs that aren't cost-effective are eliminated, this disappoints the customer because the museum is unable to meet their needs.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(42.) **No experience "in the trenches."** Cross training is important for marketers so that they appreciate the strains success (and failure) make on the admissions staff. Marketing staff should learn how marketing affects those who are "in the trenches."

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

## SECTION #2: EXTERNAL OBSTACLES

The following is a comprehensive list of the external obstacles to marketing that were identified by panelists in Round I of this study.

### In your opinion, how significant is each external obstacle to the future marketing efforts of science museums?

Rank each obstacle by placing an "X" on a five-point scale that indicates its level of significance to science museums' future marketing efforts. If you don't consider a particular listing to be a problem or if you disagree with a particular presumption or perception, then mark closer to the "insignificant" side of the scale.

---

(1.) **Staying close to home.** The advent of multimedia home entertainment (home computers, the information superhighway, cable tv, video rentals and home theaters) has caused a "cocooning" effect, in which families stay home to avoid the expense and inconvenience of going out.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(2.) **Negative attitudes toward technology.** Science and technology are increasingly being seen as hazards to our future rather than sources of salvation. The public feels a high level of ambivalence about "progress" in science and technology.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(3.) **Proliferation of large-format theaters.** In the 1990's, the number of large format theaters will continue to grow. The typical radius between theaters will decline significantly, with some cities having two or three large format screens competing for a diminished audience.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(4.) **Retailers adopt "museum store" concept.** New retail stores in shopping malls offer the aura of being in a museum store and products that are similar to those available in museum stores. Competition from these stores has strained the ability of museum stores to attract consumers.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(5.) **UBIT, other regulatory threats.** Science museums, in attempting to compete with the "for-profit" sector, endanger their ability to maintain a not-for-profit status and avoid the federal UBIT (unrelated business income tax) and other regulatory threats.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(6.) **Controversial topics/bad publicity.** Controversial exhibit topics such as AIDS and teen pregnancy and bad publicity over the Enola Gay exhibit at the Smithsonian have generated a public backlash against the museum community.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(7.) **Struggle to keep pace with technology.** Video arcades, virtual reality, the Internet, digitized cameras and other emerging technologies are redefining what people expect from museums. Rapid technological advances and heightened visitor expectations will make "state of the art" exhibits obsolete in a short amount of time.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(8.) **Admission perceived as expensive.** Consumers perceive admission fees as "too expensive" and/or feel that the science museum experience does not match their perceptions of a "good value."

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(9.) **Media not as interested in "good news."** Aside from new program openings, science museums are seldom a source of "hot" news. As a result, the media does not give science museums coverage relative to their popularity and economic impact.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(10.) **School needs vs. public needs.** Pressure from the schools to be responsive to their curricular needs is given priority, while the public's needs are overlooked or not addressed with the same emphasis.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(11.) **Adverse political environment.** As governmental (federal, state, local) budgets are tightened, fewer arts and cultural attractions are afforded underwriting from government sources. This directly affects program availability, which in turn affects audience participation.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(12.) **Competition from theme/amusement parks.** For-profit amusement parks are aggressive and well-funded competitors in the tourism market. Science museums and their "educational" pull will have increasing difficulty competing against amusement parks that are promoting "fun and excitement."

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(13.) **Urban surroundings inaccessible and/or dangerous.** Science museums in urban locations are perceived by suburban audiences as being inaccessible or dangerous to visit. Suburbanites are less willing to drive into the city and face inconvenience/risks.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(14.) **Lack of support from chamber of commerce/tourism department.** Science museums draw more people than many other attractions in their area. In spite of this, chambers of commerce and state tourism departments do not provide adequate promotional support for the science museums in their area.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(15.) **Science museums are "just for kids."** The public perception is that science museums are only for children or those with children. This keeps many adults - from high school students to senior citizens - from attending.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(16.) **Educational reform.** The "educational reform" movement that equates hours in the classroom with academic effort and equates scores on standardized tests with education is ultimately unfriendly to science museums.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(17.) **Significant growth in minority audiences.** Minority groups do not have a strong, family-based "museum-going" tradition and have not been easy groups for museums to attract. Science museums face increasing under-utilization by this growing sector of the American public.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(18.) **Lack of outside expertise.** Science museums lack sources of information outside the industry that have a perspective on the field and the business savvy necessary to help science museums broaden their appeal.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(19.) **Lack of partnerships within the community.** Cooperation and partnership -- with other attractions, with schools, with marketing partners -- engender a sense of ownership in the community and help to counteract funding shortages. Marketers do not take full advantage of these opportunities.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(20.) **Commercial establishments offer education.** From Disney's EPCOT to Wal-Mart's environmental education displays, commercial establishments have increasingly incorporated educational components to add value to entertainment-oriented attractions and the retail environment.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(21.) **Decline in the number of families.** Science museums draw heavily from young families, which are declining as a percent of the population. While there is a baby boomlet allegedly underway, the absence of families could impact attendance.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(22.) **Decreasing support from corporations.** More and more, non-profits rely on corporate dollars to balance their budgets. This places a strain on the corporate community and eventually leads to reduced funding for marketing initiatives.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(23.) **In-the-home interactive programs.** Multi-media computers and CD ROM offer a variety of entertaining and educational programs that could be perceived by the public as a replacement for the interactive experience available in science museums.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(24.) **Public does not know what "science museums" are.** The public is only dimly aware of the distinctions among different kinds of museums. Historic houses, art museums, children's museums, science museums, history museums and other institutions blur in their minds.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(25.) **Extended working hours.** With the down-sizing of corporations and increased workloads, parents as well as adults without children are working longer hours. This means less time to frequent cultural attractions such as museums.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(26.) **Inadequate access to facilities.** Patrons need ways to get to the museum. No public transportation, unimproved roads and lack of parking all keep people from being able to reach the museum.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(27.) **Public does not understand educational benefits.** The general public does not clearly understand the educational benefits of a museum experience (what, if anything, they learn from the experience and thus what is the value of the experience).

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(28.) **Negative connotations of term "museum."** Science centers inevitably fall into the "museum" category of leisure activities. "Museums" are regarded as stuffy and tiring places that appeal only to the elite and well-educated.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(29.) **Budget cuts in education.** Public education funding continues to be cut back severely. Schools are unable to take advantage of field trips due to the cost of bus transportation, museum fees, etc.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(30.) **Society's lack of emphasis on the need for science education.** Society as a whole does not emphasize and support the need to develop tomorrow's generation of scientists to fill the void in an increasingly technological age.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(31.) **Market saturation.** Science museums have a limited population base from which to draw visitors. Saturation of the available market has led to stagnant growth and an inability to increase attendance.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(32.) **Competition from other museums.** A proliferation of museums competing for public attendance, combined with more museums getting into the "education" business, have created greater competition for science museums.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing

(33.) **The graying of America.** The population of senior citizens has been growing steadily for the past two decades. Because senior citizens do not tend to visit science museums, this segment's growth relative to other segments poses a serious threat to attendance.

Insignificant \_\_\_\_\_ Significant  
to marketing to marketing



(34.) **Commercial influence.** With corporate sponsors expecting more in return for the dollars they invest in museums, science museums are damaging the public's sense that they are neutral and objective sources of information.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(35.) **Growth in the number of science museums.** Significant growth in the number of science museums in recent years has reduced their unique attractiveness and reduced the size of the market for each facility.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

(36.) **Cities/promoters enter the exhibition business.** In light of the popularity of blockbuster exhibits, city governments and private promoters have launched their own exhibitions in an effort to revive downtowns, increase tourism, and make profits.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ to marketing

## APPENDIX J

### ROUND III COVER LETTER

Dear Ms. Linhart:

Welcome to the final round - Round III - of this Delphi Study on the future of marketing within the U.S. science museum industry. In Rounds I and II, you and other panelists identified the most significant obstacles that could impede science museums' marketing efforts to increase attendance and earned income in future years.

In Round III, we arrive at the most important part of this study: creating solutions for those obstacles the panel indicated to be the most significant. In the first two rounds, the group mapped the marketing landscape the industry is preparing to enter. In this final round, we will chart the best "course of action" - new and creative approaches to help science museums overcome their major obstacles and experience future growth.

The panel's responses in Round II were used to calculate the five most significant obstacles in each category (internal and external). These 10 problems are identified in the enclosed survey. The deadline for this final round is **Friday, June 9**. As in previous rounds, your name is listed on the front page of the answer sheets so I can keep an organized record of the returned questionnaires. Your responses will appear verbatim in my final report. Again, your name will not be directly associated with your responses.

With your completed survey, **please submit a brief biography or resume** so I can include a list of participants in my final report. In late July/early August, you will receive a summary of the completed study in appreciation for your participation. In addition, the study's results will be presented in a session -- "Marketing Science Museums in the 21st Century" -- at the ASTC conference in San Diego, October 1995.

Thank you so much for your continuing participation. Your willingness to see this study through to its completion and your generosity in sharing your time and thoughts with others is much appreciated. I hope to see you in San Diego this October.

Best regards,

Tony Zodrow  
13515 Country Place  
Oklahoma City, OK 73131  
Home phone: (405) 478-0352

Omniplex Science Museum  
2100 NE 52nd Street  
Oklahoma City, OK 73111  
Work phone: (405) 424-5545  
**Fax number: (405) 424-5106**

## APPENDIX K

### ROUND III FOLLOW-UP LETTER

Dear Mr. Tarren:

As of today I have not received your response to Round III (the final round) of my Delphi study on the future of marketing for science museums. If you have already placed your completed questionnaire in the mail, please disregard this letter.

If you have not yet mailed your questionnaire, please do so as soon as possible. If you prefer, you can fax your questionnaire to me at (405) 424-5106.

If you did not receive the questionnaire or need another copy (or if you do not plan to continue as a participant in the study), please call me at (405) 424-5545.

I need to hear from you in order to complete this study and include you in the list of participants. Please respond at your earliest convenience.

Thank you,

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## APPENDIX L

### ROUND III SURVEY INSTRUMENT

#### **SECTION #1: INTERNAL OBSTACLES**

In Round III, you are asked to provide possible solutions to the most significant internal obstacles to marketing that could impede science museums' efforts to increase attendance and earned income in future years.

The following five internal obstacles were identified by panelists in Round II as being the most significant (based on the panelists' ratings of the obstacles on a semantic differential scale measuring level of significance). The obstacles are listed in order of significance, from #1 through #5.

For each obstacle, **please provide what you consider to be the best possible solution or a way that the science museum industry might address the problem.** If you feel that the industry can do little about the problem, please indicate this. However, if possible, please offer your most creative, constructive solution possible - in essay form. Feel free to use extra pages if necessary.

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- (1.) **Stagnant exhibits.** Lack of development of an integrated and dynamic exhibit philosophy has allowed for some stagnation in exhibitry. Exhibits are out-of-date or simply ineffective, hence marketing has a problem convincing the public that they need to visit more often.
- (2.) **Insufficient advertising expenditures.** While media sponsorships and PSAs supplement the advertising budget, science museums do not devote sufficient advertising funds to ensure good public awareness.
- (3.) **Inadequate strategic planning.** Museums have not directed sufficient attention to the development of long-range strategic plans to set the priorities for marketing efforts.
- (4.) **Market research has focused on visitors only.** In conducting market studies, science museums have focused their efforts solely on demographic research involving visitors. Marketers have no knowledge of why non-visitors do not choose their facility over other options.
- (5.) **Market research not a priority.** Science museums do not make market research a priority.

## SECTION #2: EXTERNAL OBSTACLES

In Round III, you are asked to provide possible solutions to the most significant external obstacles to marketing that could impede science museums' marketing efforts to increase attendance and earned income in future years.

The following five external obstacles were identified by panelists in Round II as being the most significant (based on the panelists' rating of the obstacles on a semantic differential scale measuring level of significance). The obstacles are listed in order of significance, from #1 through #5.

For each obstacle, **please provide what you consider to be the best possible solution or a way that the science museum industry might address the problem.** If you feel that the industry can do little about the problem, please indicate this. However, if possible, please offer your most creative, constructive solution possible - in essay form. Feel free to use extra pages if necessary.

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(1.) **Struggle to keep pace with technology.** Video arcades, virtual reality, the Internet, digitized cameras and other emerging technologies are redefining what people expect from museums. Rapid technological advances and heightened visitor expectations will make "state of the art" exhibits obsolete in a short amount of time.

(2.) **Science museums are "just for kids."** The public perception is that science museums are only for children or those with children. This keeps many adults - from high school students to senior citizens - from attending.

(3.) **Budget cuts in education.** Public education funding continues to be cut back severely. Schools are unable to take advantage of field trips due to the cost of bus transportation, museum fees, etc.

(4.) **Admission perceived as expensive.** Consumers perceive admission fees as "too expensive" and/or feel that the science museum experience does not match their perceptions of a "good value."

(5.) **Urban surroundings inaccessible and/or dangerous.** Science museums in urban locations are perceived by suburban audiences as being inaccessible or dangerous to visit. Suburbanites are less willing to drive into the city and face inconvenience/risks.

**NOTE:** The actual questionnaire was separated into two parts, with one-half page of blank space provided for listing possible solutions to each obstacle.

## APPENDIX M

### ROUND I VERBATIM RESPONSES

In Round I, participants were asked to list the 10 most significant marketing challenges (five internal, five external) that will impede science museums' marketing efforts to increase attendance and earned income in future years. Their verbatim responses are given below. Each respondent was randomly assigned a letter, which was used to denote their responses to all questions in Rounds I and III. For instance, the "A" response under question #1 was provided by the same panelist as the "A" response under question #2, and so forth. Likewise, answers with the same letters in the verbatim responses for Rounds I and III are from the same panelist so that each participant's Round I verbatim responses can be paired with their Round III verbatim responses.

#### **QUESTION #1: INTERNAL CHALLENGES**

(A.) 1. Lack of strategic focus -- Many science centers appear to disassociate their role as a place of learning from their role as a fiscal enterprise. Their goals for education are developed independently, and often at variance with, their goals for attendance and income.

2. Lack of management training -- A science center would not let a biologist develop an exhibit on nuclear fusion; the same cannot be said, unfortunately, for letting a press spokesperson handle strategic marketing decisions. Relatively few managers in a typical museum have in-depth knowledge of analytical methods and business practices related to income growth.

3. Defensive public relations -- In an era of increased scrutiny of institutions that were once accepted as a "public good" (e.g. Enola Gay

flap), there is a tendency of public relations personnel to spend a substantial time and energy on averting crises. This effort detracts from a focus on promoting attendance.

4. Limited knowledge of visitors -- Some institutions conduct only demographic research. They have limited knowledge of the motivation of their visitors, and if they fail to conduct phone bank research, they have no knowledge of the impediments for non-visitors.

5. Failure of imagination -- The last "big" idea in science museums was IMAX®/OMNIMAX®. Twenty years later there is still no successor to IMAX® as a reliable market draw with changeable media. While ideas for simulators and virtual experiences abound, the museum community appears unable to focus on shared platforms for attracting new audiences.

(B.) 1. Balancing public relations with paid advertising -- As marketing is an art, it is difficult to know when you have enough paid advertising (if any) to insure good public awareness of the institution's activities.

2. Affording knowledgeable staff -- Competition for limited dollars may mean that marketing staff become higher paid than program staff.

3. Collecting marketing data -- Everyone needs more demographic information but few persons have enough time to collect, let alone, analyze the data.

4. Focusing the message -- Is the program driving the message consistent with the institutional mission or is all done just to bring in people regardless of its educational image?

5. Governing board naiveté -- Will the Board permit appropriate expenditures to have an effective program? Will their personal standards fit what needs to be done?

(C.) 1. Lack of market research (who is audience, why are they coming, what they getting out of the program/exhibit, can they receive equivalent service more cost effectively?)

2. Failure to apply results of market research (or formative research). Sometimes it's hard for people to hear that the way it's been done in the past isn't justifiable.

3. Lack of knowledge of research technique. I've seen too many institutions equate "research" with a theory-less survey administered by a junior staff member without training.

4. Lack of institutional clarity on intersection between mission and market. Programs are justified on the basis of one or the other without clear analysis and cross-departmental agreement on how to shape them to meet both needs.

5. Opportunism that detracts from strategic objectives. The program makes sense in the short-run but no one figures in the opportunity lost, effect on ability to achieve long-range goals.

(D.) 1. State-agency status, and the resulting non-entrepreneurial environment in many departments.

2. Too small a marketing department, and prior marketing efforts have failed to strongly position the museum.

3. Insufficient museum-wide focus and integration of effort against long-term strategy.

4. Physical plant in great need of attention, and the public areas starting to show wear. Not as inviting to the public as it needs to be.

5. Lack of development of an integrated and dynamic exhibit philosophy has allowed for some stagnation.

(E.) 1. The business/financial model that guides most decisions, organization, processes -- The model from which the organization works is critical because it establishes the framework and context within which all else proceeds. If the model does not match the realities of the marketplace, the organization is constantly trying to play catch-up and may actually be trying to solve the wrong problems. For example, the organization needs to determine what is a realizable ratio of earned income to support for its community. The organization needs to be scaled properly as well. How the services are "positioned" in the market area to be reached is important, and so a thorough knowledge of the market must be achieved.

2. Program/product mix -- Decisions about program and the mix of product/services affect the outcome the organization is hoping to achieve. The program must (1) match the market, (2) be planned to attract new visitors and appeal to repeat visitors, (3) not be so diverse and scattered that the public is confused about what is being offered and for whom. Matching the market can be impeded if the right knowledge and skills are not guiding the decision-making process, for example, if program staff don't grasp how they should be attempting to communicate to the public or if the marketing personnel haven't gotten the message right. The frequency of program change is a tricky area that has had too little attention in our business. Sometimes we probably change programs too frequently and waste resources; more often we probably don't have the wherewithal to provide the amount of change necessary. We also do not adequately design our programs, particularly our semi-permanent exhibits, as "renewable resources" that can encourage repeat usage. Rather we think of our offerings as "attractions," which have appeal for a relatively short time



frame. We may also find ourselves trying to be too much for too many and create a product mix that is difficult for us to market well and hard for the public to understand.

3. Price -- Several institutions are probably close to pricing themselves out of the market they would like to reach. How we communicate value and price to the public leaves much to be desired. The public has expectations about museums and price that are out-of-date with the reality of what we can or should do. This is also a "positioning" issue, and is a problem for older and newer institutions since there are long-standing cultural attitudes about what is reasonable to pay for. Our prices relate to our product mix, and these tend to be pretty complex, thus making it harder for the public to comprehend and decide what they would like to do and what they can afford. "High" perceived price can stimulate more membership sales, but members are also inclined to share benefits with non-members, which is hard to control. Membership takes on more of the character of a "subscription" program rather than an ownership philosophy.

4. Resources: Human -- We may simply not have the human resources necessary to do the job as it needs to be done. Or we may have the personnel but find it difficult for the organization as a whole to be of one mind about how the services are to be marketed.

5. Resources: Financial -- So what's new here. Marketing well done is expensive and marketing dollars still are often the first to be sacrificed when the budget crunch comes. Cleverness in this area can take you a long way, but never as far as you would like to go.

(F.) 1. Constraints on marketing by the Board of Trustees.

2. Lack of commitment to marketing the museum by the staff.

3. Not enough money in marketing budget to fulfill marketing plan and compete with the competition.

4. The Product: If museums don't have exciting exhibitry to offer.

5. Overall budget cuts.

(G.) 1. Mom and Pop businesses -- Museums, to a lesser degree science museums, have been run much like Mom & Pop businesses for decades. Given current market competitive conditions (there's a Wal-Mart coming at you), if they do not professionalize themselves, they'll find themselves out of business.

2. Fear -- Science museum professionals are terrified of the word BUSINESS and the images it conjures up in their minds. Rather than fearing it, they should look for what it can provide to them in achieving

their missions, recognizing that just being a business is no panacea, just ask IBM.

3. Lack of in-house talent -- Most science museums do not have the necessary skills and talents on-board to do effective strategic business planning or to understand and implement such plans if developed from outside. Or, if they do, the rest of the staff fears and resents them rather than embracing their efforts.

4. Lack of outside talent -- There is a lack of talent outside the institutions that has a perspective on the field but is business savvy to help science museums reinvent themselves.

5. A sense among staff that someone else should take care of the challenges they face while they simply do what they have always done and want to continue to do.

(H.) 1. Staff and volunteer indifference: In a highly diffused environment, staff and volunteers are encouraged to think "it's not my job," or "it's anybody's fault but mine." Such attitudes do not promote sharing, exchange of ideas, or a cooperative effort. Marketing is everyone's job. (So, for that matter, is security, exhibit repair, explainer duties and ombudsman duties.)

2. Mother, please, I'd rather do it myself!: Cooperation and partnership -- with other attractions, with schools, with marketing partners -- are the way to counteract funding shortages. If upper management feels threatened, or feels that they and they alone know the "right answers," a defensive environment ensues. Participation dwindles without a feeling of ownership -- and it's very important that science museum staffs look at themselves as part of a greater community.

3. Share and share alike: Cross training is important for marketers so that they appreciate the strains success -- and failure -- make on the floor staff. Too many folks have no idea what happens after the slick marketing campaign leaves the agency. Marketing staff should know how to ring in the discounts for the coupons they issue, should have to explain to irate customers the policies they write, and should, in general exult in the success and writhe in the failure of marketing as it affects the "trenches." I include planning time under sharing -- more folks seem to suffer from "too much, too fast" than "paralysis by analysis."

4. I say I have an open door, but you'd better knock first: Too few staff people know what they can do to help, or feel their ideas are welcome. Because everyone IS a marketing person for your science center, the more they learn, the more they can help marketing staff. Most of our staffs duplicate our customer profiles; by failing to consider their opinions, we

lose valuable free input to marketing plans.

5. How can I sell it if I don't know what it is?: Too few marketing people really know science. We all tend to gravitate to the topics we know -- and if marketers don't know science, they don't look for the science angle. We compromise our missions and do not take advantage of the latest technology. We don't take time to learn the science behind the exhibits and the programs we sell.

(I.) 1. Mind set of museum staff: don't think like customers/hooks for the visitors aren't the same as for the staff; program for themselves and therefore attract people like themselves; appeal to a narrow audience.

2. Museum doesn't address issues of importance to people in their everyday lives.

3. Lack of resources to promote widely and cut through the clutter.

4. There is a lack of sophistication in marketing which breeds a lack of acceptance for and focus on marketing.

5. Lack of sensitivity to the diversity of the community including SES, ethnicity, cultural.

(J.) 1. Staffing -- There is a limited number of staff in the PR/Marketing/Development department and they have a limited amount of time to spend on marketing. Yet there is an ever-increasing number of programs, new exhibits, etc. to promote.

2. Registration -- "Overworked" feeling of staff leads to attempts to simplify registration process for programs -- but this further complicates it. They don't want to talk on the phone and answer questions because they don't have time, so they try to pack all the details into the printed information (fliers, class catalogs, newsletter).

3. Control -- The people who plan the programs and lead then don't want to let marketing staff do their job. They want final approval of all promotional materials, etc.

4. School visitation vs. General visitation -- We get so busy/crowded with school groups that the general visitors complain about a poor visitor experience, yet there is still pressure from management to continue to book the large groups and discourage general public from attending until after 1-2 p.m. Makes it tough to market a "fun day at the museum" to the general visitor.

(K.) 1. Poor exhibits.

2. Lack of staff commitment to provide a positive visitor experience (parking attendants, guards, explainers, ticketing staff, food service staff,

gift shop staff, public program staff, staff responding to public inquiries, etc.)

3. Lack of funds to support an effective marketing program.
4. Low quality gift shop and food service.
5. Lack of response to cutting edge issues and issues that are relevant to the museum's audiences (in both the exhibits and other public programs).

(L.) 1. Limited budget - Having a very limited public relations and marketing budget is the biggest obstacle that we face. We usually have to rely on media placement to drive traffic. This is a very "uncontrollable" way to receive publicity because you never know what you will get, if it will be accurate, etc.

2. Too many activities and programs to promote - Even though the staff knows the budget is limited . . . it never seems to stop them from creating more events and programs. This is all well and good, but if there is no money to support these activities it again makes us rely only on media placement to drive traffic.

3. Small staff - We have three people in our department; communications director, public relations officer and graphic designer. There is always too much going on! It would help to have a bigger staff (or financial resources to contract outside help for projects when needed) to make the most of our promotional ideas, activities, etc.

4. Operations - Our office is located across the street from the museum in a 1910 three-story house. Since it was not meant to be an office, it really doesn't lend itself to accommodate 30 people. Other staff members work in the museum and in other buildings on the grounds. We have antiquated computers with non-standardized software, old copy machines and a 20-year-old phone and reservation system. Not all staff members even have computers and only a few have answering machines. Not only do these things hamper the staff's productivity and communication, it also makes it very difficult for the public to be well served.

5. Transitional period - Several years ago the museum began making a shift from history to "hands-on" science. In doing so, the museum realized that more space was needed to bring these grand-scale, interactive exhibits to the public . . . Our current "transitional" status makes marketing often difficult. It is hard to get the public to realize that the old museum is the same organization that will be developing the science center. It is also hard to market the day-to-day exhibits, events, etc. as well as the science center in the future; both are full-time jobs. And, while staff and financial resources must be devoted to both endeavors, only one facility is operational to generate visitor revenue.

