

PROPOSAL NARRATION

I. THE MISSION AND ITS FULFILLMENT

The Computer Museum was founded in 1979 in Marlboro, Massachusetts, became a public non-profit institution in 1982, and opened in Boston in November 1984. The Mission is threefold:

1. To educate all levels of the public on computing. Today's computers are considered by many to be "black boxes that perform magic"; the Museum demystifies these "black boxes" by explaining their evolution through its exhibits, programs, and publications.

Three of the Museum's galleries chronicle the evolution of computer technology. The exhibits in these galleries are presented in chronological order from the 1940s through the 1970s: the vacuum tube era, the transistor era, and the beginnings of the integrated circuit. Computer installations (including the Whirlwind, the first real-time stored program computer) document earlier periods in American social history. *Target included*

Vintage films and videotapes depict military history - "SAGE: In Your Defense" and steps in a new journalistic process - "Univac on Election Night". With earphones, the visitor can listen to a typical conversation in a 1960s computer room, recreated with

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equipment from The Travelers Company. A 36-foot-long computer history timeline containing more than 100 artifacts and memorabilia from the 1950s and 1960s covers the evolution of the first two generations of computers. A videotape of Seymour Cray giving a lecture provides insight into a person of significance to the development of computer technology.

On October 23, 1986, in the Museum's William C. Norris Gallery, a gallery for temporary exhibits, an exhibit entitled "On One Hand" opened for a year. This exhibit, sponsored by Hewlett-Packard, presents the history of pocket calculating. It has nine displays based on nine technological eras beginning with pre-counting, where a pebble equals a unit, to modern microprocessor pocket calculators. Each display poses a practical mathematical problem from a different historical period for the visitor to solve interactively with the mathematical tools of the period.

In the Museum's state-of-the-art galleries on personal computers, computer graphics, and artificial intelligence and robotics, the last opening in June 1987, historical artifacts show antecedents to current computer programs. For example, an early set of drawing instruments and a large pantograph are placed next to a computer programmed to produce the same drawings. The resolution of an image on a computer monitor is compared with the woven patterns achieved by Jacquard on his 19th century punch card driven loom, programmed to weave his portrait.

Lectures and seminars provide a forum for computer pioneers to tell their stories creating an oral history which is recorded and preserved. These lectures are not limited to technical information; they also include biographical, autobiographical,

and historical information. For instance, the Computer Museum presented the premier performance of Pray, Mr. Babbage... a play by Maurice Wilkes. The lectures are published in the Museum's quarterly magazine and are available on audiotape in the Museum store.

2. To collect and preserve the history of computing.

The Computer Museum collects artifacts, archives, films, and videotapes to preserve and document the history and current practices of computing. (The Museum works internationally in industry, research, and user environments to build and extend a definitive collection.) At the suggestion of the Secretary of the Smithsonian Institution, the Museum has entered into collaboration with the National Museum of American History and has developed a joint collections policy and strategy.

The collection, already the world's most comprehensive in the post 1950 period, has over 1300 separately cataloged items, ranging from the origins of European calculation with the abacus to the prototype artificial retina chip (1986).

The artifacts are supplemented by more than 200 films and videotapes and 1000+ photographs and archival records relating to specific machines.

The collections are used for exhibition, scholarly study, archival reference, and is made available on loan to other institutions. Approximately 25 percent of the 1,300 computer hardware artifacts are on public display. The collection is a major source for computer educators searching for documentation

and graphic materials on the history of computing. In the last year over two dozen authors have used the collection's documents and photographs for their books. Scholars use the collection to clarify and understand the development of different generations of computer technology.

The Museum itself carries out extensive historical collections research. It has cataloged the first generation computers, prepared an on-line data base for all computers built with vacuum tubes or relays, and documented and preserved the oldest known computer video game, "Space Wars" on the 1962 PDP-1. The Museum's collection has become an important resource for attorneys identifying "prior art" and has been

used in claims for the first digital oscilloscope, the first personal computer, and the first interactive computer game. The Computer Museum has provided artifacts for "Computer Wonderland" an exhibit at Seibu Department Store, Tokyo, August, 1986; the U.S. Pavilion in the Tsukuba City World's Fair, Japan March - October, 1985; the Hangzhou Youth and Children's Activity Center, People's Republic of China; the National Museum of Science and Technology, Canada; and the Science Museum, London.