(M.) 1. Perceived lack of funds -- this is a matter of assigning a relatively lower priority to marketing efforts than to other potential uses of funds.

2. Lack of training and experience -- lack of staff expertise in marketing.

3. Lack of accord between museum programs and marketing efforts -- or the notion that museum exhibits and programs don't have enough appeal, so a new set of programs has to be developed which will "bring people in."

4. Lack of information about the current audience and potential new markets -- due to a lack of audience and market research.

5. Resistance to change -- a lack of understanding on the part of the staff of changes in external situation which necessitates increased attendance and earned income.

(N.) 1. The product is inappropriate and unappealing to large segments of the potential audience. A significant impediment to marketing is that many museums are still resistant to developing programming that is high enough on the entertainment scale to be appealing to large segments of the population. This is because frame of reference from which many museum program staff approach decisions about the programs that we will offer is an academic one, not a marketing one. Program staff either are ignorant of what audiences want or, in the worst cases, they do not care about what audiences say they want.

Traditionally museums attract only a very small percentage of the population. To be more appealing and draw larger audiences, we need to refocus our approach to delivering information without running off large segments of the population who do not believe the experience is intrinsically rewarding because it asks more of them than they wish to give in a leisure-time activity.

2. Lack of market research about audiences' needs and preferences results in a lack of understanding by staff and administration (including marketing staff). Good market research can help shape program direction, help marketing staff understand where and how to expand their audiences, and what kinds of amenities audiences need. Product research can help make specific decisions about programs. Only a few of the largest museums that I'm aware of do any significant market research. Of course, having market research information does not guarantee that staff and administration will pay attention. A sub-theme of this problem is that many times, when program developers and others do "visitor research" on the attraction power of components, learning preferences, etc., they don't think about the marketing consequences of the data. This is an unmined area of

potential information for program developers as well as marketers (who need to make themselves familiar with this research also).

3. Lack of understanding among staff and especially administration about the nature of the competition that museums face results in underfunded or misdirected marketing efforts. Again, many marketing staff are provided with minimal funding for advertising and promotions and then find themselves unable to compete with the other entities in its marketplace that appeal to families and school children. Most administrators don't understand that with every dollar spent in effective advertising, your admissions revenues (and consequently store, restaurant, and membership revenues) will increase, assuming the program offerings are appealing to your audiences. There is a point at which more advertising expenditures will not pay off, but many museums are a long way from spending that much money.

4. Lack of understanding of basic marketing principles among program staff who make marketing decisions as well as program decisions. Program staff are generally the ones who make product decisions and they often have responsibility for making decisions about public relations and marketing strategies and distribution of their products. However, they lack understanding of basic principles that might help them make decisions. This isn't their fault. But very often marketing staff either aren't invited into the decision-making process or don't have the time and staff to help program staff with these decisions. Consequently, program staff develop and market programs without marketing plans.

5. Lack of integration between marketing and program planning. All of the factors cited above can be alleviated if there is solid integration between the marketing and communications function within the museum and the program function. Programmers need to let marketers into the decision-making process about programs, minimally at the strategic level and ideally at the level of determining the major program elements that will drive attendance. From there, programmers and marketers can work together to get more sophisticated about the program/product offerings within a specific exhibit hall, touring exhibit or education program, if desired.

(O.) 1. Museum staff resistance to designing/developing exhibit content or program content that appeals to a larger, broader population. While it will be crucial for science museums to be interpreters of quickly advancing technologies and to display cutting edge technology and scientific advances -- speaking over-the-heads and beyond-the-interest of the mass audience, will be deathly. If programs and exhibits reflect the topical areas that are interesting only to the technically-schooled (and in language that is not

inclusive of a wide audience) science museums will fail to capture the imagination and spirit of the humanist, the artist, the creative "right brain" oriented audiences.

2. Failure within an organization from leadership and staff (marketing, audience development, membership as well as development departments) to recognize changing demographics and economics within its community and failure to creatively, aggressively and strategically solicit, market to and involve specific new target audiences: minority, female, low-income, senior citizens with disposable income and leisure time, the Baby Boom and the boomlets.

3. Hardware deficiencies for marketing research purposes. Lack of up-to-date computerized systems to track audiences, to survey museum visitors and non-visitors, to analyze audiences and provide critical data for making strategic marketing decisions. This might also be lack of museum recognition of need to have marketing data and failure to commit resources to this task. There is frequently not enough time to do marketing research, nor enough resources to do so. Admissions data collection is usually inadequate for fuller analysis.

4. Lack of resources, or rather, non-allocation of resources (staff time and budget) committed for promotion, advertising, marketing research and audience development. Museums can derive earned income from a number of sources: admissions, store sales, program fees, sponsorships, membership. Museums fail to commit a higher percentage of its operating budget toward fully marketing those activities to ensure growth in earned income dollars. The "non-profit" perspective seems to place blinders on museum administrators who are reluctant to see museums as competing with for-profit attractions.

5. Looking old and dowdy with exhibits. Today's public is bombarded with high-tech, neat stuff. An obstacle will be old exhibits, uncreative and non-exciting and captivating programs that fail to kindle the imagination of people already jaded with access to a multitude of new images. Yesterday's programs and exhibits don't work.

(P.) 1. Attendance - hence, lack of funds

2. Fundraising - hence, lack of funds

(Q.) 1. Two cultures -- Program and marketing staff come from different backgrounds, have different views of the world in general and the museum in particular, and are likely to disagree about the role of marketing in the museum. Program staff will often define that role as selling the existing product; marketers as helping to shape a new product.

These differences are frequently a source of friction among the staff that results in the two groups working poorly together, often in an adversarial relationship.

2. Mission -- The perceived need for marketing in museums is a matter of ends rather than means. In the face of declining support, museums find it necessary to increase their attendance and earned income in order to survive. Marketing makes that possible. However, marketing comes at a price. The institution is pushed in directions that it might not otherwise go -- arguably with more emphasis on mass appeal. Effective marketing should support the mission, but too often it is seen instead as bending the mission to meet practical goals.

3. The budget -- Effective marketing is expensive, with budgets at major museums running six to seven figures. Theoretically marketing should generate more resources than it consumes, but proving that is difficult. When budgets get tight - as they always are in museums - the marketing budget is likely to be at risk.

4. Staff qualifications -- Good marketers are good marketers. In seeking individuals with the experience and track record to get the job done, museums find themselves competing with for-profit businesses. Many museums don't pay well enough to win that competition and settle for more junior people. In addition, many mid-sized museums combine marketing and development in a single department. Yet these are two quite different disciplines. The chief fundraiser frequently lacks the experience and training to run a first-class marketing program.

5. The program -- The museum's program must be a product the public wants. If exhibits are old and dusty, out of date, or simply ineffective, the marketing department will have a problem. Yet the resources to make major changes to the program are hard to come by (see budget, above), even if the staff can be brought to consensus on what improvements are necessary and how to make them (see two cultures, above). In addition, the program is likely to change slowly -- exhibits typically have a life measured in years -- while marketing has a voracious appetite for things that are new and different. That's one reason that large format films are popular with marketing directors. It's also a good example of how marketing pushes the museum to do things it might not otherwise do (find strategies to change exhibits more regularly, not because visitors learn more that way but because these exhibits are easier to market).

(R.) 1. Lack of people (staff and volunteers) resources to provide high quality visit/customer satisfaction. Therefore, customers don't return because they had to stand in line too long to purchase tickets or the building



wasn't up to their cleanliness standards, or they had to wait to get a question answered.

2. Inadequate physical facilities, i.e. parking spaces, aging buildings, ill-equipped offices. This causes customers to experience frustration and spend their disposable income at locations that are more easily accessible, that have up-to-date facilities.

3. Limited funds to purchase promotions. Because our budgets are strained and stretched, promotions dollars are hard to come by. We often rely on the almighty public service announcement and find we are at the mercy of the broadcast and print media. This limits the amount of awareness we are able to generate.

4. Lack of commitment within the Board of Directors. Fewer people have the time to make a multi-year commitment. Further, meetings are sparsely attended. It seems like only a small number of people are willing to fund raise, to serve as committee chairs, etc. This causes an increased burden on the staff to "fill-in-the-gaps" and diminishes the overall effectiveness of the organization.

5. Increasing cost of providing educational programming. The direct and indirect costs of some educational programming is far more than what we can expect our customers to pay. Therefore, we are having to eliminate programs that aren't able to pay for themselves. This effectively decreases the product we're able to promote and disappoints the customer because we are unable to meet their needs.

(S.) 1. There may be a lack of knowledge about importance of marketing on the part of the curatorial/administrative/education staff. Decisions for programming exhibits and programs may not consider market-viability of options.

2. Lack of market research so that marketing is not targeted to appropriate audiences.

3. Budget limitations, diminishing resources may restrict or eliminate marketing initiatives.

4. Escalating expenses may not be covered by increasing costs of program/other revenue, therefore not fulfilling true cost-recovery budgeting.

5. Poor public service attitudes can result in lost customers.

(T.) 1. Resistance to new ideas and approaches from staff and/or administration. It is not uncommon for individuals or departments within the science museum to develop a plan or concept for attracting new audiences or broadening existing audiences which is perceived as perfectly

reasonable by the developers of the plan but is considered "inappropriate" or "radical" by others, and thus squelched. The larger and more established the organization, the more resistance to change and innovation. Smaller organizations are often bolder in their efforts, in large part out of necessity, but often merely because they are more willing to take risks and deviate from traditional patterns of behavior.

2. Competition from for-profit "edutainment" establishments. As the lines between what a science museum does and what for-profit "edutainment" organizations (including Disney) do continue to blur, non-profit organizations like science museums will find themselves coming into direct competition with for-profit organizations for America's leisure dollars. Although this is somewhat of an "external" obstacle, it is in part due to the efforts within the science museum field that this may well become a future problem. It is my opinion that it is currently "sexy" to try and blur, rather than sharpen the distinctions between museums and EPCOT-like and Discovery Zone-like establishments. I fear that if the distinctions fully blur, the for-profits' deeper pockets will be in a better position to out-market, and ultimately out-compete science museums (and the days of subsidized existence are past).

3. Lack of commitment by institutions to take the long road necessary to change established patterns of who utilizes museums (and here I'm talking about the racial and socioeconomic make-up of museum visitor populations). It has recently been in vogue to develop programs that attempt to attract visitors who have traditionally not fully utilized museums -- in particular racial minorities and individuals from lower socioeconomic groups. Although considerable success can be affected in the short run through special programs or exhibits, research clearly shows that long-term, systematic change requires long-term commitments of resources and sustained efforts. We are dealing with long-established leisure-use patterns and short-term "fixes" are unlikely to permanently change these patterns. In fact, there is evidence that brief, intermittent efforts can do more damage than good by fostering feelings of cynicism in the target populations. For such long-term programs to persist, all within the organization, particularly at the top, have to be willing to stay the course over decades. An appreciation of this reality is not evident at most museums. Some institutions currently seem to be using the concerns of funding sources for "museum equity" merely as a short-term strategy for procuring funding. Thus, when funding priorities inevitably shift in the future, programming efforts for the underserved will be quickly dropped.

4. Most visitors to most museums are first time, or effectively first time visitors. Most museum visitors believe that visiting a museum once ("doing

it") is sufficient. The museum community as a whole, and each individual institution on its own, needs to think through how it can reposition itself within the leisure marketplace to be more of a repeat, as opposed to a "one time" experience. People will go to a mall or a movie repeatedly, why not a museum?

5. There is an inability on the part of museum professionals to clearly and succinctly articulate to the public the educational benefits of a museum experience. Due to a lack of basic and applied research clearly defining what, how and why visitors to museums learn has resulted in a museum field unable to fully justify its existence. Science museum professionals claim that science museums promote learning about science. However, these same professionals find it difficult, if not impossible, to clearly describe the nature and extent of this learning.

(U.) 1. Ineffective communications within all divisions/departments. Defined communication paths for all staff within every department is needed to keep the marketing division informed of upcoming exhibits, events and programs.

2. Lack of marketing involvement in daily science center operations, exhibit development, program development and funding. Marketing staff must be involved and understand the daily operations of the center.

3. Lack of planning process, long range plans and strategic plans. The center must operate in precise planning mode. Marketing staff must be involved in the planning of exhibits, programs and events.

4. Inadequate marketing funds and staffing (unreasonable time demands put us at risk of burnout); very low salaries inhibiting our ability to hire or retain experienced and creative staff.

5. Lack of clarity of who our audience is. Our mission says we serve everyone but this does not provide the focus and we need to address particular market needs and provide a clear direction for prioritizing our marketing efforts.

6. We are in a serious identity conflict trying to define just who we are. Are we competing with Disney and the local amusement or theme park or with university continuing education programs, traditional museums or other education providers outside the schools? To try and split the difference again results in pleasing neither audience. This problem is exacerbated by the fact that we do not have a clear understanding of what our visitors expect when they come to a science center.

(V.) 1. Insufficient operating dollars to purchase advertising to get the word out to increase attendance.

2. Not enough emphasis on quality of programs that effect change thus the product isn't as salable.

3. Not enough emphasis on using business principles in managing the museum (i.e. - giving away more than you are earning).

4. Non-profits not attracting quality personnel who are dedicated to the mission thus quality of programs and exhibits are affected.

5. Not enough emphasis on making science learning fun.

(W.) 1. Traditionally-structured "Top-Down" versus "Team-Oriented" management - The traditional hierarchy is no longer an effective way to approach the development of product offerings for a science museum. Lack of understanding of how to operate from a team approach and no people empowerment significantly impedes marketing efforts. Museums lag behind the corporate world in employing the new team philosophies. There is definite opposition to new approaches and change.

2. Lack of a "hospitality" focus for visitor services - Museums can no longer expect to develop a product offering and give no thought to the visitor experience. Much more focus must be given to customer service; making a wide diversity of audiences feel welcome from the time they enter the door.

3. Little or no investment in quality market research - Many museums do not approach exhibits or customer service from a "market-driven" approach. Too little emphasis or understanding is placed upon the return on an investment in quality market research. Others conduct surveys which are flawed or inherently biased from the beginning due to the unwillingness to pay for the expertise of a consultant skilled in the area of market research. The old adage of "you get what you pay for" definitely applies in this area.

4. Traditional "museum thinking" versus a market-driven approach to planning. Museums still seem to subscribe to the "we'll build it and they'll come" philosophy. More emphasis must be placed on involving a greater number of people in the planning stages of an exhibit or program in order for a museum to be an appealing place to a wide audience. The greater the appeal, the larger the audience. The larger the audience, the greater the earned income. There seems to be a lack of understanding of the role marketing should play in exhibit and audience development.

5. Non-profit mentality vs. business approach - "Non-profit" should really read "not-for-profit." Businesses are run to make money, all museums are interested in increasing revenues in order to continue to grow. Many museums have not had executives at the helm with a business

understanding or concern with "the bottom line." Lower salaries and little room for advancement results in the inability to recruit top-level managers and retain good staff. Cost/benefit analysis is not always understood or utilized in decision making. Internally, there is an inherent resistance to running a museum like a business.

(X.) 1. Lack of Quality Board Members: The quality of board members and their roles of governance and in fundraising is crucial to the overall success of an institution. The need to enlist educated people with vision and available time will be critical to form a union with museum administration. Competition for quality people is fierce. Impact could be a board who doesn't like to market the organization or see the need to spend dollars.

2. Merging of staff positions: In attempts to save money museums often combine the functions of marketing, public relations, development, advertising, grant writing and volunteer coordination. Often the result is a lack of focus on marketing and quality results.

3. Lack of a strategic plan: The marketing department should establish goals and targets and measure results. I perceive marketing for museums may only be in the formative stages of implementation, action but lack of focus. With this lack of focus could come uneven attempts and results.

4. Lack of a buy-in of marketing by administration: Having CEOs that are focusing on the museum itself, and not audience expansion.

5. Lack of available funds . . .

(Y.) 1. Lack of originality in exhibits and public programs: audiences are not going to keep coming to the same old kinds of exhibits on the same topics, especially if every institution is doing almost the same things.

2. Failure to come up with new ideas for programs that are perceived as relevant to people's own lives. We are too often not answering the question "why should I care about this?"

3. Failure to reach broader audiences, or to seek audiences beyond the traditional constituencies.

4. Failure or inability to develop new sources of revenue to replace shrinking (vanishing?) public funding; especially failure to develop the support groups that art museums typically have in place.

5. Inability to develop marketing information, audience profiles and similar data which would provide a factual basis for business decisions.

(Z.) 1. Sub-standard or spotty product quality: From a customer's viewpoint, a science center's products are its visitor experiences. How do those experiences score in appeal and satisfaction compared to other

appealing leisure time options? Are they exciting enough to get somebody to travel all the way to the science center and want to pay the admission? Too often, exhibits and programs are put out on the floor that are not marketable. One reason is lack of money, but even when healthier budgets are available, science center programs often suffer from design choices that have little to do with the visitor's interests. Science center projects have many other people trying to influence what the visitor is paying money to experience. Sponsors, public actions groups, educators, advisors, academics, the media, professional peers and certainly staff all have opinions about an exhibit in development.

2. The non-profit science center culture is not customer oriented: There is little sense that the customer is always right, rather, science centers believe that the institution is in the know and that the customer is ignorant with regard to science. If the visitor's dollars are to support the institution, however, then their interests must be listened to carefully, sought out and followed with dedication. A reflection of this lack of orientation to the visitor's experience can be found in the low priority of investment in quality programming, customer service and marketing. In many science centers, exhibits and programs are done as inexpensively as possible, thereby compromising quality. Even when a science center wants to provide excellent customer service, it is typically faced with many kinds of customers with different agendas.

3. Profit centers are not allowed to run as profit centers: Most museum budgets separate revenue and expenses and do not give the individuals in charge of a profit center the authority and freedom to change exhibits and programs, increase marketing, launch co-promotions, increase prices or make other business choices that might increase the profitability of their area, be it the exhibit halls or large format theater.

4. Incremental investments in marketing are hard to justify in a museum culture: Departmental territories and budgets are typically well established and each is allocated resources from the overall revenue pool according to tradition (last year's budget), appropriateness (it would be unseemly for the marketing department to spend more than the education department) and by planned activities. Seldom are museum budgets looked at strategically: Where should I spend my available funds to maximize revenues?

5. Science centers are still too independent for their own good and economic health: Museum staff like to do the creative work themselves because many have joined science centers as a creative outlet. It is foolish, for instance, for every planetarium to create its own planetarium shows, but local staff always insist that their systems are unique and their local interests special. Museum networks are in their infancy. Only when

museums get together to pool resources will quality programming be affordable and a large enough audience realizable to attract corporate sponsors. Why is everyone still inventing their own wheels? Because it seems like more fun to try *making* a movie than it is to *operate* a well-run movie house.

(AA.) 1. Tension between the perspectives of program and marketing staff.

2. Tension between short term event programming (blockbuster shows, etc.) and long term institutional program development (permanent exhibits).

3. Discordant views between public impression of institution and staff imprecision of institution.

4. Competing priorities between development, marketing and program with respect to funders, sponsors, etc. Question of type and level of sponsor acknowledgment within exhibit setting and in advertising.

5. Lack of significant museum investment in marketing.

(BB.) 1. A too limited and constrained conception of what a "museum" is . . . Need to be multifaceted -- allow use of the museum in many different ways for different people for different purposes.

2. Lack of capacity -- hard to find/attract/retrain top people in management, education, etc.

3. An inability to draw from and speak to a broad spectrum of U.S. population -- driven by and narrowed by a limited group of people who plan/design museums.

4. Inability to garner significant support from diverse sources.

5. A lack of overall clarity in vision and mission -- which results in a lack of quality -- museums will not be very interesting as a result.

## QUESTION #2: EXTERNAL CHALLENGES

(A.) 1. "Cocooning" -- The biggest competitor for most museums is the decision to just stay home. The expansion of capabilities for home computers, the information superhighway, cable TV and home theaters seems certain to exacerbate this trend. Two-career families are also an influence on reduced attendance, as shared leisure time becomes more precious.

2. Changing public attitudes toward technology -- A public that feels a high level of ambiguity about "progress" in science and technology is likely

to feel more ambiguous about the value of the science center experience as well.

3. Educational fundamentalism -- The contingent within the educational "reform" movement that equates hours in the classroom with academic effort, and equates scores on standardized tests with education is ultimately unfriendly to science museums. A push for year-round schools, for example, could have a very negative impact on summer attendance.

4. Explosion of OMNIMAX® theaters -- In the decade of the 1990's the typical radius between OMNIMAX® theaters will go from 300 miles or more to 100 miles or less. In some cities two or three large format screens will be competing for a diminished catchment area.

5. Specialized retailers -- A decade ago, most science centers could reasonably hope that their museum store could be a one-of-a-kind resource for their respective cities. The arrival of Nature Company, Learningsmith, and Barnes and Nobles megastores among others, have strained the museum's capacity to make the claims of offering unique product at a competitive price.

(B.) 1. Donor/taxpayer perceptions -- Supporters have difficulty in perceiving the need for marketing.

2. Cost of media activity -- Can it be afforded as it increases?

3. Competition with "for-profit" sector -- Will regulations or laws for non-profits change due to increasing success against for-profit businesses?

4. Getting data which confirms effectiveness of media used.

5. Partners/supporters for controversial exhibits. Will the industry be willing to give support for controversial topics?

(C.) 1. Commercial establishments (malls, restaurants) are adopting "interactive" and "immersion" techniques. Science centers must distinguish themselves by emphasizing areas of difference. In my mind, these are: engagement with phenomena, educational mission.

2. Information/entertainment technologies are rapidly changing. It's difficult to make an investment that will remain fresh for five years -- e.g., CD-ROM, virtual reality, teleconferencing. Especially if connectivity to the outside world for outreach is a priority, what to choose?

3. The price of admission is high these days -- need creative packaging of discounts, family, membership charges, pegged to local conditions/competitors.

4. Cost of marketing is high -- need as many cooperative marketing ventures as make sense. But these can be hard to track. May dilute the overall effort, absorb time better spent in more targeted approach.



5. Media are hung up on novelty and disasters. And celebrities. Can anyone help the field package the "good news" about one good work?

(D.) 1. Political environment (part of being a state agency) means that some control of our destiny is out of our hands.

2. Two very aggressive and well-funded amusement/theme parks are close neighbors.

3. General neighborhood is in decline at the present, and there is very low foot traffic. Drive-by is significant.

4. Over half-a-dozen organizations fighting over who is in charge of "downtown" marketing and the science museum is located outside all their spheres of influence. If we make something happen, we do it on our own, despite the fact that we have the largest paid attraction numbers in the city.

5. Recent well-publicized troubles of a new, much-touted history museum has generated bad publicity halo effect for all.

(E.) 1. Changes in the marketplace: demographics/psychographics -- Each area of the country has its particular circumstances to contend with. Since centers tend to be primarily regional draws rather than national (with a few exceptions), the demographic trends in the region determine much of how the problem is framed. Growing population areas with increases in the numbers of "typical" science center visitors will have a much easier time, so managed growth is the challenge. Large cities with increases in minority populations have to develop yet other strategies. Smaller regions with stable population bases must find creative ways to expand the market or relate to the community as more than just an attraction.

2. Changes in the marketplace: General attitudes toward science -- Over the past 25 years, even as the science center movement was experiencing its tremendous rate of growth, attitudes of the public toward science were changing and are still in the process of change. We can no longer assume that such trends as the excitement of the space program or the introduction of the personal computer will stimulate the interest and curiosity of the audience we have been attracting. The ambivalence the public feels towards developments in science and technology has become an important factor in how they think about what we represent and the services we provide. Even if we address the challenge by offering exhibits and programs that take on the social issues and corresponding attitudes, we still face an uphill battle because the inclination of the public to spend their leisure time and dollars in our institutions on subjects that are "downers" is not very strong.

3. Victims of our own success -- Obviously, the hands-on science center approach struck a positive cord with a substantial segment of the educated

public over the last several years. That success led to a popularity that was recognized by city governments and promoters as an asset that could be marketed as part of their goals to revive downtowns, increase tourism, etc. Good ideas are hard to hide. We now face a world with several competing alternatives to what had been a relatively exclusive domain for a few years. When even Wal-Mart starts setting up environmental education centers for families and school groups in their stores, you know the context has changed within which we do business. While this trend may be really rather good for society as a whole, it means we face new challenges as we try to differentiate our products and services. In a more subtle way, the proliferation of centers around the country and world gives a different twist to how we are perceived at least by some percentage of our visitors.

4. Earned revenue to support ratio -- This is a mirror image of the internal obstacle already described. Obviously, as government funding sources diminish, and as corporate contributions to museums must compete with social services, we are pushed to increase earned revenue. Basically, this means trying to get more dollars out of our visitors, either by increasing prices and facing price resistance or by nickel-and-diming visitors in any way we can think of that's ethical. One has to be concerned that the out-with-government atmosphere will only make our jobs that much more difficult, both in direct and indirect ways.

5. General economy -- During the 1980's the economy had a negative impact on most museum operations. Although we are told that the trend has been somewhat stronger recently, you just never know what the next month or year will bring.

(F.) 1. Competing attractions such as other museums, zoos, etc.; also baseball throwing and bumper cars.

2. Downturn in economy affecting discretionary dollars.

3. Not being awarded grant money.

4. Losing corporate and membership support.

5. Political climate (Example: Republicans now in power are determined to cut state budget which could affect our budget.)

6. The Product: If museums don't have exciting exhibitry to offer.

(G.) 1. Trustees who leave their business sense in their desk drawers when they come to a board meeting: believing that the economics of science museums are different from those of their own businesses when they, in fact, are almost identical.

2. The sense of the marketplace that science museums as not-for-profits are really non-profit charities rather than institutions that can best be

sustained by earned revenues tied directly to the delivery of audience experiences.

3. The unwillingness of public and private sector leadership to reward and nurture even the successful entrepreneurial science museums; refusing to reward them for their successes, in fact punishing them for those successes.

4. Performance standards set by the marketplace and senior officers/CEOs of science museums that have their roles miscast as sleepy little folks who go to tea with major donors rather than hard driving business leaders.

5. Competition from the for-profit sector targeted at the portion of the science museums' audiences that have the greatest ability to pay . . . the Discovery Zones, Leaps and Bounds, and ultimately the McDisney and McUniversals that can't be far off. Once the top is skimmed off the market for the science museums, that portion of the market that has been helping science museums reach those who can less afford to pay, the financial traumas will worsen significantly.

(H.) 1. Traffic patterns: Our patrons need to have a way of assessing us -- no public transportation, cutbacks in school bus funding, unimproved roads and lack of parking can all keep people physically from being able to reach us.

2. Economics: Even science museums without entry fees need sources of income -- for classes, memberships, gift shop purchases, etc. If the major industry goes belly-up, or if inflation drastically reduces buying power or if your major media sponsor cuts you out of the program, attendance and earned income suffer.

3. Politics: A swing to creationism, an anti-science movement, a public outcry against a health exhibit on AIDS or teen pregnancy can all have a major backlash against a science center's image and traffic.

4. Leisure time activity competition: Our competition for attendance is not solely composed of other cultural attractions. Sports, movies, camping or any other family leisure activity can cut into participation at the science center.

5. Baby bust: Like it or not, most people who visit science museums have kids, usually up to 13 years old. While there is a baby boomlet allegedly underway, the presence or absence of our prime market -- families -- can have an impact on attendance.

(I.) 1. Growing competition in leisure time education/entertainment (i.e. commercial OMNIMAX®, education at theme parks, stores with exhibits -

Learning Smith, etc.)

2. Continual extension of working hours for adults in families.
3. Cocooning effect where families are staying home because of expense and hassle of going out and the advent of multimedia interactive at home entertainment.
4. Continual population shifts to distant areas far from museums.
5. Growing museum competition with children's museums, new museums, etc.

- (J.)
1. Area we're in -- small population base to draw from
  2. "The Children's Museum" -- this is just a place for kids
  3. Many other museums in the area competing for public funds as they embark on upcoming campaigns -- the state-supported science museum, art museums, etc.
  4. An increasingly busy society -- the average visitor has so many other things to do which compete for his/her free time. We need to figure out how to get them to choose to come to the museum, over movies, TV, computer time on-line, arts/cultural/sports events.

- (K.)
1. Access issues, i.e., lack of parking, poor location (hard to get to, perceived as an unsafe location, no public transportation links, generally inaccessible to primary audiences, etc.)
  2. Overlapping roles with competing institutions, causing confusion among potential visitors.
  3. Confusion about what the science museum is and what it has to offer (the external effect of poor marketing).
  4. Perceived value of a science museum visit as a way to spend increasingly diminishing leisure time (as compared to competing attractions).
  5. Perceived value of a science museum visit as a way to spend discretionary income (as compared to competing venues).

- (L.)
1. Location - The museum's urban location is also perceived as difficult to find in a community that is very "suburban" in its mind set. In addition, the museum has offered larger science exhibits off-site at locations around the city (due to space restrictions). During those exhibit runs it was always a struggle to get visitors to realize that those were museum exhibits. We are also competing with ourselves; which location should the public visit?
  2. Admission policy - Part of our revenue comes from monies collected by a tax levy. This levy makes museum admission free to city residents. So,

even though many of our visitors are tourists, we can't really ask an admission fee from some visitors and not from others.

3. History vs. Science - There will always be those who are interested in only history or only science. There are also those who find it "unheard of" to use a historic home or landmark for anything other than its original purpose. With that in mind, we are trying very hard to preserve the grandeur of this historic location. These ideas must be taken into account so that we can "try" to please all interests.

4. Bi-state market - Our city is a two-state metropolitan area. A major marketing problem is getting visitors from both states to visit. Over the last several years a consensus has emerged among community leaders that in order for the greater city area to remain culturally and economically viable and competitive with other cities nationwide, communities throughout the region must combine their resources to support the region's cultural institutions. The problem is that some residents from our neighbor state don't think their tax dollars should have to pay for our attractions and vice versa; even though some of these same individuals visit these organizations. If this cultural tax passes it will hopefully unite our bi-state region and give area attractions a financial boost.

5. Suburban vs. City vs. Tourist - As in all cities, our city is made up of many urban and suburban areas - all with different racial mixes, economic backgrounds and distinct neighborhood affiliations. How to reach the other areas is a great challenge. Without marketing dollars to address the entire metropolitan area with mass media advertising, scarce dollars must be focused toward many disparate targets. Add the tourist target to the mix, and we find that nothing gets addressed as it should.

(M.) 1. Failure to effectively target, shape and place messages.

2. Lack of accord between marketing messages and the experience of visitors due to insufficient understanding of institution's impact on visitors.

3. Need to maintain a not-for-profit status and image (to avoid IRS/UBIT tax, to continue to attract support from corporations, foundations and donors)

4. Competition for the public's leisure time from less expensive, and more convenient activities (home video, community center activities, malls, sports).

5. Lack of funds to compete for choice media spots.

(N.) 1. People have less time for leisure activities outside the home.

More households have two working adults, which means they may have more money (in some instances), but they may feel more strapped for time

than ever. With down-sizing of corporations and increased workloads, parents and adults without children are all working longer hours.

2. There are increasingly greater options for families and other visitors for how to spend their leisure time. There are more varieties of both educational and entertainment opportunities in America (too numerous to mention here).

3. Some competitors are vying for the museum's traditional niche of educational leisure-time activity. Theme parks, malls, pay-for-play centers and many others are incorporating educational components into their otherwise entertainment-oriented attractions in order to add value to their products.

4. For museums in urban locations, the populations are tending to grow away from the urban core, which is also becoming less attractive to suburban audiences. They are less willing to drive into the city, pay for parking or face what they perceive to be the risks of meeting individuals who have less money, are homeless, etc.

5. Americans are less well-educated and that will become even more of a problem in the future. Most museums now attract a better-than-average-educated audience. The trend is toward a less well-educated population in the future, as poverty, immigration, funding changes and other factors impact us.

(O.) 1. Increased competition from an ever-growing field of leisure-time attractions which compete for discretionary dollars. Whether it be Disneyland, a "virtual reality" experience, MGM Studios or 500-channel TV, there is a flood of new, high-tech, sci-fi, fun experiential activities, that pour thousands of promotional and advertising dollars into the communications channels and scream for people's leisure time and dollars. Museums and their "educational" pull will have more and more difficulty competing against when others are promoting "fun" and "excitement."

2. Growth of "museum stores" outside of museums. "Museum-quality" and museum products are now available in shopping malls and stores outside museums - these retail outlets are not related to any museums, yet provide the aura of being in a museum-store and their products are similar in fact to what is available in many museum stores. (Some museums have retail outlets and are successful. Sales in those stores support the museums' bottom line - unlike the retail outlets unrelated to museums.)

3. Population trends: graying of America, population growth among new immigrants and minority populations which are not traditional museum-goers, decline of two-parent families. These trends are both obstacles and challenges for museums. Science museums draw heavily from young

and damaging the most important asset we have, the public's sense that we are neutral and objective sources of information.

4. A fragmented audience -- It's harder to reach the mass audience with a single message than it used to be. Targeted marketing aimed at specific market segments is the trend. That requires more sophistication on the part of the museum, and also raises a fundamental issue of values: the museum almost certainly will express its mission in terms of reaching a broad and diverse audience, but equally certainly will commit its marketing dollars mostly to reaching the well-to-do suburban market that is the core of traditional attendance and the most cost-effective audience to reach.

5. Multiple products -- Most museums no longer view themselves as a single product -- the traditional exhibit hall experience -- but rather as a collection of products -- large format theaters, stores, restaurants, classes, seminars, evening events, camp-ins, laser light shows and so on. Each of these brings its own marketing challenges, fragmenting the resources -- both financial and human -- of the marketing department.

(R.) 1. The competition is fierce for customers with other for-profit attractions. These attractions have very large budgets for promotions and can offer a product that may be more appealing as a result.

2. Lack of governmental (federal, state, local) funds for support of programming. As government budgets are tightened, fewer arts and cultural attractions are afforded underwriting from government sources. This directly affects program availability, which in turn affects audience participation.

3. Decreasing support from local corporate contributors. There are more non-profits relying on corporate dollars to make their budgets balance. This places an incredible strain on the corporate funding community and eventually leads to the scarce dollar being spread over many agencies. Oftentimes this affects the ongoing operations budget of these agencies.

4. Public education budgets continue to be cut back severely, rendering them unable to take advantage of field trips, museum visits, etc. Many cannot even afford the cost of bus transportation. Because funds aren't available to help subsidize these groups, many go without services.

5. The American public has much less leisure time today than ever before; therefore, spends less time frequenting arts and cultural attractions.

(S.) 1. Museums will need to compete for attention of visitors. There is an increasingly higher expectation for the entertainment value of the museum experience.

2. There continues to be reduced funding for marketing initiatives; there may be less opportunities for cross promotions as media outlets reduce their budgets. Corporate sponsorship may be harder to come by. Reduced financial support from all sources (government, private funds) for museums will also result in reduced programming, and subsequently less interest by public in attending.

3. Capital expenses associated with marketing continue to increase -- advertising, printing, mailing.

4. Visitors/users may have reduced discretionary income. Users of museums may be cautious in their buying.

(T.) 1. Competition from for-profit "edutainment" establishments. The lines between what a science museum does and what a for-profit "edutainment" organization (such as Disney) does, continues to blur. The boundaries are blurring in part because of the efforts of science museums to be more "entertaining" but, more importantly, the boundaries are blurring because of efforts on the part of corporate America to cash-in on what they perceive to be a successful and lucrative way to capture leisure dollars. In a head-to-head battle, science museums are likely to come out the losers.

2. The fact that the general public does not clearly understand the educational benefits of a museum experience. Due to a lack of basic and applied research, clearly defining what, how and why visitors to museums learn has resulted in a museum field unable to clearly articulate to the public why museums are beneficial. Science museum professionals claim that science museums promote learning about science. However, these same professionals find it difficult, if not impossible, to define the nature of that learning. Not surprisingly, the public is not clear what, if anything, they learn from the experience; and thus what is the value of the experience.

3. The fact that museums are part of a large consumer marketplace and museums are competing for the time and dollars of leisure consumers. Although this appreciation has grown considerably in recent years, there are still many in the museum field that do not fully realize just how competitive the leisure marketplace is at present. There is a need to continually educate the museum community about marketplace realities, and how museums, as non-profits, fit into the larger picture.

4. Changing historical leisure-use patterns, particularly among visitor populations who do not normally visit museums. A major reason for current under-utilization of museums by large sectors of the American public -- in particular racial minorities and individuals from lower socio-economic groups -- is a lack of a family museum-going tradition. Leisure



patterns are strongly influenced by early childhood experiences (I'm referring to family experiences as opposed to school field trip experiences). Unless children in underserved populations start visiting museums as part of family groups today, they will not bring their children to the museum in the future.

5. The public needs to be provided with high quality experiences that match their perceptions of "good value." As the cost -- in dollars, time and convenience -- for museum experiences continue to escalate, it is imperative that museums continue to work at insuring that the benefits keep pace. The perceived "value" of the experience is a function of the ratio of perceived "benefits" to perceived "costs." For many museum visitors, the ratio is perilously close to one, and the prospect is that cost may soon exceed benefits for all but the most dedicated. If so, museum visiting populations will become even less diverse, rather than more.

(U.) 1. High cost of advertising and declining availability of public service ads, placing added pressure on marketing budgets. Our limited budgets restrict our ability to compete with for-profit leisure time alternatives in our market.

2. Increasing competition for audiences. We feel pressure from a number of fronts including an increasing number of leisure time activities, increasing number of science centers in the region and declining discretionary funds. We also have to overcome perceptual problems from our intercity location.

3. Increasing competition for funding and pressure from outside funding agencies to be able to document objectively the impact science centers are having on visitors. As it becomes more difficult to obtain outside funding, this places even greater pressure to increase attendance revenues when marketing budgets are already stretched to their limits.

4. Pressure from the schools to be more responsive to their curricular needs. Often the general public's needs are overlooked or not addressed with the same emphasis. Finding a balance in marketing appeal of exhibits to such diverse groups is often very difficult.

5. Changing regional demographics.

(V.) 1. More competition for limited state education dollars thus less dollars to the museum.

2. More museums getting into the "education" business, creating greater competition.

3. More entertainment attractions getting into the "education" business, creating greater competition for the entertainment dollar. It is impossible

for non-profits to compete with for-profits on a marketing level.

4. Less emphasis on governmental funding which could make science museums for the "elite" only.

5. Not enough emphasis on a state, federal and museum level on the need for tomorrow's leaders becoming scientists to fulfill the void in the technological age. As a result, science museums may not seem as necessary.

(W.) 1. Increasing competition for the same audience - Ten years ago, hands-on, interactive exhibits were a novelty that were present only in a few children's museums and science centers. Now, these exhibits have become the norm and more and more "pay for play" operations such as Discovery Zone and Leaps and Bounds have entered the marketplace. As people increasingly have more options to choose from, interactive museums will have to develop new ways of doing business in order to maintain or increase their market share.

2. Changing demographics - (More working mothers, less leisure time, less expendable income). People want more value for the dollars they do spend and expect more from an entertainment source. With less leisure time, families want to make every minute count, hence the need for science museums to offer great variety, the latest and greatest in technology and "blockbuster" changing exhibits in order to attract repeat business and retain market share.

3. Reduced Funding Sources - With the threat of government cutbacks and increased competition for contributed income, museums will need to discover new ways to increase earned income ratios.

4. Significant growth in minority audiences - The significant growth in minority audiences will force museums to deal with issues of equity in staff, board, exhibit and program offerings in order to remain viable forces in the community. Museums will need to form many partnerships with community-based organizations in order to serve increasingly diverse audiences.

5. Rapid technological advances - The increasingly rapid advances made on the technological front will make "state of the art" exhibits obsolete in a short amount of time. As technology advances, so do visitor knowledge and expectations, which causes the estimated lifespan of an exhibit to shorten considerably. Science museum offerings such as IMAX® and Virtual Reality will no longer be new and exciting or remain as "stand alone" draws. As we move into the 21st century, museums will be faced with the burden of investing in new systems, people and equipment in order to keep offering "cutting edge" exhibits which will attract new visitors and maintain market share.

(X.) 1. Dependence on funding from grants or government, therefore reducing advertising and promotional dollars.

2. The shift of appeal to social and humanitarian types of causes.

3. Perception that science museums have money, and therefore should have all paid advertising.

(Y.) 1. Increased competition from for-profit entertainment/education enterprises; for example, theme parks.

2. Proliferation of large-screen format theaters and other traditional revenue-generating activities.

3. Hostile climate for public support and funding.

4. Availability of home-based science education/entertainment programming through multi-media computers, videos and cable.

5. Greatly restricted climate for corporate underwriting of science exhibits and programs.

(Z.) 1. The public has mixed and sometimes conflicting perceptions about museums and science centers. There are many different publics out there and each of them thinks differently about science centers. There is a growing dis-infatuation with science and technology, which are increasingly seen as hazards to our future rather than the source of salvation. The public is only dimly aware of the distinctions among different kinds of museums. Historic houses, art museums, children's museums, science centers, history museums and other institutions blur in their minds. Compared to other leisure options such as sports activities, amusement or theme parks, the category of museums into which science centers inevitably fall, contains many negative expectations. Often, museums are regarded as stuffy and tiring places that appeal to rich white folks and that you need to know an awful lot before you can begin to understand what the museum offers.

2. Museums are competing in an escalating battle for attention against better-financed media. As production values in movies and television get better, museums have to keep pace. Celebrity names, slick music production, professional graphics, etc. are hard for museum producers to afford especially if they continue to try doing it alone. How does an exhibit opening in one city compete with a movie opening nationally in 1,500 theaters?

3. The audience is changing. Demographic and social statistics are changing. We are quickly becoming a more diverse nation with a wider range of interests. At the same time, behavior and technology are changing as the balance shifts between in-home activities and out-of-home activities.

4. Commercial developers are entering the field and claiming the high end of the market. Science centers have traditionally served a whole community by balancing admissions revenues from wealthier neighborhoods with outreach and school services. Discovery Zones and other for-profit children's play areas are being established in wealthy suburbs and large format theaters are being included in commercial entertainment complexes. The Discovery Channel is considering a chain of science theme parks.

5. Mass media do not give science centers and other museums the attention proportional to public impact. More people attend museums than do professional sports. In many states tourism is #1 or #2 in the economy, and most tourists are drawn to an area by its cultural attractions. This popularity and economic impact is not reflected in media coverage. This may also be partially an internal concern as museums are seldom a source of hot or interesting news. Sports teams win or lose on a daily basis and their players are celebrities. Aside from new program openings, what happens at a science center that is newsworthy (i.e., really interesting to the average guy) on a daily basis?

(AA.) 1. Societal trends of staying close to home -- cocooning -- home entertainment centers becoming the focus. People are working hard and want to relax and wind down on time off.

2. Decline in funding from government due to Republicans.

3. Competition from other sources including interactive media which make out of home transactions easier (banking, shopping, etc.), increased entertainment options via TV (500 channel universe).

(BB.) 1. A lack of public understanding of potential role(s) museums can play -- Old traditional views of museum which results in:

2. A lack of sustained funding by feds, state and locals. Museums are under-subsidized to take on major roles.

3. Increased competition for public's recreational time

4. Less intellectual interest/acceptance in public at large

5. Conflicting societal trends that confuse museums cause them to lose their way.

## APPENDIX N

### ROUND II RESPONSES

In Round II, respondents indicated on a five-point semantic differential scale the significance of each of the obstacles identified in Round I. In this appendix, the number below each blank indicates the number of participants who selected that particular point on the scale. Each marketing challenge was rated by each panelist, from a "five" for the blank closest to "Significant to marketing," through the other blanks in descending order, and down to a "one" for the blank closest to "Insignificant to marketing." The scores of the entire panel were added to determine the "Total score" for each marketing obstacle.

## **SECTION #1: INTERNAL OBSTACLES**

(1.) **Inadequate strategic planning.** Museums have not directed sufficient attention to the development of long-range strategic plans to set the priorities for marketing efforts.

Insignificant \_\_\_\_\_ Significant  
to marketing 1 1 2 11 13 to marketing

Total points: 118

(2.) **Profit centers lack entrepreneurial authority.** Museums do not give the individuals in charge of a profit center the authority to make entrepreneurial business choices that might increase the profitability of their area.

Insignificant \_\_\_\_\_ Significant  
to marketing 1 7 4 12 4 to marketing

Total points: 95

(3.) **Difficult to recruit and retain professionals.** Low salaries and little room for advancement results in an inability to recruit and retain top-level marketers. Hence, marketing departments in science museums have not reached their potential.

Insignificant \_\_\_\_\_ Significant  
to marketing 1 7 3 8 9 to marketing

Total points: 101

(4.) **Failure to consider marketability in key decisions.** Programs are created based on the educational mission without clear analysis and agreement on how to shape them to meet marketing needs. Marketing staff are excluded from decisions, which results in programs that are not as marketable as they could be.

Insignificant \_\_\_\_\_ Significant  
to marketing 2 1 4 10 11 to marketing

Total points: 111

(5.) **Marketers lack training/experience to conduct research.** Too often, science museums equate "research" with a survey administered by a staff member who has no training or experience in conducting research.

Insignificant to marketing \_\_\_\_\_ 5 \_\_\_\_\_ 5 \_\_\_\_\_ 9 \_\_\_\_\_ 9 Significant to marketing

Total points: 106

(6.) **Lack of museum networks.** Science museums insist on independently producing their own exhibits and programs, even though the results are similar to that of other science museums. Science museums lack networks to pool resources, share the workload and maximize ability to offer marketable products.

Insignificant to marketing \_\_\_\_\_ 3 \_\_\_\_\_ 3 \_\_\_\_\_ 7 \_\_\_\_\_ 12 \_\_\_\_\_ 3 Significant to marketing

Total points: 93

(7.) **Science museums not viewed as a business.** Staff members with a "non-profit" perspective are reluctant to see museums as competing with for-profit businesses. As a result, there is inadequate emphasis on using business principles in managing museums.

Insignificant to marketing \_\_\_\_\_ 1 \_\_\_\_\_ 1 \_\_\_\_\_ 8 \_\_\_\_\_ 6 \_\_\_\_\_ 12 Significant to marketing

Total points: 111

(8.) **Staff resistant to new ideas.** Staff members are resistant to new ideas for attracting new audiences or broadening existing audiences. New marketing ideas are perceived as being "radical" or "inappropriate" without proper consideration.

Insignificant to marketing \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 7 \_\_\_\_\_ 11 \_\_\_\_\_ 5 Significant to marketing

Total points: 98





(13.) **Failure of imagination.** The last "big" idea in science museums was IMAX/OMNIMAX. Twenty years later there is still no successor to IMAX as a reliable market draw with changeable media. While ideas for simulators and virtual experiences abound, the museum community appears unable to focus on shared platforms for attracting new audiences.

Insignificant \_\_\_\_\_ \_\_\_\_\_ 3 \_\_\_\_\_ 5 \_\_\_\_\_ 11 \_\_\_\_\_ 9 \_\_\_\_\_ Significant  
to marketing to marketing

Total points: 110

(14.) **Market research not a priority.** Science museums do not make market research a priority.

Insignificant \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ 6 \_\_\_\_\_ 13 \_\_\_\_\_ 9 \_\_\_\_\_ Significant  
to marketing to marketing

Total points: 115

(15.) **Board not committed to marketing.** Governing boards don't like to market the organization or see the need to spend dollars on marketing. This lack of commitment has a negative impact on marketing.

Insignificant \_\_\_\_\_ \_\_\_\_\_ 3 \_\_\_\_\_ 9 \_\_\_\_\_ 8 \_\_\_\_\_ 8 \_\_\_\_\_ Significant  
to marketing to marketing

Total points: 105

(16.) **"Top down" vs. "team oriented" management.** Science museums still use a hierarchical management system rather than a team approach. Museums lag behind the corporate world in employing the new team philosophies (i.e., Total Quality Management, etc.).

Insignificant \_\_\_\_\_ 4 \_\_\_\_\_ 3 \_\_\_\_\_ 8 \_\_\_\_\_ 7 \_\_\_\_\_ 6 \_\_\_\_\_ Significant  
to marketing to marketing

Total points: 92

(17.) **Uninviting facilities.** Physical facilities are uninviting. This causes potential customers to spend their disposable income at locations that have more up-to-date facilities.

Insignificant \_\_\_\_\_ Significant  
to marketing 3 5 7 10 3 to marketing

Total points: 89

(18.) **Failure to show relevance to everyday life.** Science museums do not offer experiences that people perceive as being relevant to their everyday lives. Lack of response to relevant issues and interests causes the audience to ask "why should I care about this?"

Insignificant \_\_\_\_\_ Significant  
to marketing 2 6 4 10 6 to marketing

Total points: 96

(19.) **Staff indifferent to marketing.** In a highly diffused environment, staff members often think marketing is "not my job." Staff does not realize the impact they can have on marketing by providing positive visitor experiences, interesting programs/exhibits, etc.

Insignificant \_\_\_\_\_ Significant  
to marketing 1 7 12 8 to marketing

Total points: 110

(20.) **Insufficient advertising expenditures.** While media sponsorships and PSAs supplement the advertising budget, science museums do not devote sufficient advertising funds to ensure good public awareness.

Insignificant \_\_\_\_\_ Significant  
to marketing 1 2 11 14 to marketing

Total points: 122



(25.) **Marketers unreceptive to staff's ideas.** Marketers often choose to "go it alone," which communicates to other staff members that their ideas are not welcome. By failing to consider their opinions, marketers lose valuable free input for marketing ideas.

Insignificant to marketing     $\frac{\quad}{3}$      $\frac{\quad}{9}$      $\frac{\quad}{3}$      $\frac{\quad}{8}$      $\frac{\quad}{5}$     Significant to marketing

Total points: 87

(26.) **Board not committed to museum.** Board commitment is low as fewer people have the time to make a multi-year commitment and meetings are sparsely attended. This causes an increased burden on the staff to "fill in the gaps" and diminishes their ability to concentrate on marketing.

Insignificant to marketing     $\frac{\quad}{7}$      $\frac{\quad}{9}$      $\frac{\quad}{3}$      $\frac{\quad}{4}$      $\frac{\quad}{5}$     Significant to marketing

Total points: 75

(27.) **Programs lack originality and/or quality.** Programs lack originality and/or quality sufficient to keep audiences interested. Science museums do not update their programs often enough to maintain their marketability.