3. To celebrate the history of computing. In order to bring attention to the history of computing, the Museum creates a number of different vehicles to publicize its mission. As an example, on February 13th, 1986, The Museum held ENIAC's (the first computer) fortieth birthday party, marking the first 40 years of computing in the US. The event was covered by Time Magazine, the CBS Morning News, USA Today, and a large number of other media. During 1986, the Museum also sponsored an international contest to find the first personal computers. The contest was funded by Computerland and IDG Communication. Over 300 entries from around the world were received and 150 items were accepted into the Museum's permanent collection. In addition the history of personal computing was re-written, giving credit where it was due. (See the Wall Street Journal article in the appendix.) Formerly, most historians accepted the Altair

(1975) as being the first personal computer. The Museum discovered that the first personal computer was the Kenbak-1 which was advertised in 1971 in the Scientific American; it sold 40 units. In November 1987, the Museum is planning to celebrate the 25th birthday of ^{//}SpaceWar!^{//}, the first interactive computer game. As part of the celebration it will sponsor a competition to fund other early computer games. This celebration may unearth historically important computer programming materials, as well as increasing public awareness.

In summary, The Computer Museum provides a unique resource for the collection and dissemination of knowledge on the evolution of computers. If The Computer Museum were not actively collecting, promoting, exhibiting, and publishing the history of computing, many of the significant items on the evolution of the ideas of the technologies would be lost. This is an essential institution for a nation in which computing is one of the very largest industries.

II. BACKGROUND

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In 1974, The Museum Founders, Kenneth H. Olsen, President of Digital Equipment Corporation, and Robert Everett, ^{former} President (retired) of MITRE Corporation, saved MIT's Whirlwind computer from the junkyard. After developing a small exhibit at the National Museum of American History of The Smithsonian Institution, they realized that there was no institution collecting, exhibiting, and interpreting the importance of computing in twentieth century history. Mr. Olsen and Mr. Everett set out to fill this gap.

By 1979 the collection had grown substantially and Digital Equipment Corporation opened a private museum in its Marlboro, Massachusetts, facility. Public and industry response to the

effort was so favorable that a Board of Directors was assembled and public non-profit status was sought and granted in 1982. Kenneth Olsen was elected Chairman of the Board and Dr. Gwen Bell, who had directed the Museum since its inception, was elected President and appointed Director.

In June 1982, the Museum opened to the public. The scope of the Museum activities included an active collections program, exhibitions, a lecture series, a quarterly magazine (The Computer Museum Report), and corporate and individual membership programs. The visitors were mainly adults associated with the computer industry; the corporate environment was not appropriate for school groups nor convenient to the general public.

In May 1983, after one year of operation as a public institution within a corporate building, it was decided that the Museum should move to a more accessible location, Museum Wharf in downtown Boston was selected. The Directors recognized that the Museum needed a larger public exhibition space to fulfill its educational mission and that it needed physical separation from its founding corporate parent, Digital Equipment Corporation, to better secure financial support and represent the industry.

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In May 1984, the Board formally announced the Museum's first Capital Campaign: Phase I (May '84 - Dec. '86) \$3 million for exhibitions; Phase II (Jan. '87 - June '90) \$3 million to purchase the building; and Phase III (July '90 - June '93) \$4 million for endowment.

In November 1984, the Museum opened its first galleries on Museum Wharf in Boston, established an interpretation and program, expanded its lecture series and educational programs, and sponsored special events. The Museum explores the Information Age -- an age in which the computer is the tool that spawns innovation in the sciences, the arts, and the humanities. In its Boston facility, the Museum provides an exciting place to discover the past, the present, and glimpses of the future of computing while experimenting with innovative state-of-the-art computers and learning about the people and ideas that created the computer revolution. The Museum's site in a city of international stature allows it to serve a national and international constituency and provide a center for learning about computers.

THE COLLECTION

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The "computer revolution" is rapidly changing the character of business, education, and leisure; its influence is as profound as that of the Industrial Revolution. The Museum's collections reflect the developing understanding of the need to preserve, protect, and analyze the sources of this revolution. The Computer Museum is presently the only museum in the world devoted to collecting and exhibiting state-of-the-art and historic computing machines and applications. Highlights are:

<u>EDSAC, UK (part):</u> d program computer	first operational store
<u>Whirlwind:</u> r and first	first real-time compute core memory
<u>TX-0 (operational):</u> er	first transistor comput er
<u>Classic PDP-8 (operational):</u>	first mini-computer
<u>CDC-6600 (ser #1):</u>	supercomputer designed by Seymour Cray
<u>MIT's Altair (operational):</u> ers	one of the micro-comput ers
<u>"The Ashtray":</u>	first object designed and machined by computer
<u>Rand Tablet and Stylus:</u> t device	the first pen-like inpu t device
<u>Shakey:</u>	the first "intelligent" mobile robot
<u>Visicalc:</u> e first spreadsheet	the original desk of th e first spreadsheet program

The Museum concentrates on acquiring historically important computers and computer components. Manuals, photographs, films and videotapes of artifacts in their original setting, and other pertinent documentation and memorabilia are carefully selected for acquisition with the artifact. Early acquisitions, including a PDP-8, the TX-0, a Texas Instruments Advanced Scientific Computer, and an IBM Stretch, laid the foundation for comprehensive collecting.