Insignificant to marketing     $\frac{\quad}{\quad}$      $\frac{\quad}{5}$      $\frac{\quad}{5}$      $\frac{\quad}{10}$      $\frac{\quad}{8}$     Significant to marketing

Total points: 105

(28.) **Failure to consider mission in key decisions.** Programs are created based on marketing needs without clear analysis and agreement on how to shape them to meet the educational mission. Program staff are excluded from decisions, which results in programs that do not serve the educational needs of the public.

Insignificant to marketing     $\frac{\quad}{2}$      $\frac{\quad}{8}$      $\frac{\quad}{4}$      $\frac{\quad}{9}$      $\frac{\quad}{5}$     Significant to marketing

Total points: 91

(29.) **Marketing not a budgetary priority.** Effective marketing should generate more resources than it consumes. Even so, marketing is among the first to be sacrificed when the budget gets tight.

Insignificant \_\_\_\_\_ Significant  
to marketing 1 2 4 11 10 to marketing

Total points: 111

(30.) **Staff unaware of marketing principles.** Staff members who create programming and exhibits do not understand basic marketing principles. Therefore, the frame of reference from which staff members approach programming decisions is based on academics, not marketing.

Insignificant \_\_\_\_\_ Significant  
to marketing 1 4 7 8 8 to marketing

Total points: 102

(31.) **Elitist approach to visitor experience.** Science museums tend to speak over-the-heads and beyond-the-interest of the mass audience. Programs and exhibits do not reflect the public's interest and do not use language that is inclusive of a wide audience.

Insignificant \_\_\_\_\_ Significant  
to marketing 2 7 5 8 6 to marketing

Total points: 93

(32.) **Marketers don't know science.** Marketers don't take time to learn the science behind the exhibits and the programs they sell. Because marketers don't know science, they don't look for the science angle and cannot effectively market science-based exhibits and programs.

Insignificant \_\_\_\_\_ Significant  
to marketing 6 4 8 8 2 to marketing

Total points: 80

(33.) **Insufficient computer software/hardware for market research.** Science museums lack up-to-date computer systems necessary to track audiences, survey museum visitors, analyze demographics and provide critical data for making strategic marketing decisions.

Insignificant to marketing     $\frac{\quad}{5}$      $\frac{\quad}{3}$      $\frac{\quad}{5}$      $\frac{\quad}{7}$      $\frac{\quad}{8}$     Significant to marketing

Total points: 94

(34.) **Too many products to promote.** Despite limited marketing budget, staff continues to create more events and programs. Each product brings its own marketing challenges, fragmenting the resources - both financial and human - of the marketing department.

Insignificant to marketing     $\frac{\quad}{3}$      $\frac{\quad}{2}$      $\frac{\quad}{8}$      $\frac{\quad}{8}$      $\frac{\quad}{7}$     Significant to marketing

Total points: 98

(35.) **Inability to prove educational benefits.** Science museums are unable to clearly and succinctly articulate to the public the educational benefits of a museum experience. This inability to document the nature and extent of learning in science museums has resulted in a museum field unable to fully market its exhibits and programs.

Insignificant to marketing     $\frac{\quad}{4}$      $\frac{\quad}{5}$      $\frac{\quad}{5}$      $\frac{\quad}{7}$      $\frac{\quad}{6}$     Significant to marketing

Total points: 87

(36.) **School visitation vs. general visitation.** Science museums are so crowded with school groups that the general visitors complain about a poor visitor experience. This makes it difficult to market a "fun day at the museum" to the general visitor.

Insignificant to marketing     $\frac{\quad}{3}$      $\frac{\quad}{7}$      $\frac{\quad}{6}$      $\frac{\quad}{6}$      $\frac{\quad}{6}$     Significant to marketing

Total points: 89

(37.) **Marketing as part of development.** Museums often combine marketing and development in a single department, despite the fact that these are two different disciplines. This lack of autonomy results in a poorly-focused marketing program.

Insignificant to marketing     $\frac{\quad}{2}$      $\frac{\quad}{5}$      $\frac{\quad}{9}$      $\frac{\quad}{7}$      $\frac{\quad}{5}$     Significant to marketing

Total points: 92

(38.) **Board reluctant to apply business expertise.** Trustees often leave their business sense in their desk drawers when they come to a board meeting, believing that the economics of science museums are different from those of their own businesses.

Insignificant to marketing     $\frac{\quad}{4}$      $\frac{\quad}{5}$      $\frac{\quad}{10}$      $\frac{\quad}{6}$      $\frac{\quad}{3}$     Significant to marketing

Total points: 83

(39.) **Lack of communication.** Ineffective communications within all departments impedes marketing efforts. Science museums lack defined communication paths for all staff members to keep the marketing division informed of upcoming exhibits, events and programs.

Insignificant to marketing     $\frac{\quad}{1}$      $\frac{\quad}{1}$      $\frac{\quad}{6}$      $\frac{\quad}{14}$      $\frac{\quad}{6}$     Significant to marketing

Total points: 107

(40.) **Failure to apply results of market research.** After science museums conduct market research, they often fail to apply the lessons that could be gleaned from the information that has been gathered.

Insignificant to marketing     $\frac{\quad}{1}$      $\frac{\quad}{1}$      $\frac{\quad}{8}$      $\frac{\quad}{11}$      $\frac{\quad}{7}$     Significant to marketing

Total points: 106

(41.) **Increasing cost of educational programming.** The cost of some educational programming is far more than what science museums can expect their customers to pay. When programs that aren't cost-effective are eliminated, this disappoints the customer because the museum is unable to meet their needs.

Insignificant \_\_\_\_\_ Significant  
to marketing 2 3 9 12 2 to marketing

Total points: 93

(42.) **No experience "in the trenches."** Cross training is important for marketers so that they appreciate the strains success (and failure) make on the admissions staff. Marketing staff should learn how marketing affects those who are "in the trenches."

Insignificant \_\_\_\_\_ Significant  
to marketing 1 4 5 13 5 to marketing

Total points: 101



## SECTION #2: EXTERNAL OBSTACLES

(1.) **Staying close to home.** The advent of multimedia home entertainment (home computers, the information superhighway, cable tv, video rentals and home theaters) has caused a "cocooning" effect, in which families stay home to avoid the expense and inconvenience of going out.

Insignificant \_\_\_\_\_ Significant  
to marketing 1 4 7 11 5 to marketing

Total points: 99

(2.) **Negative attitudes toward technology.** Science and technology are increasingly being seen as hazards to our future rather than sources of salvation. The public feels a high level of ambivalence about "progress" in science and technology.

Insignificant \_\_\_\_\_ Significant  
to marketing 7 5 9 6 1 to marketing

Total points: 73

(3.) **Proliferation of large-format theaters.** In the 1990's, the number of large format theaters will continue to grow. The typical radius between theaters will decline significantly, with some cities having two or three large format screens competing for a diminished audience.

Insignificant \_\_\_\_\_ Significant  
to marketing 4 4 4 11 5 to marketing

Total points: 93

(4.) **Retailers adopt "museum store" concept.** New retail stores in shopping malls offer the aura of being in a museum store and products that are similar to those available in museum stores. Competition from these stores has strained the ability of museum stores to attract consumers.

Insignificant \_\_\_\_\_ Significant  
to marketing 1 5 6 12 4 to marketing

Total points: 97

(5.) **UBIT, other regulatory threats.** Science museums, in attempting to compete with the "for-profit" sector, endanger their ability to maintain a not-for-profit status and avoid the federal UBIT (unrelated business income tax) and other regulatory threats.

Insignificant to marketing \_\_\_\_\_ 6 \_\_\_\_\_ 7 \_\_\_\_\_ 8 \_\_\_\_\_ 7 \_\_\_\_\_ Significant to marketing

Total points: 72

(6.) **Controversial topics/bad publicity.** Controversial exhibit topics such as AIDS and teen pregnancy and bad publicity over the Enola Gay exhibit at the Smithsonian have generated a public backlash against the museum community.

Insignificant to marketing \_\_\_\_\_ 8 \_\_\_\_\_ 11 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ 2 \_\_\_\_\_ Significant to marketing

Total points: 65

(7.) **Struggle to keep pace with technology.** Video arcades, virtual reality, the Internet, digitized cameras and other emerging technologies are redefining what people expect from museums. Rapid technological advances and heightened visitor expectations will make "state of the art" exhibits obsolete in a short amount of time.

Insignificant to marketing \_\_\_\_\_ \_\_\_\_\_ 1 \_\_\_\_\_ 2 \_\_\_\_\_ 12 \_\_\_\_\_ 13 \_\_\_\_\_ Significant to marketing

Total points: 121

(8.) **Admission perceived as expensive.** Consumers perceive admission fees as "too expensive" and/or feel that the science museum experience does not match their perceptions of a "good value."

Insignificant to marketing \_\_\_\_\_ 1 \_\_\_\_\_ 2 \_\_\_\_\_ 4 \_\_\_\_\_ 9 \_\_\_\_\_ 12 \_\_\_\_\_ Significant to marketing

Total points: 113

(9.) **Media not as interested in "good news."** Aside from new program openings, science museums are seldom a source of "hot" news. As a result, the media does not give science museums coverage relative to their popularity and economic impact.

Insignificant \_\_\_\_\_ Significant  
to marketing 2 7 6 10 3 to marketing

Total points: 89

(10.) **School needs vs. public needs.** Pressure from the schools to be responsive to their curricular needs is given priority, while the public's needs are overlooked or not addressed with the same emphasis.

Insignificant \_\_\_\_\_ Significant  
to marketing 3 5 9 7 4 to marketing

Total points: 88

(11.) **Adverse political environment.** As governmental (federal, state, local) budgets are tightened, fewer arts and cultural attractions are afforded underwriting from government sources. This directly affects program availability, which in turn affects audience participation.

Insignificant \_\_\_\_\_ Significant  
to marketing 2 4 14 8 to marketing

Total points: 110

(12.) **Competition from theme/amusement parks.** For-profit amusement parks are aggressive and well-funded competitors in the tourism market. Science museums and their "educational" pull will have increasing difficulty competing against amusement parks that are promoting "fun and excitement."

Insignificant \_\_\_\_\_ Significant  
to marketing 1 5 4 9 9 to marketing

Total points: 104

(13.) **Urban surroundings inaccessible and/or dangerous.** Science museums in urban locations are perceived by suburban audiences as being inaccessible or dangerous to visit. Suburbanites are less willing to drive into the city and face inconvenience/risks.

Insignificant to marketing \_\_\_\_\_ 1 \_\_\_\_\_ 2 \_\_\_\_\_ 4 \_\_\_\_\_ 10 \_\_\_\_\_ 11 Significant to marketing

Total points: 112

(14.) **Lack of support from chamber of commerce/tourism department.** Science museums draw more people than many other attractions in their area. In spite of this, chambers of commerce and state tourism departments do not provide adequate promotional support for the science museums in their area.

Insignificant to marketing \_\_\_\_\_ 2 \_\_\_\_\_ 5 \_\_\_\_\_ 7 \_\_\_\_\_ 9 \_\_\_\_\_ 5 Significant to marketing

Total points: 94

(15.) **Science museums are "just for kids."** The public perception is that science museums are only for children or those with children. This keeps many adults - from high school students to senior citizens - from attending.

Insignificant to marketing \_\_\_\_\_ \_\_\_\_\_ 2 \_\_\_\_\_ 1 \_\_\_\_\_ 12 \_\_\_\_\_ 13 Significant to marketing

Total points: 120

(16.) **Educational reform.** The "educational reform" movement that equates hours in the classroom with academic effort and equates scores on standardized tests with education is ultimately unfriendly to science museums.

Insignificant to marketing \_\_\_\_\_ 9 \_\_\_\_\_ 7 \_\_\_\_\_ 6 \_\_\_\_\_ 4 \_\_\_\_\_ 2 Significant to marketing

Total points: 67

(17.) **Significant growth in minority audiences.** Minority groups do not have a strong, family-based "museum-going" tradition and have not been easy groups for museums to attract. Science museums face increasing under-utilization by this growing sector of the American public.

Insignificant to marketing     $\frac{\quad}{2}$      $\frac{\quad}{6}$      $\frac{\quad}{11}$      $\frac{\quad}{9}$     Significant to marketing

Total points: 109

(18.) **Lack of outside expertise.** Science museums lack sources of information outside the industry that have a perspective on the field and the business savvy necessary to help science museums broaden their appeal.

Insignificant to marketing     $\frac{\quad}{2}$      $\frac{\quad}{6}$      $\frac{\quad}{7}$      $\frac{\quad}{5}$      $\frac{\quad}{8}$     Significant to marketing

Total points: 95

(19.) **Lack of partnerships within the community.** Cooperation and partnership -- with other attractions, with schools, with marketing partners -- engender a sense of ownership in the community and help to counteract funding shortages. Marketers do not take full advantage of these opportunities.

Insignificant to marketing     $\frac{\quad}{1}$      $\frac{\quad}{8}$      $\frac{\quad}{7}$      $\frac{\quad}{6}$      $\frac{\quad}{6}$     Significant to marketing

Total points: 92

(20.) **Commercial establishments offer education.** From Disney's EPCOT to Wal-Mart's environmental education displays, commercial establishments have increasingly incorporated educational components to add value to entertainment-oriented attractions and the retail environment.

Insignificant to marketing     $\frac{\quad}{2}$      $\frac{\quad}{4}$      $\frac{\quad}{6}$      $\frac{\quad}{8}$      $\frac{\quad}{8}$     Significant to marketing

Total points: 100

(21.) **Decline in the number of families.** Science museums draw heavily from young families, which are declining as a percent of the population. While there is a baby boomlet allegedly underway, the absence of families could impact attendance.

Insignificant \_\_\_\_\_ Significant  
to marketing 5 4 6 11 2 to marketing

Total points: 85

(22.) **Decreasing support from corporations.** More and more, non-profits rely on corporate dollars to balance their budgets. This places a strain on the corporate community and eventually leads to reduced funding for marketing initiatives.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ 5 5 8 10 to marketing

Total points: 107

(23.) **In-the-home interactive programs.** Multi-media computers and CD ROM offer a variety of entertaining and educational programs that could be perceived by the public as a replacement for the interactive experience available in science museums.

Insignificant \_\_\_\_\_ Significant  
to marketing 2 8 8 9 1 to marketing

Total points: 83

(24.) **Public does not know what "science museums" are.** The public is only dimly aware of the distinctions among different kinds of museums. Historic houses, art museums, children's museums, science museums, history museums and other institutions blur in their minds.

Insignificant \_\_\_\_\_ Significant  
to marketing 2 6 5 7 8 to marketing

Total points: 97

(25.) **Extended working hours.** With the down-sizing of corporations and increased workloads, parents as well as adults without children are working longer hours. This means less time to frequent cultural attractions such as museums.

Insignificant \_\_\_\_\_ \_\_\_\_\_ 2 \_\_\_\_\_ 7 \_\_\_\_\_ 9 \_\_\_\_\_ 10 \_\_\_\_\_ Significant  
to marketing to marketing

Total points: 111

(26.) **Inadequate access to facilities.** Patrons need ways to get to the museum. No public transportation, unimproved roads and lack of parking all keep people from being able to reach the museum.

Insignificant \_\_\_\_\_ \_\_\_\_\_ 1 \_\_\_\_\_ 6 \_\_\_\_\_ 2 \_\_\_\_\_ 12 \_\_\_\_\_ 7 \_\_\_\_\_ Significant  
to marketing to marketing

Total points: 102

(27.) **Public does not understand educational benefits.** The general public does not clearly understand the educational benefits of a museum experience (what, if anything, they learn from the experience and thus what is the value of the experience).

Insignificant \_\_\_\_\_ \_\_\_\_\_ 2 \_\_\_\_\_ 6 \_\_\_\_\_ 6 \_\_\_\_\_ 13 \_\_\_\_\_ 1 \_\_\_\_\_ Significant  
to marketing to marketing

Total points: 89

(28.) **Negative connotations of term "museum."** Science centers inevitably fall into the "museum" category of leisure activities. "Museums" are regarded as stuffy and tiring places that appeal only to the elite and well-educated.

Insignificant \_\_\_\_\_ \_\_\_\_\_ 1 \_\_\_\_\_ 3 \_\_\_\_\_ 9 \_\_\_\_\_ 9 \_\_\_\_\_ 6 \_\_\_\_\_ Significant  
to marketing to marketing

Total points: 100

(29.) **Budget cuts in education.** Public education funding continues to be cut back severely. Schools are unable to take advantage of field trips due to the cost of bus transportation, museum fees, etc.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 14 \_\_\_\_\_ 9 to marketing

Total points: 114

(30.) **Society's lack of emphasis on the need for science education.** Society as a whole does not emphasize and support the need to develop tomorrow's generation of scientists to fill the void in an increasingly technological age.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ 2 \_\_\_\_\_ 2 \_\_\_\_\_ 4 \_\_\_\_\_ 16 \_\_\_\_\_ 4 to marketing

Total points: 102

(31.) **Market saturation.** Science museums have a limited population base from which to draw visitors. Saturation of the available market has led to stagnant growth and an inability to increase attendance.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ 2 \_\_\_\_\_ 6 \_\_\_\_\_ 9 \_\_\_\_\_ 10 \_\_\_\_\_ 1 to marketing

Total points: 86

(32.) **Competition from other museums.** A proliferation of museums competing for public attendance, combined with more museums getting into the "education" business, have created greater competition for science museums.

Insignificant \_\_\_\_\_ Significant  
to marketing \_\_\_\_\_ 3 \_\_\_\_\_ 3 \_\_\_\_\_ 7 \_\_\_\_\_ 14 \_\_\_\_\_ 1 to marketing

Total points: 91



(33.) **The graying of America.** The population of senior citizens has been growing steadily for the past two decades. Because senior citizens do not tend to visit science museums, this segment's growth relative to other segments poses a serious threat to attendance.

Insignificant \_\_\_\_\_ Significant  
to marketing 2 6 5 15 to marketing

Total points: 89

(34.) **Commercial influence.** With corporate sponsors expecting more in return for the dollars they invest in museums, science museums are damaging the public's sense that they are neutral and objective sources of information.

Insignificant \_\_\_\_\_ Significant  
to marketing 4 6 7 10 1 to marketing

Total points: 82

(35.) **Growth in the number of science museums.** Significant growth in the number of science museums in recent years has reduced their unique attractiveness and reduced the size of the market for each facility.

Insignificant \_\_\_\_\_ Significant  
to marketing 8 5 7 7 1 to marketing

Total points: 72

(36.) **Cities/promoters enter the exhibition business.** In light of the popularity of blockbuster exhibits, city governments and private promoters have launched their own exhibitions in an effort to revive downtowns, increase tourism, and make profits.

Insignificant \_\_\_\_\_ Significant  
to marketing 2 6 9 7 4 to marketing

Total points: 89

## APPENDIX O

### ROUND III VERBATIM RESPONSES

#### The Predicted Future of Marketing Science Museums

In Round III, participants were asked to suggest possible solutions to the 10 most significant marketing challenges (five internal, five external) identified in Round II. Their verbatim responses are given below. Each respondent was randomly assigned a letter, which was used to denote their responses to all questions in Rounds I and III. For instance, the "A" response under question #1 was provided by the same panelist as the "A" response under question #2, and so forth. Likewise, answers with the same letters in the verbatim responses for Rounds I and III are from the same panelist so that each participant's Round I verbatim responses can be paired with their Round III verbatim responses.

#### **SECTION #1: INTERNAL OBSTACLES (QUESTIONS #1-5)**

##### **Internal Obstacle #1: Stagnant exhibits.**

Lack of development of an integrated and dynamic exhibit philosophy has allowed for some stagnation in exhibitry. Exhibits are out-of-date or simply ineffective, hence marketing has a problem convincing the public that they need to visit more often.

(A.) The underlying remedy to this obstacle is the integration of the enterprise, exhibition and education strategies of our institutions. Science museums are places of learning and public attractions and not-for-profit businesses. It is at great peril that we segment these facets of our institutional lives. I am not suggesting that marketing be the exclusive

driver of exhibit development. I am urging that marketing (the concept of marketing, if not the department of marketing) have a seat at the table.

At the macro level, a marketing perspective should be a part of the positioning of the institution - whom do we serve, how do we define our uniqueness, etc. At a more detailed level, the marketing perspective has something to offer in establishing an agenda for new exhibit development, analyzing points of attachment or entry for the visitor and identifying those factors that contribute to a perception of stagnation. (Note: the perception of stagnation may exist even when new exhibits are present - especially when the content of the "new" exhibits is historical or the style of the exhibit is reminiscent of existing exhibits.)

(B.) A long term solution might be to bring in special traveling exhibitions that would allow the museum to offer visitors fresh exhibitry and increase repeat visitation. Exhibit collaboratives also offer museums the opportunity to participate in developing new traveling exhibitions, sharing expenses as well as providing learning opportunities for all. Not only does this provide a number of exhibitions that can travel to all participating museums, but it allows program and exhibit staff to learn methods to enhance a museum's permanent galleries.

Booking traveling exhibitions or developing new ones as part of a collaborative takes a certain amount of lead time. In the short term, museums can attract new visitors by improving programs and developing new ones, presenting special events and promotions tailored to certain target audiences. Collaboration with community resources are also useful in providing ways to develop audiences. These may be program collaborations and/or promotional collaborations.

(C.) If exhibits are "out-of-date" or "ineffective," of course people can't come. Are dinosaur skeletons out-of-date? Yes, but people come because they are wondrous. Hard to define "out-of-date." Much easier to define "ineffective" - nothing happens in your head or in your emotions when you use the exhibit. Answer: make exhibits effective-work hard, revising as needed, to make exhibits turn on minds and hearts. How?

- pick topics people have some familiarity with
- pick topics people have inherent interest in
- add people (staff) to discuss (or trained experts)
- add media to help people discuss the content
- rotate events, supplementary programs, and media to reinterpret content in a new light for a different audience segment
- plan for 10% change in context annually

As a whole, our industry has gotten a little complacent - it doesn't look beyond sacred cows. We need to work harder to connect intellectually with visitors.

(D.) Collaborate with as many outside "voices" as possible (designers, educators, interactive manufacturers, theatrical presenters and fabricators) to inject fresh ideas and perspectives. Keep in mind that students and young adults today are bombarded with much different technology and choices than even 10-15 years ago. Insist that exhibit designers and educators fish in new waters. Remind them that the museum is competing with movies, theme parks, laser arcades, etc.

(E.) Two general strategies seem to be called for: (1) Become more sophisticated in planning for appropriate "product life cycles" of our programs as these relate to the audiences we serve. This is an industry-wide as well as institutional agenda. (2) Do a much better job designing exhibits as resources with multiple lives and outcomes rather than as "one-time experience" attractions.

(F.) Develop an exhibits team from within the museum and perhaps from the outside community. Brainstorm with exhibits on how to de-stagnate exhibitry and come up with a new marketing plan.

(G.) Science-technology centers are, if successful, a capital intensive enterprise. Most centers have developed operating cost bases which require all of their earned and invested (contributed) resources to support. In order to free earned and invested resources to recapitalize the essential exhibition bases of these institutions, they must cut/reduce their operating costs significantly; perhaps by 1/3. Most of these operating costs are "inertial" anyway and add little real value to the visitors' experiences. I'm not suggesting reducing salaries but rather reducing the aggregate size of the payroll and other operating costs so that funds available can go to recapitalizing the permanent exhibition bases in an ongoing and aggressive way.

(H.) One of the more exciting ways to pump new life into the visitor's experience with exhibits is to provide staff or volunteer facilitators. Not only does the presentation -- canned or spontaneous -- of a lively, informed person spur the visitor to greater interest, the facilitator "owns" the exhibit or exhibit area. There is thus someone to prompt exhibit staff or janitorial folks to clean, repair or remove exhibits that have been "loved to death."

Many volunteers don't mind floor work if there is "something to do." Let these folks research, write, present to a staff team, and then present at intervals to visitors to keep new material flowing, keep volunteers interested, keep exhibit floor lively. Maybe recruit members of a comedy club to come do presentations on selected weekends to help give an example. Let's use the tremendous advantage we have, and help show that science is everywhere.

(I.) Development of a dynamic long-term planning process for exhibit development and renewal with participation from all parts of the museum including marketing and public relations

(J.) Museum exhibit staff should be encouraged to work with marketing and education departments in selecting exhibit topics/philosophy.

(K.) The museum should start with a cohesive and imaginative Exhibit Master Plan. If a museum is unable to afford an experienced exhibit design staff who can take the time out of their daily work schedule to develop such a plan, one solution is to hire a professional exhibit design firm to work with the staff and board. Together they can develop an Exhibit Master Plan which provides organizing principles for all of the museum's exhibits. The Exhibit Master Plan should also include an implementation schedule for the design and implementation of various parts of the exhibit program. A distinct advantage of professional exhibit design consultants is that they work with many different museums and thus can bring broad and comprehensive experience to the planning work. They also will have a good understanding of current and emerging exhibit technologies and their advantages and pitfalls. A good exhibit design firm will be creative in their thinking and realistic in what kind of exhibits can be achieved within the stated budgets. They will also have the experience to recommend the most effective techniques to use for specific exhibits. An added advantage of this approach is that the materials these professional consultants develop to present their exhibit concepts are effective tools to sell the Exhibit Master Plan to potential donors.

(L.) Devote budget to ongoing schedule of refurbishing/freshening exhibits (i.e., one-fourth of exhibits renovated each four years) and make this allocation sacrosanct. Have exhibit, programming and marketing staff work together to think through exhibit concepts. Decide what exhibits and educational goals will be valuable and popular to the public. Also work together to find the most exciting and current ways that the exhibit can be

developed, featuring a lot of interaction by the public. These exhibits should have general "platforms" from which programming can create new reasons to come.

(M.) Develop multi-outcome experiences which allow for new discoveries for repeat visitors. J. Newlin at Minnesota Science Center with his experiment benches and Boston Museum of Science's Discovery Rooms are examples of these "fourth generation" open-ended exhibits which allow visitors to explore a phenomena rather than being limited to a single outcome, one-shot experience.

(N.) The management of the institution has to commit to keeping its product-exhibits dynamic and meaningful for its visitors. There is a direct correlation between what visitors perceive to be worthwhile, educational or fun offerings and the museum's ability to earn revenue. The museum should form a team of one or two senior managers (preferably including the president or director) and the lead exhibit and program staff to develop a clear statement of the museum's strengths, weaknesses and distinctiveness. If the museum's strengths and distinctiveness are not in line with what visitors say is of interest to them, the museum needs to rethink its direction. Developing icon-type exhibit components can help make the museum more memorable. Supplementing exhibits with programming also gives visitors a reason to return. Finally, a program of rotating exhibits fulfills part of a need visitors have for change. The other option to increasing repeat visits is to seek new audiences - this is often more difficult and expensive. If the museum isn't interesting to local visitors, it's not going to be interesting to tourists.

(O.) Integrate marketing into the exhibit development process at an early stage so that factors such as audience research, surveys and concerns by marketing are considered in shaping future exhibits and exhibit programming. There are opportunities to refresh exhibits, to reposition a museum's collections, to find bridges between museum themes and contemporary social issues and to "bring alive" and to make relevant science and technology topics. "Build it and they will come" is well-recognized to be fallacious - that which is built must be understandable, dynamic, creative and engaging to today's audiences and, likewise, must compete with other leisure-time attractions.

(P.) Marketing must work with exhibit planners several years out to insure that plans are being made for updating, adding and "refreshing"

exhibits.

Marketing needs to share in the responsibility by constantly looking for new ideas within their relationships with the media and corporate partners.

More cooperative exhibit development among small numbers of museum interested in a particular subject, particularly in the up front, research and planning stages. This will serve to facilitate more exhibit development and provide efficiencies in the process.

(Q.) Is it really true that the single biggest obstacle to marketing in science museums is the quality of the exhibits? Then how to explain the fact that science museums are among the most visited and most popular of all museums? Not that science centers don't need to continue to improve their product: we do. But if science center exhibits as presently conceived are highly popular, as attendance data suggests, then it would be a mistake to look for radical changes. Instead, the industry might better focus on incremental changes to the program, building on what works. In that regard, it would be extremely helpful to define more clearly the goals for exhibits. (What does "ineffective" mean? That exhibits fail to meet their educational objectives, or that they don't meet marketing standards?)

Two important trends currently underway to improve the program include:

- efforts to find cost effective ways to create more rapid change and thus stay up to date;
- a move towards multiple-venue programming. Rather than focusing solely on exhibits, this strategy suggests adding other programming elements that can broaden the audience and create change. The model is IMAX® theaters, but other similar opportunities are on the horizon.

(R.) Develop an exhibits collaborative with other museums of the same size. Seek funding as a collaboration from regional/national sources. Engage professional societies (architects, engineers, etc.) to build pieces for the museum.

(S.) Plan low-cost but media-worthy events to tie in with the permanent collection as current events or public interest warrant. Solar eclipses and other celestial phenomena are natural events that boost attendance, and can utilize existing museum programs or collections. Remain flexible to allow programming to capitalize on public interest in hot topics in the news.

Position the museum as a place where the public and the media can get information on science topics, either through staff "experts" or through the exhibits collection.

(T.) Exhibits need to be both relevant to visitor's lives and open-ended enough that the visitor feels satisfied but not satiated after a visit. This is obviously easier said than done. The trick is to make permanent exhibits, and market these exhibits, differently than temporary exhibits. In some ways, this means less pizzazz and more depth. A temporary/traveling exhibit you expect to see once, you expect to be a once-in-a-lifetime experience. This is not the message you want to convey for permanent exhibits. For these you want to convey the sense of never being totally finished. Museums can't afford to compete in a throw-away mode (e.g. every week a new movie, new song, new TV program); needs to be more like participating in sports - same game, but always new and challenging.

(U.) It is difficult to continually have "up-to-date exhibits" as technology changes so rapidly and funding is becoming harder to acquire. Unfortunately, many centers are also not using a marketing approach and still rely on the "if I build it they will come" mentality. To be effective, we must develop or purchase exhibits based on the needs and interests of visitors and our ability to maintain that interest. In most cases, that means we need to change large exhibits every six months and introduce smaller exhibits or change permanent exhibits as needed to keep interest high. Further, too many exhibits are developed without proper evaluation or marketing input. Marketers help maintain a focus on topics that are relevant to audiences, engaging, instructional and yet entertaining, and which meet the needs of a diverse visitor base. We must also continue to ask visitors why they come to museums, because the product or exhibit is just one driver of attendance. Possible solutions to the problem of stagnant or ineffective exhibits are:

- Involve marketing in exhibit decisions and base choices on what is marketable not just on what is available or affordable.
- Decrease the reliance on "mega" exhibits and develop some smaller exhibits that can cover a wider range of topics but are highly interactive and still attractive to a center's core audience.
- Purchase exhibits and develop programming and supplemental exhibitry that is specific to the needs of a center's audiences.
- Develop consortiums of museums and science centers to conceptualize, test and build exhibits which could then travel throughout the country.

(V.) In most of the science museums I have visited, the number of out-of-date or ineffective exhibits are small in number. I don't believe that not developing a dynamic exhibit philosophy is the reason. I believe the problem is lack of funds to replace exhibits as they wear out which is



usually what happens with interactive exhibits. A solution is to set aside funds routinely for the development of new exhibits, develop a five-year exhibit plan to keep up with new technology and develop new interactive solutions to current scientific principles (i.e. a new interacting to demonstrate a probability curve), prototype new exhibits with trial testing with children so they are more proven when placed on the floor. Use the exhibit team concept so all disciplines are represented (Exhibits, Education, Marketing, etc.).

(W.) Solutions to this problem center around a team approach to planning for the development of new exhibits as well as enhancement of current exhibits. Representatives from each department of the museum must be included in all initial brainstorming sessions. Integral team members include exhibits, visitor services, programs, marketing and development. Focus for new exhibit development should include the concept of "modularity" which allows for greater ease in updating or enhancing. Programming is key to keeping an exhibit fresh and "changing" in the minds of the visitors. Market research must be considered an important facet to the planning process. Volunteer professionals from the community (as well as constituents from the target audience for the exhibit) would also be an asset to the planning of the exhibit.

(X.) Shift the focus from "box-theme" exhibits to ones that involve the visitor by provoking thought and a real experience. Demonstrating a scientific principal is fine, but I believe opportunity exists in creating an experience in its application.

Marketing might also address a particular area of a museum's exhibits by promoting a thematic approach verses "the new exhibit."

Shift emphasis to programming and create opportunities for repeat visits targeting all age groups.

(Y.) Science museums must be designed for constant change throughout the exhibit areas. Exhibits must be planned with a fixed "lifetime," and the exhibit development process should be geared to a replacement schedule. Science changes too rapidly to be portrayed by stagnant exhibits - or stagnant public programs. Closer links must be forged between active scientists and engineers and exhibit development, so that the public sees the museum as a place where the most exciting current science is entertainingly portrayed and explained.

(Z.) The process of developing exhibits reflects the old goal of permanence, and the whole system needs to be re-thought to facilitate change. Changing exhibits is currently a capital consideration and needs to become an operating budget item if change is to happen on a regular and frequent enough basis to stay in tune with the times. Instead of spending \$250 per sq. ft. on new "permanent" exhibits, if museums could spend \$150 per sq. ft. on renewable exhibit resources, and \$100 per sq. ft. on the exhibit story; then we could change the story part more economically and more frequently. Several of us are developing a model for a "Delta museum" which is designed with built-in infrastructure to facilitate program change economically. If we think of a museum as a theater, then changing the "play" inside becomes part of normal operations, rather than an extraordinary capital project. Theaters have grids, lighting systems, fire code regulations and trained staff to support change, and theaters have a community profile where regular change is expected.

Many process changes need to happen before this can be accomplished. Museum galleries need to be designed with considerably more built-in support systems. Donor motivation needs to be rechanneled from memorial statements to current messages. Exhibit planners and design firms will no longer have large budgets and clean slates, but rather they must be prepared to use existing resources and adapt them with lower budgets. Program and exhibit production will trend toward the economies of centralization, shared among like institutions; this will reduce the creative input from in-house staff. With lower budgets and higher earned revenue expectations, more emphasis needs to be placed on achieving visitor expectations, with perhaps less attention paid to scholarly and special interest spokespeople. The influence of market research will increase at the expense of advisory groups.

(AA.) Change the ratio of permanent to traveling exhibits. Create big "events" at the museum people want to come see, films, etc. Make the museum a place for sponsored events, supported by advertisers looking for corporate image.

### **Internal Obstacle #2: Insufficient advertising expenditures.**

While media sponsorships and PSAs supplement the advertising budget, science museums do not devote sufficient advertising funds to ensure good public awareness.

(A.) For most science centers located in sophisticated media markets, I would assert that advertising expenditures will always be insufficient to

"ensure good public awareness." Science center managers' expectations are often way out of line with reality - hoping to create the same level of ad awareness in a three-month traveling show as in a breakfast cereal with a twelve-month shelf-life (and a multi-billion dollar corporation to stand behind it).

Precious advertising dollars should be used as a complement to a strong and primary public relations effort. Advertising should be used to reach key opinion-making segments of the population and to reach information seekers (people more likely to collect data before making a decision to visit). It should be used to persuade people to visit now - focusing on timely reasons for a visit. I have seen little evidence that institutional advertising (i.e., image ads) has much impact on established institutions.

(B.) Advertising dollars are wasted unless they are at a level to penetrate the consciousness of the target audience. One solution is to concentrate limited advertising resources to the promotion of a finite number of programs and recognize that other programs will have to depend on capturing visitors who are already at the museum.

I would like to see the development of industry standards and measurements that show how paid advertising affects attendance and revenue trends. A collaborative panel of science center marketing directors might work together to establish this methodology. This would guide museums regarding how to predict, in their own markets, what returns might be expected from advertising investments and would make a compelling case to boards that allocate the distribution of resources.

(C.) This is tough - the ad budget is a ready target when you're in a budget crunch. But museums with theaters must advertise. There's also little benefit in changing exhibitions unless people know about it. But other than reminding museum people that they need to get the word out - about what's special about their place - there's no pat solution. It depends on the characteristics of your marketplace and the amount of muscle you can bring to bear, in the community as well as on staff.

(D.) Go outside the museum for pro-bono support from local advertising agencies and creative sources for advertising design and creation. This will:

- (1.) Save money and resources -- to be allocated to media space and time
- (2.) Get the best possible creative execution. Internal graphic departments may be competent, but not used to the techniques and style needed to compete in the marketplace.

(E.) If we believe we have developed a product that the audience finds valuable, then we need to allocate the resources to get the word out. But we should also be continuously establishing stronger long-term community relations initiatives so the groundwork is set for a more receptive audience, and the energy/expenditures required to reach people and promote involvement are minimized.

(F.) Trades! Trade exhibit space for radio, television or print media. Corporate evenings for their clients, staff, etc. Most media will trade for dollar value or more.

(G.) As not-for-profits, science-technology centers will never have large enough advertising budgets. We need to be more creative about connecting our media efforts to free PR/media sponsors and to corporate partners with large ad budgets who will partner with us. In addition, we need to link our efforts to things which are already getting significant media exposure such as news events and/or movies which are pre-sold.

(H.) Anyone can make a splash with a million dollars -- reward creativity! Look for pro bono agencies. See if media will take trade-swap air time for museum rental, parties, other services. Adopt a media partner for exhibits. Make good P.R. everyone's job in that it is their responsibility to alert staff to media opportunities, new publications, special events where the museum's name can be made more public. Appoint a board-level committee and ask the Chairman of the Board to see to it personally that the committee members volunteer and do a specific task: prompt an editorial, write the editor, underwrite (or get written) a media opportunity, host a press opening.

(I.) Develop a marketing plan which reviews all public information and all program activity to determine missing components. This will help establish a rationale for not only what the amount of the budget should be but where the money should be spent. Since advertising is very expensive, it needs to be targeted directly to places where it can do the most good.

(J.) Marketing staff should provide management with data - numbers that show that as advertising increases, public awareness increases. Do this by tracking effectiveness of ads using surveys, coupons.

(K.) Science museums should spend more money on advertising. They might be willing to do this if they realized the payback. The museum

staff should talk to staff at other museums that already have significant marketing budgets. They will then be able to see that there really is sufficient payback to justify the added cost of a good marketing program. Several cultural institutions in one city might also consider a joint marketing program as one way of increasing their public image while sharing at least some of the burden of marketing costs. Museums should also try to supplement their marketing budgets with pro bono spots from advertising sources.

(L.) An annual advertising plan must be implemented that identifies key opportunities and outlines overall strategies. View advertising as the foundation for which all marketing programs can be built on (not just based on the need to generate last-minute traffic or to quickly spend grant money.) Advertising has a cumulative effect and if you have a plan, and then react to opportunities in a way consistent with the plan, each expenditure builds on each other. Identify a percentage of revenue (such as 3 or 5 percent) which will be used for advertising - this should also become sacrosanct. When an exhibit or program staff member prepares a budget for a project, advertising and promotional money must always be included. Many times this is left out and then the staff wonders why no one showed up for their event! Also, during budget cuts, the advertising budget is often the first to go. Museum administrators must realize that this cannot happen anymore, because if they want the admissions and revenues to increase the marketing department needs to advertise to reach the public.

(M.) Increase paid advertising through direct purchase or in-kind or subsidized gifts of air time and print space. Carefully planned and researched advertising campaigns are essential in capturing the public's interest.

(N.) Conduct an audit of similar institutions in your market (your competitors) and those in other markets to establish a baseline. Look to successful institutions for benchmarks: how much do they spend in advertising and how much do they get contributed? Seek advice from media buyers in your market to determine how much your institution might need to spend on a campaign that is competitive in your market. Get an internal "grant" from your institution to do a test advertising campaign and compare results to the same time period in previous years. You will probably see results. (Please realize that, often, substantial results won't come for some time.) Seek promotional partners whenever possible, including other non-profits who may benefit from a list-trade to be used

for direct mail promotions. Don't just hook up with one or two media stations - try to involve many different media in your promotions, as long as they reach some part of your target market. Select the media based on their ability to reach the market for the particular product you're featuring.

(O.) Science museum administrators and top management need to reassess the "value" of audiences, which can translate into memberships and donors. Advertising, as the private sector recognizes, builds audience awareness and good will. A higher level of appreciation and recognition of that awareness (leading to long term support potentially) building as crucial to success is needed and increased allocation of funds, monitored over time to assess impact, must be allowed, more aggressive marketing/advertising "tie-ins" with other museums, with the city's convention and visitors bureau, and local industry and businesses can also increase advertising opportunities.

(P.) Creative corporate and media partnering will extend reach through promotional tie-in opportunities. Also, many museums partner with some of the same companies (i.e. IMAX®) and should join to promote their programs.

(Q.) The question about how much to spend on paid advertising must be addressed in the larger context of the museum's overall financial position. Unfortunately, most museums are chronically underfunded. No doubt most directors would like to spend more on advertising, just as they would like to spend more on exhibit development and maintenance, upkeep of the building, market research, staff salaries and a host of other claimants for scarce dollars. The real question, then, is how to set priorities.

Where does advertising fit in the overall equation? Conceptually, the answer seems obvious. If a dollar of paid advertising generates enough business to cover its own costs and return a net profit to the institution, then it is money well spent. If not, not. The marketing staff should thus be prepared to defend the premise that increased advertising will result, not only in increased attendance and increased revenues, but in an increase in the museum's percentage of earned income. Is there hard evidence to support that proposition? If not, what would it take to garner such evidence? A thorough and convincing answer would require a complex and costly study. Perhaps a consortium of museums might be assembled to fund such a study.

(R.) Apply the net marketing contribution equation to quantify the importance and results of advertising expenditures. Keep the administration and Board of Directors apprised of the outcome; including how much more revenue through admissions could be expected with an increase in ad expenditures.

(S.) We have limited experience with paid advertising. This is probably the most difficult obstacle to overcome creatively (i.e., without more money!). We have had reasonable success in working with sponsors in-kind and with newspapers directly on cross-promotion opportunities in print, as well as media sponsorship of exhibits. This does not unfortunately address the need for ongoing advertising visibility, as promotions tend to be much more episodic.

(T.) Science museums need to come to better understand the business they're in -- a service business -- and pattern their advertising expenses after other successful service businesses.

(U.) The amount of support from the media and business sponsors varies considerably from community to community. The level of unpaid advertising that can be generated also depends on competition from other leisure time activities, the length of time a center has been opened and many other factors. In our particular market, we have over 11 museums, zoo, symphony, opera, and other non-profit cultural or educational facilities competing for free advertising support. This makes it nearly impossible to rely on consistent support. To maintain any presence in the marketplace, we have had to resort to purchasing advertising. To resolve the problem of insufficient ad expenditures we are trying the following:

- Acquiring pro-bono assistance from advertising agencies for creative, production, and media buying help.
- Being more aggressive in negotiating trades for radio or television time.
- Including an allocation for paid advertising and promotion when creating budgets for exhibit sponsorship.
- Developing better tracking and forecasting methods that will allow us to determine the dollars that need to be invested to generate a specific level of revenue or attendance.

(V.) A good yearly marketing plan is a must before beginning an advertising program. Once priorities and targets have been established, develop a formula to routinely take a certain part of the admission dollar to

set aside for advertising. As attendance grows, so does the budget. If the marketing plan is focused on the right audience, with an engaging message, everyone wins. As minorities become the majority in the future, it is a must to develop campaigns which target minorities.

(W.) As with any type of communication, advertising is only part of the total promotional picture. Advertising is a good vehicle for awareness but it must be used in conjunction with other awareness vehicles. Sponsorship marketing is becoming the best way to stretch dollars. Teaming with companies who would not give outright donations but are interested in sponsoring events or exhibits at the museum is a great way to get some "free advertising." In many cities, science museums are located in close proximity to other museums or entertainment venues. Teaming with these institutions and producing joint advertising is another way to stretch ad dollars. I've been able to trade use of the museum or memberships for advertising on the radio, billboard or print media. Planning is also critical, because many media offer frequency discounts for guaranteed amounts of advertising over a year's time. Partnership with a local ad agency is also a good idea, because often the agency will be able to place the ads at a much lower rate than the individual institution would be able to.

(X.) Advertising expenditures should be the product of an established visitor target, in terms of numbers and origin. This should be budgeted as a priority and not as "what's left." Tie the cost of advertising in with a corporate sponsorship opportunity. Seek more feature stories and coverage from other than traditional media sources. Also, try targeting advertisements in smaller publications that possess a defined readership. Create your own news. Create traveling exhibits for use in the schools, and to communities outside your traditional area of service. Collaborate with other museums on exhibit themes and interpretive opportunities, to again generate noteworthy activity.

(Y.) Ultimately we must find more advertising dollars; probably through various types of corporate sponsorship -- not "media" sponsorships necessarily, but piggybacking on corporations' regular advertising and developing "pro bono" sources of help in advertising and PR agencies.

(Z.) Advertising dollars should be considered as a subset of marketing resources, and in large museums, marketing resources can run from 10% to 15% of expected gross earned revenue. A museum is selling an "experience product" which is more optional than food and shelter;



therefore, marketing plays a larger than normal role in motivating museum visits than might be true for core consumer products.

Unfortunately for smaller museums, marketing expenses are not easily down-scaleable; ad production costs, printing set-up costs and numerous other marketing expenses should take on a larger share of the total budget as the institution gets smaller. Advertising, in particular, requires a certain level of impact (reach and impressions) and repetition (frequency) to motivate behavior. A small museum, for instance, may struggle hard to spend \$10,000 on an advertising campaign and then be discouraged when it has no discernible impact.

Museums can certainly decide to spend more money on advertising. One option is to increase the total operating budget with additional advertising dollars that are regarded as an investment in future incremental earned revenues, but this route is dangerous as advertising is at best a risky investment, especially in the hands of inexperienced museum staff and a pro-bono ad agency. This route is best followed for programs that have a track record of successful advertising investments such as IMAX® films, dinosaur exhibits, etc. Another option, perhaps sounder fiscally, is to shift priorities within the operating budget by reducing costs elsewhere. Provided the marketing budget is in a proper relationship to earned revenue, additional advertising dollars can be sought by shifting priorities among other marketing expenses.

Cutting ad budgets is a politically painless choice when a museum is facing a financial shortfall. It is far harder to cut staff. In flush times, the tendency is to build staff rather than to spend more on advertising because revenues are already high. The net result is that over the years, a museum's budget tends toward a higher percentage of staff costs. Staff expenses should remain in the 50% to 60% range, leaving sufficient operating cash for new programming, marketing expenses, etc. While staff costs and ad budgets may not seem linked at first glance, keeping staff numbers low is the most important part of making sure that there are sufficient dollars left for advertising.

Staff and trustees need to be educated with regard to the cost and effectiveness of the different channels of marketing. Paid advertising, promotions and public relations are, for example, distinctly different strategies. I have often seen several hundred thousand dollars cut out of an advertising budget with the assumption that "free" publicity and promotions will achieve the same effect. Publicity and promotions are most effective when they are leveraging an existing paid advertising budget. All these media need to work together.

(AA.) Track advertising budget and link to visitor turnout, museum traffic, etc. This will provide a basis for justifying advertising.

### **Internal Obstacle #3: Inadequate strategic planning.**

Museums have not directed sufficient attention to the development of long-range strategic plans to set the priorities for marketing efforts.

(A.) This obstacle is a close relative of obstacle #1 (stagnant exhibits). For institutions that lack a strong long-range plan, marketing is just one of their problems. The lack of such a plan is probably negatively affecting fundraising, human resource development and cost control as well.

In instances where the lack of a long-range plan relates to failure of the Board or the President to perceive plan development as a critical issue, the options for a concerned marketer to overcome this obstacle may be few. One option is the intervention of an outside consultant. Several former CEOs of successful museums have recently entered the private consulting sector. Bringing in such an individual or even a marketing consulting agency to do an audit of marketing strategy may provide the fodder for a dialogue about the broader question of long-range strategic plans.

(B.) While some marketing directors may have the clout to convince their CEO and boards to engage in long-range strategic planning, most often this comes from the CEO. However, it is critical that a marketing director be part of senior staff and participate in any long-range strategic planning that is done.

(C.) Not only do most museum folk have little experience in strategic planning for marketing, most private sector marketers don't either. Ad agency and PR firms tend to be good at tactics, and academics often aren't in touch with the local scene. I think each institution should scour its community for strategic marketing talent and then lure it onto the team - with money or excitement or association with desirable/influential people on the board or committees. The very best people in town can teach museum staff how to be more strategic overall and, in specific, for marketing.

(D.) If necessary, use outside facilitator to jump start the process. Consider senior management retreat or asking senior management to work one day on planning at home, for a short period of time.

(E.) We can never know enough about the audience we serve and how to match our services with their interests and needs. Strategic planning should involve an ongoing reassessment of our assumptions, understandings and actions. Updated demographic, psychographic and other indicators of actual visitors and of the region served should be included in analysis of long-range goals. How to increase the percentage of the audience from "visitors" to "users" should be part of the formulation.

(F.) Just do it! Ask marketing, advertising, public relations firms to donate time to this project. Have lunch with several marketing professionals (include executive director).

(G.) Science centers need to refocus their resources effectively in strategic ways. Strategic planning needs to provide the framework for decision making and resource allocation. If a museum does not have a strategic planner on staff, they can usually get help on an in-kind basis from a local corporation which does or from the local chapter of the Planning Forum.

(H.) Ask the most powerful person on your board to loan his/her strategic planning person/team to the museum for a three-week period. Set aside this time to do a long-range plan and nothing else, then have it reviewed and adopted at the board level. Pay for (or find pro bono) a facilitator to get things started and organized, as well as to wrap things up. Do not let the Board or Director set the agenda exclusively. If you don't know where you're going any road will take you there.

(I.) An ongoing strategic planning process needs to be established for the institution which reviews external marketing factors as well as internal program and market issues. External advice needs to be solicited and senior management needs to support this process.

(J.) Set up a task force made up of education, exhibits and marketing departments to work together on an Annual Plan for marketing efforts.

(K.) A good strategic plan which clearly documents the museum's objectives and its desired audience will establish a unique "niche" for the institution within its community. This plan is just as important as developing an exhibit master plan and probably will involve at least as much time and effort. A good strategic plan should also consider carefully the current and future plans of other cultural/educational institutions in

the same area of influence.