The Museum's growing collections are an unique and significant resource for scholars, teachers, students, attorneys, historians, and industry researchers. Special relationships are maintained

with many professional societies and other cultural institutions, including the National Computer Graphics Association (NCGA), the Association for Computing Machinery (ACM), the American Federation of Information Processing Societies (AFIPS), The Institute of Electrical and Electronics Engineers (IEEE), the American Electronics Association (AEA), and The Boston Computer Society (BCS). ^{10/11} The Museum and ^{the National History Museum of} the Smithsonian Institute ^{agreed to collaborate in their collecting} have ~~signed a joint collections policy~~; this is the first time the Smithsonian has entered into a joint agreement with an outside institution.

not true

The Museum's ~~Exhibit~~ and Collections Committee, composed of experts from the computer and data processing industry, academia, and the Museum, formulates policies and approves major acquisitions. The committee of 12 is chaired by Brian Randall, Professor of Computer Science, University of Newcastle upon Tyne; and includes Charles Bachman, Bachman Information Systems, Inc.; Gordon Bell, The National Science

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Foundation; George Michael, Lawrence Livermore Laboratories; Mitchell Kapor, Founder of Lotus Development Corporation; Carver Mead, California Institute of Technology; Doug Ross, Softech, Inc.; Jonathan Rotenberg, Boston Computer Society; Jean Sammett, IBM; and Professor I. Bernard Cohen, Professor Emeritus, Harvard University; Staff members include Gwen Bell, Founding President, Oliver Strimpel, Curator, and Lynn Hall, Registrar. A monthly report detailing all collections activity is circulated to senior management of the Museum and to the ~~Exhibits and~~ Collections Committee. (1)

THE MUSEUM'S EXHIBITS

The Computer Museum's exhibits encompass all aspects of computing and provide opportunities for hands-on learning. Exhibits integrate unique artifacts, working computers, video and text to explain both the history of information processing, demonstrate contemporary applications, and provide glimpses of the future. At present, 24,000 square feet of exhibit space is developed, and partial funding is in place for another 12,000 square feet. New galleries on, software, as well as computer fundamentals, will complete the exhibition areas available.

The entry gallery features the world's largest and longest running computer--the SAGE system (AN/FS Q-7). The two 15-foot long arithmetic units, drum and core memory units, and control consoles are adapted to give the visitor the feeling of being inside a computer. The visitor can walk along the circuit board on the floor from one component to the next. Inter-active units explain how each component of the computer works. The historical importance of the computer is emphasized.

A 36-foot long computer history time line containing more than 100 artifacts outlines the evolution of the first two generations of computers. It is complemented by a mini-theater that shows a 45-minute film compiled of historic clips from the twenties

through the seventies. A recreation of a classic 1960's computer room is interpreted by earphones that allow the visitor to "listen in" to a conversation and a key punch which allows them the opportunity to punch their own card.

A major temporary exhibition outlines the work of computer architect, Seymour Cray, designer of the world's most advanced supercomputers. Artifacts from all of his machines, photographs, and a video tape enhance the exhibit. The age of the chip is introduced by an exhibit on NASA's Apollo spacecraft guidance computer used for orbital control. Key artifacts are shown and a modern touch-screen simulation of the console is recreated. The Personal Computer exhibit features a burial mound of the most significant early machines surrounded by new computers featuring different forms of input/output.

A 4,000 square foot gallery, The Computer and the Image, offers a comprehensive look at computer graphics and computing imaging. It includes many significant artifacts, computer-generated images and films, and 20 interactive units. Each unit includes its history, representative examples of the technology (hard copy), and an interactive display or device.

In 1986, the William C. Norris gallery was inaugurated with the International Plotter Art Show (February 1, 1986 - March 30, 1986) based on an international computer art competition sponsored by CalComp. On October 23, 1986, "On One Hand", an exhibit sponsored by Hewlett-Packard on the history of pocket calculating, opened for a year. Future exhibits will focus on applications.