Because many museums are understaffed and overworked, many find it difficult to take the time that is required to go through this planning process. Day-to-day museum operations and planning for the next exhibit or education program have first priority, and often there is little time left for anything else. This is another instance where hiring an outside consultant might be a good solution. There are several advantages to this approach. First, the act of hiring and paying a professional consultant to work with the staff and board immediately focuses attention on the planning process and the decisions that must be made. With focus comes action. Second, an experienced museum planner, having worked on many other museums, will know what questions need to be answered to develop a thoughtful and comprehensive plan. An experienced professional is likely to draw upon this past experience and thus broaden the planning process and increase the number of ideas that are offered for consideration. Third, the museum staff and board members seem more willing to speak candidly about their concerns and ideas to an outside consultant. A good museum planning consultant will involve all of the museum's key staff and its board members in the development of the strategic plan.

(L.) Do it! Take the time. Involve management from all areas and be consistent with operations plan, development plan, etc. Set admission and revenue goals for the upcoming year. Then with all departments decide how to meet those goals through exhibits, events, programming, etc. Have a business plan into which the marketing plan fits. Get business management training for president and key management staff so they can begin to understand this stuff.

(M.) All science museums should have been through or be involved in a strategic planning process to clarify the institution's mission, set long-range goals and establish strategies for achieving the goals. Such planning allows marketing priorities to be developed in concert with other institutional priorities. If the institution's leadership lacks knowledge of strategic planning methods, there are numerous consultants within the museum community who can help with the process. Also, loaned professionals from area industries can be of help.

(N.) Form a marketing and communications committee or task force of the board or hire outside counsel to help you do a strategic marketing plan. (If you do form a committee, include marketing and communications professionals who are not board members if you can.) Their perspective

and advice will include issues that are institutional in nature and may help direct your organization to do an institutional strategic plan, which may then cause you to adjust your marketing plan. Benchmarking your counterparts in other parts of the country or, better yet, in your market, also can help you make the case for developing a strategic plan.

Organizations will not necessarily share their plans with you (however, if they're in a different market, they may), but you can at least get an idea of how they do their planning, who is involved in developing the plan and how often they update their plans.

(O.) Perhaps museums will need to bring in new blood, new leadership and creative, visionary leaders who will provide the breakthrough new thinking and see museums in a new context, playing new roles in their communities, providing increased benefit and value to their local/regional communities. Such a perspective calls for new paradigms, motivation of staff or bringing in new staffs who will collaboratively create strategic plans and include marketing efforts to attract new audiences and diverse audiences as well.

(P.) All museums should be looking at five year strategic plans in addition to their annual plans.

(Q.) Two decades ago the term "marketing" was all but unknown in museums, and paid advertising was rare. What happened? Very simply, as other sources of income have dried up, museums have been forced to rely more and more on earned income, which translates into a need for larger audiences - hence the new reliance on marketing techniques borrowed from the for-profit sector. But while museums have been forced of necessity to embrace marketing, they have been slower to examine the implications for the rest of their operations. Most have been in reactive rather than proactive mode. For example, the simplest way to boost attendance is to turn up the emphasis on entertainment, tone down education, and begin to look more and more like theme parks. But is that what museums are really all about? Is it consistent with the mission? Is that why any of us selected museums as careers in the first place?

The main obstacles to strategic planning are time and experience with the process. A museum seriously interested in pursuing strategic planning should free up a senior member of the staff and/or identify a qualified consultant to lead the effort and of course should make sure that the board of trustees is intimately involved.

(R.) Develop a standing committee whose primary responsibility is to develop/maintain/evaluate the strategic plan. Include a marketing professional (from outside the museum staff) on this committee.

(S.) Decision-making process needs to include marketing staff in planning for future exhibits and events. Include marketability as a criteria for programming, as one of several factors to evaluate potential success of exhibitions.

(T.) Similar response to #2. If science museums better understand where they were going, it would be easier to plot a course of how to get there. It would also increase the probability they would know what to emphasize and how to prioritize resources.

(U.) Although this seems like a simple solution (just conduct planning sessions), the reality is much different. For strategic planning to work, we need to have the proper systems (finance, data, customer service) in place to collect information about our visitors (demographics, perceptions, expectations and, most importantly, needs). We also need to understand why visitors and non-visitors come to our centers, identify competitive pressures and know more about the marketplace in general, and provide consistent performance measures beyond revenue and attendance. The planning team also needs to have the right mix of skills and have a clear mission and vision. Board involvement is also critical for strategic planning to succeed. The ideal solution would include the following:

- Ensure the science center/museum has adequate systems in place to collect and analyze data.
- Place a high priority on planning and implementing strategies. Make sure there is a strong commitment from the board and senior managers.
- Focus on the big picture and recognize that exhibit planning, marketing and finance must all work together and that priorities have to be set to maximize resources. Stick with the long-range plan and refrain from "knee jerk" reactions. The marketplace, industry and internal information should be reviewed annually to ensure that actions proposed in the planning process are working, given changes in external factors (funding, competitive actions, weather, etc.)
- Let the strategic planning drive budgeting, not the other way around.

(V.) I am in total agreement with this statement. The solution is to develop an effective long-range plan including staff and board, update it yearly, review its progress quarterly and develop your organization around

accomplishing the goals set out in the plan. You have, in effect, one set of "marching orders." The marketing portion of the plan could be developed, in addition to the board and staff, with volunteer outside marketing representatives. It is imperative to then develop workable yearly budgets around accomplishing long range goals. Plans need financial backing.

(W.) In order to position themselves for the 21st century, science museums must make strategic planning a priority. Staff, board members and volunteers should be involved. A "visioning" process is critical to developing long term strategic goals and objectives. No more than 6 to 8 goals should be set from this initial process. From this, department teams will develop objectives for each goal. Each objective must have a definite time frame and must be measurable. As a team, directors and department heads will set priorities for each of the objectives. Budgets and action plans will then be developed directly from agreed upon priorities. This planning process requires commitment and buy-in from all department heads as well as board and top management.

(X.) Make this a priority at ASTC conferences in sessions and feature an institution that has achieved success as a function of strategic planning. Take a survey of institutions and determine the perception of the process and its priority within types of science museums. Link strategic planning to successful fundraising.

(Y.) This effort is so essential that it is self-evident that it must be done. Strategic plans for marketing priorities will require assistance from knowledgeable marketers, however: I think a lot of institutions haven't got the experience to do a useful plan. Again, museums need to develop sources of pro bono assistance in the professional marketing community.

(Z.) Strategic planning is a time consuming process that requires some level of dispassionate expertise to accomplish successfully. Because of expense, control and staff vulnerability, many museums attempt the job of strategic planning internally, in addition to a normal full operating work load. Typically a fat three-ring binder filled with wordy memos from a wide range of staff is eventually assembled and called a strategic master plan, when it is in reality little more than a wish list for capital projects expressed by responding staff members. Inevitably, this drawn out process is seldom fully completed and integrated.

Strategic planning takes more time and expertise than is usually available to regular management and operating staff. The process must be founded

on thorough research into the outside and inside environments and a non-biased analysis of the opportunities, strengths, weaknesses and challenges faced by an institution.

Museums should incorporate strategic planning as a normal part of operations by providing time and budgets to wrestle with the issues and hire expertise and research. Because strategic planners are often called upon to make difficult recommendations (termination of programs, prioritizing of conflicting desires, selecting which programs to be implemented first, etc.), the individuals facilitating the strategic planning process should be independent of departmental politics and report directly to the chief executive.

(AA.) Work with a management consulting firm to analyze the infrastructure, change systems and train staff in how to develop and execute strategic plans.

#### **Internal Obstacle #4: Market research focused on visitors only.**

In conducting marketing studies, science museums have focused their efforts solely on demographic research involving visitors. Marketers have no knowledge of why non-visitors do not choose their facility over other options.

(A.) This obstacle is relatively easy to overcome. There are a number of ways to begin to incorporate feedback from non-visitors into your data pool. Phone surveys, off-site interviews and even focus groups at off-site centers can contribute to a better understanding of non-visitors.

It seems to me that a key to deriving useful data from this group is to have a pretty solid segmentation model for non-visitors. Some non-visitors belong to never-will-visit groups . . . i.e. barriers of mobility, interest, lifestyle, etc. cause such individuals not to visit any mall, museum or public place (for example, many convalescent home residents). An ideal survey mechanism will screen out this segment. Other non-visitors will appear to closely match the demographic profile of existing visitors (especially with respect to family circumstance and location of residence). Data from this group can be extremely useful in figuring out how to lower barriers to entry.

(B.) Our science center has a well-developed research program that includes not only visitors studies, but also tracking (or polling) studies and community studies. Because our science center is significantly supported by community taxes, it is important that we serve the community well, know



that we are and communicate that back to our community. Community surveys are done largely for marketing purposes. We measure visitation patterns, community perception and awareness, identify competition and are able to track changes among the entire metropolitan area.

Tracking or polling studies are done annually among registered voters in order to monitor voter support. These serve two purposes. They tell us if we are adequately serving those who financially support us. They also let us know our standing if or when we would ever want to ask for a tax increase.

(C.) It seems to me that there has been some psychographic research done along with the demographics. In fact, few do the demographics consistently. We know so little about who comes and why and what they get out of it that I think we should concentrate here. It would be a diversion to spend a lot of money on who doesn't come when we haven't mined who does. We'd probably be better off figuring out how to get visitors to repeat than trying to coax a brand new visitor. (Currently, there's interest in retail circles in grabbing 80% of each customer rather than 80% of the market).

(D.) Form relationships with local research companies to create pro-bono opportunities. Trade research for employee and customer passes, special events, etc. Get professional advice and do it.

(E.) This is not true as stated. But we do need to get a better handle on lifestyle patterns as we conceive our mix of programs. We also need to see these lifestyles in the context of societal subcultures - how people prefer to spend their time, what ideas and activities they attend to, how science and technology are situated in their cultures. We are, of course, a microcosm of the society at large, and as we attempt to be more inclusive of those cultures who do not frequent our centers, we must take into account that we are trying to bring together in the same space groups who might be otherwise avoiding one another - this includes groups such as teenagers and their parents as well as more strictly cultural groupings.

(F.) Have a focus group; ask help from professionals who do these groups. Take a public poll in shopping mall.

(G.) Non-participant studies are very expensive to conduct. If you can, tie your needs to a broader research project in your region that might give you the data you need at a cost you can afford. But first, have you really

penetrated the audience segments that are already visiting and/or have you really peaked their rate of repeat visitation. Both of these approaches are far less costly and likely to be successful more quickly and gain stronger results than attempting to understand and then attract non-participants.

(H.) Work with an area mall or shopping center. Many will trade access to their clientele in exchange for a weekend of presentation, demonstrations, Starlabs, etc. Test a questionnaire or work with an established instrument and administer to every tenth person. Offer a small premium -- pencil, pen, science toy.

Questions:

- Please tell me what your family enjoys for entertainment.
- Who makes the decisions about how your family spends its entertainment dollars.
- If you were designing an ideal entertainment environment for your family, what would you include?
- What is your zip code?
- Have you ever visited X Science Center?

(I.) Non-visitor studies are usually more expensive than visitor studies. However, a syndicated survey with other similar organizations in the area can help to reduce the cost for each individual site.

(J.) Do market research on visitors and non-visitors alike. Could be done through telephone survey. Make use of local college classes who need "projects" related to marketing.

(K.) Finding out why non-visitors do not come to the museum is as important as interviewing visitors. Museums might consider asking community newspapers to get involved with a general survey of non-visitors, perhaps by publicizing the market research project, printing a questionnaire prepared by the museum and encouraging readers to respond to the questionnaire. Another possibility would be to get a professional market research firm to go out into the community and conduct surveys of non-visitors at shopping malls and other places where large numbers of people go.

(L.) This is tough. It's real expensive to do formal research, especially with people who don't visit. But one solution might be to informally gather data from staff's acquaintances when you encounter someone at a party, etc. - who doesn't attend your facility - ask why (and don't be defensive

about the answer). Report this anecdotal data and look for patterns.

Another idea would be to work with other local attractions and do some market research together. This would be helpful to everyone and it gives you some valuable insight to why other attractions are visited over your own.

(M.) Many science museums have moved beyond the demographic visitor survey to use other techniques to gather information about potential and non-visitors as well as visitors. Telephone surveys, intercept surveys in public spaces and focus groups are techniques which can be used to gain information about the "psychographics" (interest, values, and preferences) of non-visitors as well as visitors. As with strategic planning, these do not have to be big budget activities. Help is available from museum consultants (whose price is an order of magnitude lower than market research professionals) and from local businesses and universities. A nearby graduate school of business may be able to provide valuable resources.

(N.) Most often museums who do research do not include non-visitors because they think they cannot afford to do so. If one can't afford to do a study alone, consider a partnership with one or more non-profit cultural institutions or with an interested organization such as the convention and visitors association. Or, find a market research firm that is willing to conduct a study at a reduced rate as a contribution to the organization or to gain experience in cultural art research. Finally, major corporations in the region may have internal research departments that are willing to do the research pro bono or for out-of-pocket expenses only such as cost of mailing, phoning, etc. One should be able to do more research with non-visitors and visitors alike about their reasons for attending and the values that they are seeking to meet through a science visit.

(O.) This, and item #5, are related to #2 (insufficient funds . . . to do market research). The statement "marketers have no knowledge of why non-visitors do not choose their facility over other options" is not totally true. Good market research and focus group studies would, however, help provide useful data and/or confirm what good marketers probably on a "gut level" know or suspect. Also good research would help design marketing programs (and information to develop exhibits) that appeal to the non-visitor. Again, top management must allocate funds and staff resources to such market research as part of a longer term survival and growth strategy to reach new audiences and to build audiences and supporters and advocates for the museum.

(P.) With increased competition for leisure time and dollars, there is a need to understand how leisure time activities are planned, criteria for what is done, etc. Some of this may be accomplished through museum partnerships in similar geographic areas (i.e. suburban vs. urban).

(Q.) No answer

(R.) Invite marketing professionals to serve on the Board of Directors. Develop committee (ad hoc or standing) to deal specifically with this issue - asking the marketing professional to chair. As part of the committee's plan of action, host focus groups for the "man or woman" on the street.

(S.) Develop limited non-user surveys to be carried out by phone or mail as inexpensively as possible.

Pool resources with like institutions to conduct an area survey of non-participants. E.g. - A local university conducted survey of non-users of cultural and other recreational opportunities on the campus. Results were shared among participants.

(T.) This is relatively easily resolved. Science museums need to support audience research off-site. Talk to people in other public settings; the results will be both enlightening and humbling.

(U.) It is critical to have information about visitors but it is just as important to understand the perceptions and needs of other audiences as well. Other audiences include non-visitors, teachers, sponsors, board members, the business community, potential funders and the media. All of these play a role in planning and marketing by helping to define products, positioning, key messages and the strategic directions needed for success. The possible solutions to changing the focus of market research are:

- Gain support from the board and senior management recognizing market research as a priority and allocate funding in the budget process.
- Work with local research firms to get pro-bono support.
- Use local graduate programs to assist with projects.
- Work with other local museums or attractions and jointly do research to find out how consumers make their leisure time decisions, what factors are involved, and their perceptions about how competitors stack up against each other. It is also helpful to work with your city's or region's convention and tourism organizations. These groups often have funding available to look at why people are drawn to various attractions in an area and how entities compare.

- Some research companies routinely do omnibus community surveys that have questions on them from a variety of clients. It is relatively inexpensive to tag onto these efforts if you need answers to only a few questions.

- Don't rely exclusively on primary research. Secondary research on both visitors and non-visitors is very valuable and can provide a basis for developing questions specific to individual markets. Since much of the research we do is not published, it would be helpful to establish some sort of clearinghouse for knowing what research is available and a mechanism for sharing information.

(V.) I don't agree that there have been no studies done on non-visitors, but it is most prevalent to focus on visitors. I am a big supporter of professionally executed focus groups targeting both visitors and non-visitors. It should be a part of any professional survey. I recommend this professional survey be done every three years with results becoming a part of the long range planning process. It is one thing to uncover reasons and another to address it with solutions and funding.

(W.) Surveying only current visitors narrows the audience scope. In order to plan for increased audience participation it becomes necessary to survey and research non-visitors. The first solution to this problem is to identify potential audiences who do not use the institution. Then, dependent upon budget, choose a method which will research how these audiences spend their leisure time and dollars. A market-wide survey will offer quantifiable data about how the institution "stacks-up" against other venues and suggest possible ways to reach the non-user.

(X.) There is a need for psychographic studies. These are based upon values, perceptions and socioeconomic groups. Even though it would not be fair to drive a museum's programming and exhibits by public preference, it would be wise to assess their interests, tastes and preferences. The research should also focus upon the decision making event.

(Y.) Again, this requires real professional expertise that most of us simply don't have. Surveys of potential audiences are needed, based on demographics, geography, income, etc. Somehow we have to involve the kind of firms which do this sort of survey for a living.

(Z.) The simple answer is to spend more money on non-visitor market research. Of course, this is also a national problem and one that effects a

wide range of museums. The national museum organizations (AAM, ASTC, AZA, etc.) should take a role in identifying reasons why some public sectors do not regard their member institutions as attractive leisure time options.

(AA.) Internal market research should treat the museum as its customer. With well-defined goals for the museum, there will be better research designs developed to answer questions the museum really needs to know about.

**Internal Obstacle #5: Market research is not a priority.**

Science museums do not make market research a priority.

(A.) Very few science museums would spend money on an exhibit that had no research behind it. The task for museum marketers is to persuade their colleagues that it would be equally foolish to spend advertising or PR dollars without the research to direct that effort. To be candid, the solution to this obstacle is already in the hands of most museum marketing directors. To make research a priority, they need to be willing to cut advertising and promotion budgets as necessary to preserve an adequate market research component. If in times of tight budgets, they are willing to eliminate research to preserve an ad campaign, they give a message to the entire organization about their faith in the value of research.

(B.) There are science centers who do make it a priority that could easily be used as models. Professional conferences such as the Association of Science-Technology Centers, American Association of Museums and Visitor Studies Conference allow opportunities for these research programs to be showcased. Networking among marketing professionals is also helpful.

(C.) Over the last decade there's been a lot of talk about formative research in our field. Actually, I think we'd be better off doing market research - with the focus on the audience(s) and not on the artifacts. A few "how-to" publications and workshops would go far to helping here. (This is a business opportunity for marketers or ASTC).

(D.) Research typically intimidates small companies. Nevertheless, research is critical. Perhaps if several museums shared their research it would demonstrate to the others the value of knowledge.

(E.) The ethos of the organization has to be audience centered. Although much of the marketing effort will be concentrated in the work of a few individuals, market research - i.e., understanding the audience as it relates to the program - should be the goal of all. No organization will ever have staff reach complete consensus on how to characterize the audience, their motivations, impact of programs, etc., but each staff person should be encouraged to increase his/her range and depth of understanding of who is being served. The administration also needs to take this information seriously as it attempts to determine tactics and strategies, otherwise the staff will consider the research efforts to be idle exercises.

(F.) The head of the marketing department needs to make all staff aware of the importance of market research to bring more visitors through the door. Market research tells the demographics of present visitors and those that we are missing.

(G.) Market research is essential, not just to attempt to "market" what we're already doing but to discern and then plan what to do so that it is consistent with the needs and desires of the market. Market research needs to be used in everyday decision making not just in after the fact marketing plans.

(H.) You can't make people make money, you can only show them how to look for it.

(I.) The desire to get market information from visitors needs to become a concern of the program as well as the marketing staff in museums.

(J.) Spend more time, money, resources, on market research. Make use of volunteers, local college classes. Try to use hard data, numbers, statistics to persuade management that market research is important and necessary.

(K.) Although all of a museum's activities should not stem from the results of market research, this is an important component of developing a good strategic plan. Museums with inadequate budgets for market research should try to secure some pro bono professional services from a local market research firm. Perhaps by helping the museum to set up the questionnaire and monitoring the results. The museum might then offer the market research project to a local university as a student project.

(L.) Take every opportunity possible to capture the data that's easily accessible (talk to visitors, survey members, etc.). The real issue here is the extent to which the organization is "visitor focused" rather than "museum focused." If the culture of the organization understands that the visitor is the reason for its existence, listening to the visitor will assume a higher place in the organization's priority list.

(M.) Science museum directors and marketing departments need to learn about the importance of market research and see examples of its success. Positive experiences shared at ASTC meetings and in its newsletter can be helpful here.

(N.) Comparing one's organization to other successful organizations in one's market and around the country (benchmarking) is one of the best ways to determine how useful market research is and why the best ones do a great deal of it. Use a marketing/communications committee or outside counsel (may be donated time of a corporate research department) to help advise the organization about what types of research might be most useful and how to set up a research program that the organization can afford.

(O.) Response is similar to #4 and #2. Other solutions:

- Utilize local colleges and university students to conduct marketing research, working with professors to develop research tools, appropriate field studies, that can be integrated with an academic program.
- Seek help from market research firms, seeking pro bono help or leverage support from an industry using such a firm.
- Find an able, retired volunteer who might organize such an effort.

To the basic concern, a science museum should, as part of its strategic planning, include market research to develop both exhibits and marketing.

(P.) Research will make museums' marketing and programming dollars more effective. Without understanding the "market" in which we operate, the museums' limited dollars may be missing the mark! Senior management needs to understand this. Possibly organize conferences or sessions at existing conferences about the importance of research. Also, secondary research can be compiled and made available to the museum community for general information gathering.

(Q.) No answer



(R.) Borrow knowledge from the for-profit world to build case for support of market research. Utilize in-kind services from as many marketing firms/professionals as possible. If the science museum is located in proximity to a major university, develop a coop relationship with the college of business, specifically the marketing area. Offer the university the opportunity to use the museum as an internship site, a place for research and class projects.

(S.) Market research needs to become a priority. Museums need to be run more like businesses, and learn to become market-sensitive. It is fairly easy to do informal written evaluations on programs or exhibits, and at the same time try to capture some demographics and other data on visitors. Again, pooling resources may enable groups of museums or cultural institutions to conduct market research more cost-effectively.

(T.) What can I say? The solution is that they should. It is easier to steer a course when you know where you are going. However, there is a need for more efforts to share existing information. Much of data researchers collect can be generalized across institutions.

(U.) Until marketers can convince managers and board members that research is important, science centers will continue to be product oriented and not customer oriented. We cannot possibly understand the needs of visitors or potential visitors without good research. We can try to present evidence from other industries and we can continue to educate them as to the importance of understanding customer needs. The only clear solution is:

- Show clear connections between market research, marketing plans and attendance. Be creative in obtaining outside funding for research and use the results to build the case for making research a priority in the future. Secondary research is generally inexpensive and can provide a solid foundation for understanding more about the industry and the local community. This can be combined with an internal analysis of visitor demographics, a look at how the demographics in the market will be evolving and an evaluation of performance (attendance, revenues, fit with mission, outreach figures and others). This use of data can point to holes where additional research is needed to figure out how to improve attendance and revenues, and to clearly illustrate research's priority relative to product development, long-term performance and other strategic issues.

(V.) I agree. I think it should be done every three years with a professional company. Also programs, publications, exhibits could be analyzed by informal "focus groups" yearly by a children's advisory board, members and non-members or visitors to give fresh, new perspectives to staff.

(W.) As in many situations, "seeing is believing." Quality market research is expensive and not a tangible product, so in many cases, it is not at the top of the list for expenditure priorities. As such, it is important for the marketing director to educate staff, management and board members as to the difference research can make to "the bottom line." Network among other museum professionals to discover some research success stories (as well as some definite research "don'ts.") Solicit some pro bono advice from research professionals. Then, undertake a small research study to serve as an example. Survey your membership and develop a new program or benefit based on the survey results. The goal is to show that research will greatly enhance any planning effort and will go a long way in predicting the ultimate success of a new exhibit or program. Starting small with a relatively low risk project will develop a comfort level that will help in making market research a greater priority towards the goal of increasing earned income.

(X.) My guess would be the lack of qualified staff and board to initiate the process. Marketing is viewed more as selling and promoting than understanding and defining a market. Education must occur as to a redefined marketing strategy for museums from one based upon numbers to one defined by need fulfillment of targeted audiences. Both interests will be best served.

(Y.) Financial education of senior staff is essential. This does not mean that market research or audience surveys should drive program development, but such research must focus on the successful accomplishment of programmatic goals by developing the needed audience.

(Z.) Many pay lip service to market research, but implementing research typically runs across one or more of the following obstacles:

(a.) In the early phases there is seldom enough money to pay for outside market research

(b.) When ideas are still undefined, staff may not understand how to research vague directions

(c.) Once ideas are crystallized, staff may feel threatened by the judgment implied by market research

(d.) Market research takes time and introduces delays and the possibility of expensive change orders, and once funds have been approved, there is usually a high time pressure for specific answers from architects, designers and others who are working on tight opening date deadlines.

Solutions include incorporating market research funds into product development budgets and time schedules; training exhibit developers and staff to regard market research as a development tool and not a popularity contest of their ideas; sharing market research with other institutions who may have tested similar program concepts; and supporting the centralized collection, analysis and dissemination of member museums' market research.

(AA.) A management consultant can work with the museum to become a truly customer-driven enterprise.

## **SECTION #2: EXTERNAL OBSTACLES (QUESTIONS #1-5)**

### **External Obstacle #1: Struggle to keep pace with technology.**

Video arcades, virtual reality, the Internet, digitized cameras and other emerging technologies are redefining what people expect from museums. Rapid technological advances and heightened visitor expectations will make "state-of-the-art" exhibits obsolete in a short amount of time.

(A.) I would suggest that there is more than one strategic response to this obstacle. For a few museums (those with the best access to financial resources), the answer is head-on competition. Those institutions have the capacity to create digital environments, with educational purpose, that rival the arcades and interactive restaurants. It is critical that the exhibits developed have elements of ingenuity that are seen as intrinsically valuable long after the "state of the art" components have become commonplace. The largest museums also have the ability to form technology alliances (similar to ASTC) that establish a stable format and platform for new media.

For most museums, I would recommend finding an alternative basis of competition. Many of these institutions would be well-advised to develop unique community/regional ties and to put more of their total effort into education components, rather than attraction components.

(B.) While it is true that rapidly emerging technologies are redefining what people expect from museums, science centers are in a position to take advantage of this situation and to work with these technologies in an educational context. The public understands the cost of keeping pace with technology, therefore, museums can leverage this understanding to plan fundraising strategies and build partnerships with high-tech companies.

The public also craves an understanding of these technologies and, again, science centers play an important role in interpreting these technologies and helping their audiences learn to use them in their everyday lives.

(C.) 1) We can't keep pace with technology and we shouldn't try. We can explain the technological marvels others set out to create - because they don't care to give the secrets away. A good explanation should last.

2) We need some good research here - how are people's expectations of our environments changing? Disney is now designing a children's museum - how will it differ from what current museums do or from what Disney does elsewhere? Will it affect people's expectations?

(D.) Museums must include and involve the newest technologies in the exhibit-planning and design process, not as the focus, but as part of the process of providing information. I see this as a marriage of high-tech and soft touch. The subject matter is king. The delivery of the information and data is critical to the success of the exhibit. By encouraging technology-friendly designers, the museum may be able to keep pace. Nonetheless, I suspect that the subject has to be interesting in order to sustain interest and repeat visits. A combination of a well-grounded and interesting subject treated objectively (soft touch) with a high-tech presentation may offer the best choice, and also differentiate the museum from the arcade.

(E.) The choices are (1) to decide to play the game and figure out how to stay in the race and (2) to decide to find a separate niche entirely. We probably need to do both in some measure. Each institution must determine the ratio acceptable for its circumstances. No matter what the mix, the institution needs to assess how it can best serve the interests of the community in ways that will make a significant difference in the lives of its users. One way is to ensure that everything we do contributes to the strengthening of the educational life of the community, an aspiration not high on the priority list of amusement-oriented businesses.

(F.) The reality of this solution is funding to make this possible.

(G.) As in the internal question about exhibition updating, more capital needs to be focused in perpetually changing the permanent exhibition base. In addition, that capital needs to be invested in an exhibition development process which provides for quicker, less costly updating in the future. Some changes in context and look as well as technology can be done at a much lower cost than simply replacing the entire exhibition. Our biggest competitors will be with "high-tech" based for-profits; we need to compete with them strategically by offering experiences that are real and real world, large scale and created by each of our visitors rather than passive experiences watched by visitors. Seek partnerships with the technology manufacturers as a key site for access to a "soft" market for them in your audiences/visitors.

(H.) Adopt a long-range plan and look carefully at the product mix. The museum should not focus solely on "SOTA" exhibits, but should also include Exploratorium cookbook modules, prototypes for the visitor to evaluate and test, good demonstration and presentation programs, science theater or Olympiad set-up. That way, high-tech exhibits don't create an arcade look for your center, and one is not always in the position of looking like a poor cousin playing catch-up with the superbucks stores.

(I.) Maintain a focus on what museums do best by presenting content as well as experience with new media. Develop internal expertise in interactive media to augment exhibit development and existing exhibits.

(J.) Make use of local R&D companies - they're usually very excited about ways to publicize their efforts - invite them to present their work at your museum. Work with them to bring your exhibits up to date - possibly convince them to provide pro-bono expertise by relating to them your "educational" mission - tell them about #s of school children who visit, etc.

(K.) Good exhibit design consultants can help point in-house staff in the right direction. Strong relationships should be established with local high technology firms and the science faculty of local universities. Here is where resource people can be found who might be willing to provide to the museum some valuable input regarding the latest technologies that might be incorporated into the exhibits. Science museums must be careful not to raise visitor expectations too high so that the public is always going to be disappointed because the museum's version of "high-tech" doesn't live up to their futuristic fantasies. Science museums might operate more like weekly magazines than a daily paper, offering more thorough coverage of science

topics. But to accomplish this the staff must be responsive to current and emerging science issues within a very short time frame, unlike the more typical museum approach which allows several years to develop and install a new exhibit. A mix of both types of exhibits would be a good approach to take.

(L.) Go back to basics. Technology is ever-changing, but these are just new applications of basic principles. Start with the principles, then seek creative ways (think exhibitry and programming) to relate those to new technological advances.

(M.) While new technology provides exciting opportunities for new media and novel presentations, direct hands-on experiences with three-dimensional objects are becoming scarce and valuable. People appreciate the old science center experiments more than a purely electronic environment. A recent study showed that too many video screens and monitors can be perceived as boring to visitors. As kids spend increasing numbers of hours in front of the small screen, variety and direct (vs. simulated) experiences are more important today than ever before.

(N.) First of all, define what your museum is not: not a video arcade and not a technology showroom (if you are one of these, your strategy will be different). There are several approaches to creating longer-lasting exhibits that are technology based: a) form a partnership with technology companies so that you may update the technology; b) choose to feature those technologies which you believe to have at least a five-year life or which display the basics of the technology but not necessarily the highest-end use of that technology (which will probably always be changing); if your museum is willing, consider contracting to be a test-site for new technology being developed for educational entertainment use. Another option for featuring more current (and popular) technology is to partner with other museums to develop a traveling exhibition featuring somewhat more current technology (again, it must still have a life of three-plus years to be useful as a traveling exhibition).

(O.) Museums need to establish close alliances and partnerships with technology leaders in their communities and find ways to include their thinking in shaping future exhibits, to refresh exhibits and to donate equipment and product that can be used in the museum. Perhaps, too, we will need to rethink exhibit fabrication to "plan in" and be able to build-in later changes and be flexible to update exhibits with new technologies.

These can be costly to, however, always being in a position of chasing the latest "gee-whiz" tools. Another strategy may be to rely less on keeping with "gee-whiz" technological advances and to focus on engaging content and keep technology in the background.

(P.) Partner with local companies/research firms to showcase new and future technological advances. A technology network should be made available to museums, possibly on-line.

(Q.) There are two possible strategies for dealing with this issue (not mutually exclusive). One is to go back to our roots - to reemphasize exposure to the "real thing." Electronic media are changing so rapidly that it is impossible for individual museums to stay ahead of the curve. In fact, it is not at all unusual to see exhibits in science centers that are less sophisticated than comparable software products available at home. If museums try to go head to head with the media giants, we are certain to lose. But the more society becomes saturated with electronic media, the greater the need for tangible experiences with real objects and real phenomena. Arguably our tradition niche is more important now than ever before. The second possibility is to create consortia of museums to develop media products with higher production values than any single museum could afford. This approach is best exemplified by IMAX® and other large format film theaters. Production of new films would be prohibitively expensive if museums tried to go it alone. The same approach has been used to a limited extent to develop new media-based exhibits and programs but could be greatly expanded.

(R.) Re-evaluate mission statement. It is unrealistic to believe/expect a non-profit can keep pace with those with greater resources. Develop relationships with businesses on the cutting edge. Ask them to showcase their new technology at the museum. Provide members and customers other services which video arcades, etc. cannot. Identify niche and capitalize on it.

(S.) Museums may need to appeal to tradition, and trumpet their role as keepers of culture and history, even in the science and technology areas. Most museums cannot afford to compete technologically with theme parks, arcades and other entertainment.

Museums can, and should, maintain high standards of educational value and maximize the "fun" factor as well.

(T.) This is a treadmill type of question. There are two classes of solution:

1) become a better/more efficient treadmill racer (e.g., shorter timeline between exhibit conceptualization to exhibit development) or

2) get off the treadmill (e.g., reshape public expectations about the role of museums vis-a-vis technologies). In this latter regard, science museums need to keep up with technology shifts, but it is probably unrealistic to assume they can always stay "on the cutting edge."

(U.) Keeping up with technology will always be a problem. But as science centers we also need to remember that we serve diverse audiences whose understanding of technology varies considerably. Many people are still trying to understand current and past technology, and many are young and will adapt new technologies more readily because of exposure to emerging technologies through schools and leisure time activities. Exhibits must be planned with certain timeless elements that teach the basics of science that can be enhanced as new technology becomes available. For example, many visitors still do not understand the basics of computers (artificial intelligence, physical components or production techniques), despite their prevalence in the market, and may need that knowledge before jumping onto the information highway. Ideally science centers should provide the link between the research community and the general public. To do this effectively, we need to be more closely tied with research organizations, universities and R&D departments in local industry and business to gain their support in developing and funding exhibits that bring new technologies to the general public. We can also stretch limited resources by partnering with other science centers in developing new programs and exhibits or sharing information.

(V.) It is a tough challenge. I still believe the basic principles are most important for young children to learn and to do so in a hands-on way is the basis for life-long understanding of those principles which are building blocks for greater knowledge of the world around us. Perhaps long-range plans should call for less exhibits, more "depth" in current technology -- i. e., put more money in less exhibits which facilitate interactive learning with state-of-the-art technology. Technology is hard to visualize without examples. Teaching children how to think is critical and central to educating youth.

(W.) The struggle to keep pace with technology is ongoing and a real battle which will continue to challenge science museums. The key lies in



employing technologically skilled staff and making the commitment to invest in continued staff development for the personnel. Conferences, trade shows and industry publications are all part of a continued focus to maintain awareness of technological advances. The museum must also be willing to commit to undertaking the expense or fundraising associated with implementing more regular changes to the exhibits.

(X.) Seek exhibits that also display the technology of local firms, or exhibits formulated to show evolution verses just the latest in a series of developmental steps. Raising money to endow exhibit development and associated staff positions. Seek sponsorships of related exhibits and corporate mission. Include demographics and visitor origin in selling sponsorships.

(Y.) We must focus on the important science we are trying to convey, rather than on the medium of conveyance. All the factors listed above are only tools. Exciting insights into the world around us are always fascinating, especially when "illustrated" with real objects. We can never compete with the theme parks and other mass entertainment centers for high-tech glitz and gloss -- but people don't come to science museums just to be entertained. What we do well is serious, fascinating, hands-on learning about the nature of the world around us, concentrating on true rather than virtual reality.

(Z.) I do not believe that museums should compete in the marketplace on the basis of their technological prowess. The private sector is capable of getting new media technologies out well before the museum culture can respond. Museums should focus on the social experience of the visit and on the content and the learning skills offered. While the media of delivery should be up-to-date, the "gee whiz" aspects should not be relied on as the marketing hook to attract attendance.

"State of the art" in museum experiences should not be based on technology, but rather on a quality visitor experience, which involves environment, people and most importantly a sense of discovery and enlightenment; delivery technologies should play a supportive role in this experience.

One exception are significantly expensive technologies such as large format film theaters and digital information centers where the capital payback is either long-term or sufficiently uncertain that the private sector is not attracted.

(AA.) No answer

**External Obstacle #2: Science museums are "just for kids."**

The public perception is that science museums are only for children or those with children. This keeps many adults - from high school students to senior citizens - from attending.

(A.) There are really two obstacles embedded in this thought . . . one relates to the perception of our institutions and the second to the perception of who visits our institutions (i.e., 1. I need kids to visit the museum and 2. if I go to the museum I will be surrounded by people with kids). The first concern can be overcome through the exhibit mix, targeted marketing efforts and the development of facilities (for example, rest areas) that accommodate the needs of adult groups.

The second concern requires a little more thought. Many teenagers would not want to be caught dead in a place filled with kids. Many adults would not want to be caught dead in a place filled with teenagers. Let's face it, some audiences are truly incompatible. I have heard about some very creative museum programs that age-segregate audiences, creating "date nights" for young adults or special "seniors afternoons." There is probably a lot of room for creative programming here.

(B.) If a science museum is not just for kids (some really are), then it is important to have a clearly articulated positioning statement that is internalized among marketing and programming staff stating who the museum is for. This positioning statement is spun off of the mission statement which should clearly define the museum's audience. Once this has been accomplished, then developing programs for specific adult and/or family audiences is easier. Traditional and innovative marketing techniques can then be used to target these audiences. The results can be measured through collecting demographic information on visitor and visitor surveys as well as tracking community perception through community-based surveys.

(C.) Most science museums are just for kids - and their caretakers in the role of caretaker. We need more: information, services, programs and products for other audiences. Created with the benefit of market research and marketed to these other audiences.

(D.) Review the marketing strategy in light of positioning statements. Check to see if position(s) continue to address full range of actual and

desired visitors. Create separate but integrated messages for each niche in support of positions. Use outside talent to craft the messages that support these positions so that they are fresh, relevant, interesting, etc.

(E.) We have made great strides in researching non-kid audiences, especially senior adults. This problem is a (1) positioning thing - the messages we convey in our name, slogans, designs, visitor amenities, etc. (2) a program and experience mix thing. It is also important that there be enough of value for the adult audience.

(F.) Promoting and advertising the adult oriented exhibits and programming.

(G.) What great news! Science centers are for kids and for families, a market that even Las Vegas is killing itself to attract. And we should be upset about this market perception? Seriously, the family audience is the core for science museums and that's great news. We can position certain exhibition/program/film efforts at adults but the mainstay is families.

(H.) Is this bad? Are there so many things that are educational for kids to do with their parents that this is a negative advertisement? Can control this somewhat in the advertising message or in the role models you use to promote the science center and its exhibits. Stress the multi-level accomplishments, fun for the whole family, sections of the center that are just for kids, and promote the rest for a range of ages.

(I.) Develop special exhibits which cater to specific adult groups to pull in new adult audiences.

(J.) This one's difficult - we're having some trouble with this issue now. Try to reach college-age students, young singles, with a special night or event at the museum. Promote to retirement communities, senior centers.

(K.) The museum should offer programs that are developed specifically for adults, and some that might even exclude children so that there are some exhibit experiences where quiet, more serious adult learning can take place. These programs should then be promoted specifically in media that are read/listened to/viewed by adults.

(L.) Leadership of the organization must understand its not just for kids. Museums must market to different age groups if they want those

customers. Also, offer more programs to this demographic - camps and workshops for adults can be just as popular as those for kids.

(M.) Many adults are associated with "kids," as parents, grandparents, aunts, uncles. Science museums need to present themselves as places for families and community groups - not individuals. Group experiences that provide for learning and sharing by people of multiple ages and abilities may be able to extend the museum audience. In addition, special programs targeted specifically for teens and seniors can create links to these groups. Such programs may need to begin by blurring the line between visitor and staff, inviting people in as volunteer docents and explainers in order to create a basis for word-of-mouth contact with these groups.

(N.) To attract adults, museums must change their programming, promotions and even hours of operation. Develop afternoon promotions for seniors and tour groups that will allow them to visit after school groups are gone in the afternoon (e.g., special tour of the museum and promotionally priced meal/snack in the restaurant). Develop evening or after hours promotions for adults (younger and older) that include a special use of exhibit halls or your IMAX®/OMNIMAX® theater. Consider a facility rentals program that exposes adults to the museum after-hours when they are visiting with colleagues or social groups, and not with their kids. Make sure that advertising and PR messages about the museum do not target just families and school-age children - be inclusive in your messages. Use humor (sophisticated) in your messaging, so that adults know they can have a good time during their visit. Finally, make sure that you have the comforts and service that adults are interested in: places to rest, good shopping and dining (may be catered for a special promotion), and easy to use facilities (easy to find box office, good visitor guide, tour guides if possible).

(O.) Exhibit programming and other activities designed to involve and engage adults in the museum will, with appropriate advertising and PR, help significantly to reshape public perception. This is a long-term and intentional process that should be a key element of the museum's strategic plan to build adult, high-school age and senior-age visitors. Often a museum's education department is solely focused on school-age students. The concept of "lifelong learning" is growing and even corporations will provide support for such programming.

(P.) Museums should promote the myriad of programming available to an entire family. Special programming for adults can be used as the incentive for adults to "try" the museum.

(Q.) Most science museum exhibits are designed for two audiences: family groups and school groups. Most exhibit halls are noisy and filled with children. It should be no surprise that many adults perceive our institutions as child-oriented - we are child-oriented. Solutions? One is to develop a mix of products. Once again large format film is the best current example. IMAX® and others have much greater appeal to young adults than do the typical exhibit floors. What other product lines might we add that would appeal to adults? Traveling exhibits have had some success (Ramses II in Boston, for example). How about simulator theaters? Here's one place where market research might be helpful in identifying the best targets of opportunity. Another possibility is to set aside times for particular audiences -late afternoon teas for senior citizens, evening social events for young adults. But of course most museums already do these things, and the overall impact on attendance is minimal. Beyond that, maybe we should just live with the situation. Clearly science museums have been very successful at attracting their primary audiences, and there is a risk that in trying to be all things to all people we end up diluting our impact. Very few institutions in society actually succeed in reaching everyone. On the contrary, most successful organizations identify a particular audience and then set out to meet the needs of the audience. Why should museums be different?

(R.) Host a variety of special events which appeal to specific audience demographics.

(S.) Especially in science content areas that are newsworthy, characterize the institution as having something for everyone and all ages. Marketing has always been successful for us in the family audience, but we should also plan and implement programs that appeal to adults as well.

Even simple strategies can help, e.g. in ongoing publicity, feature photographs of adults having a good time at the museum as well as photographs of children, or in marketing selected programs, express the target audience (e.g. for a lecture or other adult activity) as "designed for ages \_\_\_\_ and up."

(T.) Museums can obviously create special programs and/or exhibits for adult audiences - efforts to more narrowly target these desired populations.

However, science museums will need to consider changing their basic gestalt. Large, noisy, often chaotic environments are not generally inviting to older people. Are science centers willing to play around with who can visit, when ( the science museum equivalent of "adult swim.")

(U.) I don't entirely agree that the public perception, at least in our market, is that science centers are just for kids, because a large proportion of our visitors are seniors or adults without kids. We have made a conscious effort to reach these market segments as part of our long-term strategic planning. In contrast, many science centers have helped to create the "kids only" perception in their markets, either intentionally or not, by failing to develop exhibits or programs that meet the needs of adults without kids. We all have to target those markets that will achieve our attendance and revenue goals and then develop products to meet their needs. Sometimes, not all groups will be served. If a science center chooses to attract more adults, several methods can be used to change perception:

- Use market research to understand the specific needs of these segments, determine how leisure time is spent, identify best methods for reaching them, and how programs can be developed to attract them. Determine how valuable the market segment is in terms of cost/benefit to your science center.

- Plan more adult-only events (senior discount days, grandparent discounts, specific programs or events such as adult overnights, film/lecture series, etc.).

- Develop special programming for weekend evenings (for example, double feature OMNIMAX® shows, laser shows, or combination dinner/show nights).

- Plan exhibits that meet the needs of both kids and adults (for example we developed "Kidsburgh" and a special climbing wall to supplement our latest traveling exhibit, Antarctica. The changes made the exhibit more attractive to younger kids, teens, and still maintained the interest of a wide range of adult age groups.) We have also tried to ensure a variety of topics, demos and programs, educational levels and hands-on activities in our exhibits to span a diverse group of visitors.

(V.) I see an enormous amount of adults interacting with exhibits. They bring the children. Funds for "image advertising" should be set aside or raised by ASTC and a plan or "kit" developed to send to all science museums so they could utilize "science is not just for kids" and a consistent image could be promoted.

(W.) The key to overcoming the perception that these museums are "just for kids" is to provide a product which appeals to a broader audience and expand marketing and promotional efforts toward these audiences. Many science museums have broadened their product offering by adding IMAX® theaters and Rock Laser shows and operating these relatively separately from the museum itself. Repositioning the museum as a "place for all" will take a lot of planning and creativity (not to mention the need for research). Thinking "outside the box" is essential in appealing to a greater audience.

(X.) Develop exhibits with multiple tracks of interpretation. Hold a Seniors Day. Conduct outreach programs to targeted groups. Promote parent and child opportunities. Create programs for single people. Book a traveling exhibit with an adult appeal.

(Y.) Go out and seek these broader audiences with public programs -- lectures, field trips, observatory and planetarium programs -- targeted at grown-up minds. We have to design science museums with all age groups in mind, so that each group has a different but satisfying experience. The best luck may be obtained by going after groups rather than individuals -- seniors centers, singles groups, Ys and church groups, high-school science clubs.

(Z.) Museums should position themselves as "multi-product" institutions, with different offerings for different audience segments. Families are the principal audience for a science museum experience as it is currently configured and that is why the public perceives that they are "just for kids." Science centers such as The Tech (San Jose, Calif.) have tried to position themselves for an older audience, and as a result have suffered in attendance as the kid audience does not come. A better solution is to emphasize the range of other activities (special traveling exhibits, large format theater, simulator theater, sophisticated resources, etc.) that are available to attract secondary audiences, provided the core family audience is assured that there will be lots there for children to do.

One option being investigated is the segregation of time periods for school groups and senior citizens, which are two audiences that do not mix well together. This might be manageable as group leaders are easier to inform of special hours for senior citizens than the general public.

(AA.) This requires a change in the form of the enterprise and marketing -- can't be all things to all people. Establish value dimension to the customer and develop a position for marketing.

### **External Obstacle #3: Budget cuts in education.**

Public education funding continues to be cut back severely. Schools are unable to take advantage of field trips due to the cost of bus transportation, museum fees, etc.

(A.) Tight funding can be an opportunity as well as a threat. Many school districts are seeking more cost effective ways of meeting educational goals. To the degree that museums can supply creative ideas for accomplishing this task, access to remaining education dollars may be as great as ever. New sources for subsidizing bus trips will have to be found. It may be that corporate sponsors will see unique PR opportunities in lending their names to this type of effort.

(B.) This actually can present opportunities to expand outreach programs, corporate funders and community-based funding such as tax support. Positioned correctly, museums have the opportunity to offer free or reduced-free school programs that are supported by means other than admission fees.

(C.) This hurts. I don't have a pat solution, except to try to enlist PTAs and go for corporate underwriting of school visits. Also, create a whole-day excursion with cultural/educational partners that makes it worth paying for the bus. Help teachers solicit the money from the kids, include a discount lunch. Give "scholarships" at slow times. Contract with the school district to provide regular services.

(D.) Sponsorships and partnerships! The museum has something that many corporations want -- high traffic in a targeted audience. Look for ways to build relationships with these companies that result in educational initiatives paid for by the for-profit sector. We have a program that will combine grocery stores, cereal and schools to defray the cost of admission. Instead of "gifts," look for partnerships, especially those that deliver real value. Also, make sure senior management knows how to work the state political arena (the Secretary of Education, state legislators, etc.)

(E.) Our choices are (1) to bring services to the schools, (2) create stronger ties with the curriculum, (3) seek innovative financing strategies. No matter what the mix, we must make sure that we don't become absorbed by the system, but rather find ways to be unique, experimental, an alternative to school regimentation and assessment standards.



(F.) ScienceReach that goes out to schools with similar programming from the science museum.

(G.) School group visits are an essential part of a science center's mission but in terms of total audience they comprise only 15-20% in most centers. The inhibitor for most school groups is lack of or cost of transportation, not admission or program fees. Bus consortia might be a solution. And clearly we need to become a central and integral part of the school curricular experience that only the science center can provide if we are to be more than a field trip.

(H.) Start partnerships with your school district now. Work at becoming the contract provider of Sex Education (as in North Carolina) or Planetarium programs (as in Texas) or in physics or whatever your strength in programming or exhibits may be. Make it good economic sense for the school system to let your center provide educational expertise in an area they can't afford or are unwilling to tackle.

(I.) Create partnerships with businesses to support field trip program and subsidized busing.

(J.) Market outreach programs more heavily - take the museum to them. Try to get corporate support to sponsor a class field trip to the museum.

(K.) Offer outreach. Investigate on-line programs and other electronic means of bringing some museum programs into the schools. Lobby educators and educate school administrators about the unique effectiveness of science museum field trips to get kids really excited about science and math.

(L.) Talk to educators. Find out what's being cut and how that will impact school field trips. Find out what other organizations are charging for school visits and make sure your museum is competitive. Also, if transportation is a problem, see how the museum can come to the school to provide programming. Become a partner in their effort and make the museum essential to them.

(M.) Sponsorship dollars can be used to help subsidize school visits. Various approaches such as "adopt-a-school" to "donate-a-bus" can be used.

(N.) Not all schools are equally affected by budget cuts, so there are different strategies for different schools. For urban schools with high populations of lower-income students, offer dramatically reduced or free tickets during certain times of the year (e.g. fall) so that these schools are not shut out of the museum all together. If possible, link this kind of accessibility programming to corporate underwriting. For schools with more ability to pay, offer an incentive, such as a dollar off the regular price, to come during selected low attendance times (again, this may be fall or early winter months). Offer a discount for schools that bring more than a certain number of students per year. Seek corporate and foundation funding to help subsidize not only ticket prices but also bus fares for those schools that are struggling to pay (this may include not only urban schools but schools from outlying counties that would have to pay very large amounts for bus fare.) Partner with another cultural institution to offer a full-day ticket package for schools, possibly targeting those coming from a greater distance. Use your reduced school admissions as leverage to increase support for the museum from corporate, foundation and public (city, county, state) entities.

(O.) This requires close ties with community leaders, civic organizations and local industries to help find creative solutions to support education. At the Tech Museum, we have worked with the local Rotary Club to be our partner and they fund the costs of bus transportation for all San Jose public schools (value of \$5,000). We can leverage funds from such groups to support education and help the museum. In another way, we received a large grant to pay for higher-cost lab fees for schools in low-income areas of the city.

(P.) Involve local corporations to sponsor classes that cannot otherwise visit a museum. Offer significant discounts to schools during slower periods.

(Q.) Museums are being hurt by cuts in public funding at all levels of government. So are many other types of organizations. There doesn't seem to be much that can be done about it other than to weather the storm. In the meantime, museums need to work harder than ever to strengthen ties with schools from their local community, which are less dependent on expensive transportation. It may be necessary, too, to cut back on expensive programs that don't pay for themselves and that the schools can't or won't support.

(R.) Attempt to seek underwriting for these programs through joint proposals with the various school systems. Many individuals and corporations/foundations are interested in providing this kind of philanthropic gift.

(S.) Museums need to provide cost-effective delivery of program and resources, such as outreach programs to schools unable to visit the museum.

Recruit funding partners to sponsor both outreach and field trip opportunities for underserved audiences.

(T.) Museums in general have yet to make the definite case for the value of field trips (though some data does exist, including some of my research). In the absence of such compelling data this will always be an issue (funding cut-backs or not)! The solution is do more research and market/promote the results.

(U.) The best solution for science centers to deal with school budget cuts is to show the direct correlation of our programs to school curriculums and the benefit to students. We need to work with local school districts, parent teacher organizations, teachers and businesses to show how programs can improve science and math literacy and move students toward careers that will benefit employers and the region's economy. We have found that local business and industry is willing to provide funding for both outreach programs and field trips if we continue to demonstrate the benefits for students. We actually have little control in resolving this issue, but we can modify how we look at programs in an attempt to address the concerns and needs of schools:

- Form teacher advisory groups to guide us in the development of programs that specifically fit their needs and curriculum. Hold professional days that demonstrate how the science center can be used as a resource (make these very inexpensive or absorb the cost of these days as a marketing expense).

- Develop more programs that are based in the school (for example we work closely with a local television station in creating a neighborhood school weather network with on-site equipment to teach students about weather and forecasting).

- Make outreach programs more affordable and subsidize the cost of field trips for schools that would otherwise not be able to use the science center as a resource. The funding for this can be provided by business sponsors, operating revenues or special programming.

- Rethink how we work with those schools that we aren't reaching. Develop different types of outreach programs, use technology such as video to take the science center into the classroom, work with community, government and schools to find funding.

(V.) I believe ASTC could develop a model plan for science museums to become partners with school districts to be an offsite "interactive lab." The plan should include a legislative agenda to solidify the partnership. Perhaps a team could be composed of science museum staff who have been successful in these partnerships. There must be a public outcry for more educational funding -- without it, our future is compromised. Use "Reinventing Education, Entrepreneurship in America's Public Schools" by Louis V. Gerstner, Jr. as a model. He might also be invited to be on the panel to create partnerships with science museums and public education. Develop an additional lobbyist in Washington through ASTC who focuses on more educational funding, state and federal. Investigate the idea of each ASTC member museum allocating a small amount of funds to support an additional lobbyist for ASTC.

(W.) The first two solutions which come to mind are seeking funding from foundations and corporations to underwrite school tour visits. Funding could also be sought for the transportation costs. The second solution involves developing a community outreach team which goes out to the schools with the objective of bringing part of the museum to the school children. Private funding could be sought to underwrite the cost of the outreach program. Promotional packets with discount coupons could be distributed to each student to encourage museum visits with their families.

(X.) Promote this loss and seek support via an annual appeal. Develop a special kids' membership. Seek class-funded field trips with special fundraising events. Encourage schools to form foundations and include field trips as a part of its mission.

(Y.) I think this is an advantage, not a problem. Schools are being cut back, so they are looking more and more to science museums to provide the exciting introduction to hands-on science for their kids. Bus transportation/museum fees are far cheaper than good science teachers. Funding is often available from foundations and corporations to pay for transportation, especially from low-income areas.

(Z.) Schools still go on field trips and still find funding somehow, either their own sources (PTAs, local sponsors, etc.) or from the museum's efforts. Budget cuts in education mean that easy money and subsidies for school groups may be drying up, but we need to work harder and be more creative about how to serve the school groups better. More curriculum integration, more services (such as included bus transport in the admissions cost) and integrated teacher training programs (how to use the museum as a teaching resource) are all tactics that may help maintain levels of school-based revenue.

From a business perspective, education programs should be driven by demand. If school systems do not want them, then a museum should terminate their education programs. Too many museums maintain old education programs left from the days of easier school funding that teachers no longer want, such as classroom experiences offered within a museum. A teacher may ask: "Why should I spend the money to take my class to a museum only to sit in yet another classroom?" One museum we are working on plans to offer no educational programs for schools until the schools request specific programs and offer to cover the costs through fees.

A more radical approach is to shift a museum's attention away from school groups to the general public. General public visitors are significantly more profitable than school children and often a better return on incremental effort and investment.

(AA.) Become entrepreneurial. Develop strategic partnerships.

**External Obstacle #4: Admission perceived as expensive.**

Consumers perceive admission fees as "too expensive" and/or feel that the science museum experience does not match their perceptions of a "good value."

(A.) I depart with my colleagues on the prioritization of this issue. Price is less of an issue in this industry than in just about any other business I can think of. Commercial ventures, like the virtual arcades in the malls, will readily charge \$5 for a five-minute pure entertainment experience . . . while museums wring their hands over assessing an additional \$2 for a forty-minute, one-of-a-kind science adventure. All of the studies I have seen indicate a positive correlation between museum admission and duration of stay, museum admission and store sales, and museum admission and food service sales . . . there is no indication that the average visitor behaves as though price was a disincentive to enjoyment of the experience.

I accept the possibility that price may have some impact on the frequency of local visitation. Creative membership and multi-visit discount strategies can reduce that impact. In general, I would argue, however, that when the visitor tells you that the experience was not a "good value" . . . it is time to raise value, not lower price.

(B.) Communication to its audience about the value of the experience is important. It also helps to communicate what the admission charge is used for, e.g., keeping pace with current technology or allowing reduced-free programs for school children.

(C.) Most institutions that I know try to keep price equivalent to a movie in their city, if the institution offers a movie's length of features. Bigger can get more, smaller less. I suppose people try to push price up as high as they can before seeing diminishing returns. Most likely at that point the institution won't break even. So there's no way to avoid fundraising. The question becomes, how much fundraising does the institution think it can do, on a steady basis?

(D.) (A.) Part of the positioning effort can be to restage the museum in a new light (inspiring, entertaining, educating) with language and messages that appeal (fast, quick cuts, contemporary).

(B.) Consider producing advertising or other marketing communications that compare the museum favorably to other consumer choices (i.e., movies, theme parks, video game arcades, hanging out at the mall, watching TV at home).

(E.) This all boils down to the relationship of perceived value to cost to affordability. Having an effect on perceived value is difficult because we are running uphill against years of traditional expectations. And since many of our projects involve public investment, the demands on us are that much more severe. I don't think there is any one approach to solving this problem. One important element, however, is to make sure the value of our product is at the highest level.

(F.) This is where the admission and scheduling staff have to have the knowledge and enthusiasm to turn this perception around.

(G.) It's never an issue of price, it's only an issue of value. If your price-value ratio is out of whack then you need to change the product and perception in the marketplace. It's almost never the price; most science

centers and museums have far more price elasticity than they imagine. We do need to provide scholarship/sponsorship support, though, for folk who cannot afford admission and support what they can pay with resources from other sources for such a purpose.

(H.) Service is the key. Our research tells us that visitors want friendly people, clean surroundings, clean restrooms, comfortable climate (this is Texas, remember!), safe fun for their kids. Don't neglect the "small" things -- like clean restrooms, friendly staff. Word of mouth and positive experience are the best boosters of your product. Ask (see above) what visitors perceive as "good value" in your market. Bet you'll be surprised.

(I.) Develop discount policy, family pass program and attractive membership opportunities.

(J.) Need a strong marketing campaign in which you compare "what you get for your money" for example, compare to cost of a movie, amusement park or other entertainment feature. Stress that its a safe environment and educational. Can do this same type of comparison for programs, classes, camp, etc.

(K.) The real solution is to offer such high quality and interesting programs that visitors will feel they are getting their money's worth. When this is done, a visit to the museum will be perceived as a bargain, particularly when compared to movies and other less open-ended forms of entertainment and enrichment.

(L.) Listen to consumers and understand their needs. Look at budgets to see what money is being spent on. Evaluate all expenditures against how it adds value and if it doesn't add value in the consumer's eyes - don't do it. Frequently the issue isn't price, its the product delivered for the price. Also, see what other attractions are charging and see how your fees measure up.

(M.) Museum marketing efforts need to create awareness that the price of admission gives you a whole day's experience in the science center (not just a couple of hours) and that a family membership is generally an excellent solution to the high cost of admission.

(N.) Many institutions have responded to a need for increased earned revenue by increasing their ticket prices without changing their product.

This does not always work, especially if visitors are already feeling pinched by the admissions price. Review your competitors to determine what they're offering at what price. Do a market survey and find out how your institution compares in term of price and value for admissions compared to other cultural and entertainment attractions. At the same time, find out what visitors would like to find in the museum experience. If visitors are complaining that the product value does not match the price, you need to improve the product (you probably can't or don't want to reduce the ticket price, although you may want to do some selective discounting to introduce new audiences to the museum).

(O.) This requires a major PR/marketing campaign to reposition the hidden online/impact of museum visits and, simultaneously, I think requires museums to offer greater value and benefits that such a visit includes. Museums must be as visitor oriented as Disneyland and maximize the museum experience with dynamic exhibits, interactive displays and programming, and staff and volunteers highly responsive to visitor needs.

(P.) Promote the value of the visit, a 3-4 hour educational and fun trip for the family vs. an activity such as going to the movies.

(Q.) A lot of museums used to be free, and consumers are still adjusting to the harsh new realities. One strategy that helps is to offer more than one ticketed venue so that visitors can choose how much to spend. And it is very important to develop a credible strategy for handling low income visitors - free days or special passes or whatever works.

(R.) Stress the ongoing value of the museum experience through an affordable membership. Develop benefits which are desirable and cost effective for the museum. Use a comparative analysis to show the value of the museum admission price with "hot attractions." Offer coupons and discounts to make the visit more affordable.

(S.) Break admission costs down into cents/hour, or in the case of membership, \$/month to make the perceived cost smaller. Where else can you spend \$1.50 an hour and have such fun (and learn at the same time!)?

(T.) The key here is not price but value. Science museums have to conduct focus groups and other types of market research to determine how to provide better value for the experience. As long as museums focus on



price, they'll just be "hand-wringing" rather than doing something substantive.

(U.) This is a difficult perception to overcome yet when you look at the prices charged for zoos, other cultural attractions, sporting events, amusement parks and even movies or other leisure time activities, our prices are competitive. What may be happening to a lot of us is that we are not taking a marketing approach and truly understanding the needs and wants of customers. We need solid market research to match our customers' perceptions in terms of providing a good product, overall experience and value.

Meeting customer needs is what it is all about and we will have to repackage ourselves relative to our competition (not just other museums) after we find out what price tradeoffs potential consumers are willing to make for our services. As an industry, we also have to look at the overall cost of coming to a science center (admission, parking, food, time) and decide what we can do to show the value of a visit or offer additional value to visitors. This may mean lowering the cost of food and parking. We also need to change our key marketing messages to show that science centers aren't your typical museum and that it is an experience that gives them interactive fun and learning for the entire family. And we need to ensure that we are meeting expectations by providing strong exhibits/programs that are interesting for a wide audience and that visitors are satisfied with that experience. Complex pricing structures that perpetuate the idea that we are expensive because everything adds on the base price of an exhibit ticket also need to be evaluated. Visitors get the feeling that they are being "nickled and dimed" at every turn and are not seeing the value of having choices in what they do, particularly if they are first timers who may not understand what is available or what we offer. Incentives and special promotions can help in getting new visitors to try our product but they are not effective in building repeat business. We can get repeat business by providing good service, strong programs and exhibits, and offering incentives like specially priced seasonal passes, limited family passes, frequent visitor programs or memberships that provide extra value benefits. Finally, leisure time is limited for most people and we have to make sure that we are at the top of mind when choices are being made and this means keeping a consistent presence in the marketplace through advertising, community relations, promotions and publicity.

(V.) They pay so much more for entertainment. Science museums must develop advertising campaigns that talk about "education is fun." Perhaps

"dwell time" and "good value" should be addressed at the annual long range planning sessions and as current and future exhibits are analyzed and developed.

(W.) Wide distribution of "2 for 1" coupons is a great way to combat this perception. This can be achieved through a variety of distribution sources and works very well in encouraging visitation. At the museum, its important to ensure that the visitor does not perceive that he is being "nickel and dimed." Pricing structure is very important and its optimum to keep it as simple as possible. If possible, offer special discounted or "twilight fees" during traditionally slow times for the museum. If at all possible, seek funding to enable the offering of Free Admission hours one evening each week. Additional programming and special entertainment included with the price of admission are always considered a good value.

(X.) Mount a "did you know campaign" and create awareness about museum costs, staffing and overhead. Explain why you are different, why a museum is valuable and why people should visit. Tell people how you differ from other similar educational and entertainment options.

(Y.) It's up to us to provide the number and variety of experiences during a museum visit which will show the falsity of this statement. Museum admissions are generally below the price of a movie -- if sufficient attention is paid to visitor amenities (food, gift shop, etc.) and program variety (exhibits, demonstrations, lectures, planetarium and OMNIMAX® shows, etc.) we should be more than competitive.

(Z.) When admission is perceived as too expensive, it is because alternate experiences for equivalent cost are perceived as better quality. Quality is in the eyes of the beholder, and museums should strive to understand their audiences' quality standards and meet them (see answer to internal issue #2 -- "Insufficient Advertising Expenditures").

The cost of delivering a museum experience typically far exceeds the ticket price, and visitor education programs that explain to the audience what goes into a museum experience might help, in much the same way an OMNIMAX® theater is seen as higher value because the public sees the fancy projection equipment before entering the theater. Using a different tactic, Sturbridge Village makes sure that entering patrons are told that there are others (donors, foundations, government, etc.) that have underwritten a portion of their cost, so that they are not daunted by the steep ticket prices there.

A major reason why museum costs are so high is the continuing insistence to do everything uniquely. Our commercial competition, however is not so ego-centric. Discovery Zones, for instance, number in the hundreds, and their program development costs can be amortized over numerous installations. We need to share programming costs among museums more effectively in order to compete better on a price basis. A positive example is the museum large format theater network where investments of \$4 to \$6 million in a film are supportable because the film will play in 50 plus theaters; by contrast, planetariums continue to develop their own shows internally, with budgets seldom exceeding \$30,000, but with admission costs quite close to that of a large format theater.

(AA.) Determine what drives perceived value for cost and deliver on it.

**External Obstacle #5: Urban surroundings inaccessible/dangerous.** Science museums in urban locations are perceived by suburban audiences as being inaccessible or dangerous to visit. Suburbanites are less willing to drive into the city and face inconveniences/risks.

(A.) The first step in addressing this problem is to deal with any elements of reality that lie behind the perception. If parking lots are not adequately lit, if pickpockets are common on busy days, etc., the first order of priority is addressing safety problems. If a regional transportation authority can be persuaded to make access from the suburbs easier, this too may be a priority.

Even when the problem is perception rather than reality, there are still concrete steps to be taken. Much of the outreach effort of museums in recent years has been directed at urban centers, especially large urban school districts. While this effort is commendable and important, it has accentuated the separation of suburban audiences from their regional museums. When the inner city museum makes its presence known at suburban festivals, when it engages suburban schools, when it offers programming at suburban libraries, it can give a powerful message to these communities that it is not the "inner city's museum," but the region's museum. The distance between your museum and the suburbs is not only measured in miles but in attitude.

(B.) One solution might be to concentrate on the local community and provide services and opportunities for neighborhood youth. The Indianapolis Children's Museum has taken this approach.

Another approach is one the St. Louis Science Center has taken to ensure

the safety of its visitors. The Science Center has joined a Forest Park network of security personnel comprised of cultural institutions in the park as well as Second District police force. The park itself utilizes mounted police who provide a protective presence. The institutions themselves use specially-marked security vehicles that also have a visible presence in and around this urban park.

(C.) Need signage and patrolled, lighted walkways from secure parking. Notice of same can be publicized in all "directions"- how to get there. For special events/evenings, try valet parking or "lock-ins" for young teens - the cost of the security personnel would probably be covered in increased attendance. Do some market research with suburbanites to find out more on specific objections - maybe they think it's a 40 minute trip, but with good directions and directed parking, it's only 18 minutes.

(D.) No answer

(E.) This is not a problem that a center can address on its own. The institution must view itself as a partner with its neighbors in confronting the real or imagined issue and in investing in long-term actions to attempt to change the environment.

(F.) Taking every security precaution possible and letting the public know about those safeguards. Satelliting in shopping malls in concentrated areas and demographics.

(G.) They must have a reason powerful enough to come downtown to the science center. If they do, then they will come. We should work to remove any and all barriers . . . enhanced presence of program folk in the parking areas (not just security guards or parking attendants) so that the museum experience begins in the parking areas. We must assure ourselves that the market perception of the experience is so valuable and essential that they will make the museum a destination.

(H.) Try a shuttle service from their backyard to your door, and back, on weekends. City transit can be a great partner in such an exercise. Try a satellite museum in a suburban mall, with bounce back coupons to the "big" science center. Try high-profile appearances -- when the perception of attraction outweighs the perception of danger, visitors will come.

(I.) Consider current location and determine if it can be improved through partnership with a developer or whether the institution needs to consider relocating to a new site.

(J.) Must make them understand that a visit is worth the effort. Let them know what your institution does to create a safe environment - for example security guards, parking attendants, museum floor staff who patrol the grounds. Can also educate them about dates, times, locations in which your museum comes to them - outreach programs.

(K.) The perception that the museum is located in a dangerous neighborhood is difficult to change unless the museum publicizes that the neighborhood is safe. Perhaps the museum should implement safety programs, provide better lighting and in effect make the neighborhood safe for visitors. The most critical time to address this issue is when the site for a new museum is selected; however, neighborhoods can change, and it may be difficult to move a museum once this happens. Several institutions within the city might share in the cost for providing a shuttle bus service between participating institutions to make them more easily accessible and also promote a feeling of safety, particularly at institutions that are located in questionable or unsafe neighborhoods.

(L.) If you offer a blockbuster exhibit or event that is the "buzz" around town - people will go regardless. Especially when they know everyone else is going. Also, listen to your visitors and fix things that may seem to be a problem - install better lighting in the parking lots or offer a shuttle service. In addition, bring the museum to the community and present workshops and other outreach programs that give people an idea of what the museum is about. When they know more about it they may feel more comfortable in attending. And finally, if these things don't work, market to your surrounding "urban" community.

(M.) Urban museums need to think about parking for suburban visitors to make access as easy and direct as possible. But, more importantly, urban museums need to cultivate an urban audience by building linkages to the local communities that surround the museum. We can't continue to serve the audience of the past, but need to find ways to reach the people who live in our neighborhood today. Long-term, multi-level relationships with families and community groups within the city can begin to build a new audience for the museum.

(N.) Work with your city's downtown council or civic organization to ensure that the downtown is clean and safe. Be a partner in their marketing efforts so that you benefit from opportunities that bring new visitors downtown. You may want to enlist support from City Hall and the police department to help ensure that unsafe conditions are rectified. (To enlist the support of City Hall, you'll want to prove how valuable the museum is as an agent for economic development - jobs, tourism-in the community and also the extent of community support for the museum, as evidenced by attendance, funding, etc.) Develop a safe parking/escort program for evening (or daytime) customers. Emphasize ease and convenience of parking for suburban visitors. Take advantage of every opportunity to provide customers with information about parking and access (good maps or brochures and sent with ticket reservations). Work with bus companies who work for tour groups to ensure they know how to get to the museum and where to drop off visitors safely. Work with the department of transportation and/or city to get street and highway signage that leads visitors to your institution.

(O.) This is out of the hands of the museum and requires city action to make the inner-city safer. This probably also requires collaboration with other inner-city non-profits, with community groups, with major supporters and advocates who will push political solutions.

(P.) Work with local police and civic boosters to clean up main arteries to museum then install great directional signage so that nobody can get lost. Make parking easy, accessible and secure.

(Q.) This may be a problem for some museums, but many inner city museums seem to do just fine. Smithsonian Air and Space claims 7+ million visitors a year, the Museum of Science and Industry in Chicago and Museum of Natural History in New York are both over 2 million, while Franklin Institute and Liberty Science Center are both close to one million. All are in downtown locations. Would they really do better in the suburbs? For those institutions that do have a problem with location, the most critical point is to control the reality of the situation -- the museum and its grounds must absolutely be safe, well lit, clean and well manicured -- and then worry about the perception.

(R.) a. Ensure area is safe. Provide adequate, visible security. Work with the local police department.

b. Target market to the areas with the most fear, inviting them to make

suggestions for solutions.

c. Identify influential leaders from the communities expressing concern; invite them to become involved in an advisory or board capacity.

d. Take the museum to them through an outreach program.

(S.) Analyze visitor service to minimize negative environmental effects, and make visitors more comfortable upon arrival.

Offer discounts to users of public transportation (unless that endangers them as well!).

(T.) 1) Break down the walls, move the functions of science museums off-site, into the suburbs. 2) Create peak experiences at the downtown site that people can only get there; bearing in mind that this approach will reinforce internal obstacle #1 - one time visitation.

(U.) Science centers need to work with local and regional government, community groups and business to improve areas and reclaim the area surrounding attractions as safe zones. People are willing to face the inconvenience and risk of driving into the city if they perceive a value and that is why we have to provide strong exhibits, programs and service that meets their needs. We can also minimize inconveniences and risks by providing parking that is safe, well lighted and secure, and by working with the transit authorities to ensure that public transportation is convenient and safe, and that roads into the area are clearly marked.

(V.) Create the need for interactive education and better partnerships with schools. Stress security measures in positive tones and public transportation information (where applicable) in all publications and ads. Also, try targeting minorities in an effective way.

(W.) There's not a lot that individual science museums can do to combat this perception. If there is a central museum or cultural district, forming a committee to address security issues is a good way to start. There is strength in numbers and working on a campaign to bring greater security to the area will probably warrant a feature story in the local paper once some accomplishments have been achieved. I think that the key is to work in conjunction with several entities and enlist city support for the project. Involving influential board members will also help towards achieving the common goal of encouraging area visitation.

(X.) Provide parking security. Encourage visitation at off-traffic hours. Market outreach programs and encourage visitation to the museum.

(Y.) We can't solve all the problems of society. Museums must work with the city government, business and civic leaders to develop "crime-free" "cultural zones" -- which exist already in many cities such as Washington, D.C., Detroit, Baltimore and Chicago. We must accept the fact that a certain fraction of our potential audience will never come downtown -- but there are plenty of others who will.

(Z.) This is a critical problem facing inner-city museums, which were originally located to serve a large metropolitan area from its recognized center. Target audiences have fled to the suburbs and are hesitant to visit the center of the city.

Some museums have been partly successful by banding together with other cultural institutions into a "safe haven" such as the Flint Cultural Center. However, such islands of safety, which must include parking, lighting and easy access to facilities, may be beneficial for attendance, but do not achieve economic neighborhood development goals as there is little spillover into the neighborhood.

The perception of urban danger, however, is currently far greater than the actual risk implied, particularly during the hours most families would visit museums. Hesitancy of suburbanites to go into the city can be seen as a form of classism. Museums should actively counteract such public attitudes and work with neighboring institutions in public awareness campaigns to communicate the actual safety record they enjoy.

(AA.) Attract people in the community by peopling the museum with staff that represents the community.



## VITA

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Candidate for the Degree of  
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Thesis: SURVIVAL OF THE FITTEST: A DELPHI STUDY  
ON MARKETING SCIENCE MUSEUMS  
IN THE 21ST CENTURY

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OKLAHOMA STATE UNIVERSITY  
INSTITUTIONAL REVIEW BOARD  
HUMAN SUBJECTS REVIEW

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MARKETING SCIENCE MUSEUMS IN THE 21ST CENTURY

**Principal Investigator(s):** J. Steven Smethers, Anthony J. Zodrow

**Reviewed and Processed as:** Exempt

**Approval Status Recommended by Reviewer(s):** Approved

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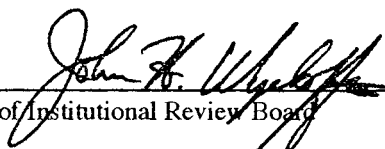
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Comments, Modifications/Conditions for Approval or Reasons for Deferral or Disapproval  
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Chair of Institutional Review Board

Date: November 20, 1995