PROGRAMS: EDUCATION

GROUP TOURS - Group visits to the Museum by middle school, high school, and college/technical school groups constitute 40 percent of visitations monthly. Group visits begin with a half-hour ~~interpreter~~^I-guided tour of the historical exhibitions followed by an hour of independent usage of interactive exhibits assisted by ~~interpreters~~^I. For beginning groups, emphasis is placed on history and the parts of a computer using the large and easily understood parts of 1950's machines. More advanced groups receive tours directed towards their special interests, which can vary from computer careers to specific historical interests.

LECTURES - The Museum serves a growing need for informal continuing education through its Lecture Series; talks are given by industry pioneers and significant contributors to information processing. Topics range from the evolution of the industry, to artificial intelligence, image processing, and applications. The series is designed to interest not only computer professionals but also educators and those interested in computers in society.

PUBLICATIONS - Established in 1982 The Computer Museum Report is an illustrated quarterly magazine that publishes articles based on the Museum's interpretive programs, research, and lectures. The Museum publishes and distributes audiotapes from the Museum's lecture series, speakers at the Boston Computer Society, and other professional meetings. The Museum has also produced 24 sets of educational slides on historical and contemporary subjects.

LIBRARY/ARCHIVE - Since its beginning, the Museum has been a resource for educators, journalists, attorneys, and students doing research. With its policy of collecting associated documentation for collection artifacts, the Museum now has a substantial library/archive.

SEMINARS/WORKSHOPS - The Museum offers seminar series for its corporate members. This fall The Computer Museum continues its invitational Breakfast Seminars series on "The Next Five Years: The Evolution of the Industry and its Technology". Speakers for these meetings have included Dr. Robert Lucky, AT&T Bell Laboratories; Dr. William Spencer, Xerox Corporation; Dr. Alvy Ray Smith, Pixar; and Patrick McGovern, Chairman International Data Group. In the Fall of 1987, Joseph Brophy, Vice President, The Travelers; Dr. George Heilmeyer, Senior Scientist, Texas Instruments; Dr. Gordon Bell, The National Science Foundation; and Naomi Seligman, President, the Research Center are scheduled to speak.

Educational programs are developed in conjunction with the Museum's community of "users", educators, and appropriate staff. Each set of "users" has a committee that works with the Museum staff and determines the characteristics of their programs.

The annual "Kid's Fair" in the February school vacation week is organized by volunteer students, educators from schools with outstanding computer programs, developers of educational software, parents, concerned volunteers, and the Museum's marketing and educational staff.

RESEARCH

The history of computers and computing is a new area within the history of technology, and assembling a definitive collection of artifacts is a matter for fundamental historical and technological research. Dr. Gwen Bell, the Founding President, and Lynn Hall, the Registrar, are key members of the staff who are responsible for the collections. The staff, in conjunction with distinguished experts in the area of the history of computing, develop criteria for collecting and preserving. Therefore, the Museum is actively involved in determining significant computer developments and impact of the past and the present through scholarly research, field interviews, site visits to corporate and university laboratories and study of the resulting artifacts donated to the Museum. Each artifact is supported

with manuals, design drawings, software, documentation, articles, books, photographs and films, and marketing ephemera. The Museum library is rapidly developing into a significant resource for the history of computing from 1950 to the present. The registrar and the public relations department receive over 30 inquiries a week (!) from scholars and authors needing documentation, books and articles and staff of public television worldwide, producing special educational programs on computing. The Museum is a major source for the new Time/Life Book series "Understanding of Computer History". The series was prompted by legislation in a number of states concerned with computer literacy.

In 1983 the Museum, in cooperation with historians, developed a workable taxonomy for hardware and now is developing a taxonomy for software.

A number of independent researchers use the Museum extensively: Beth Parkhurst, a former staff member, used the Museum's resources while working on a Smithsonian fellowship studying "Women in Programming". The on-line data base of first generation computing, prepared by Paul Ceruzzi, is one of the data bases to be used in the joint collecting policy the Museum is developing with the National Museum of American History. The archives are the basis for articles in the Museum quarterly magazine.

THE STAFF

Joseph F. Cashen, 52, one of the seven original founders of Prime Computer, Inc., was appointed Executive Director on February 18, 1987. Cashen served as Chief Executive Officer, U.S., of Acorn Computer Corporation of Woburn, MA. and spent eleven years with Prime, serving as Vice President of Engineering. Previously he was employed in various management positions in the Computer Control Division of Honeywell, Inc. His appointment highlights an expansion of the Museum's effort to increase the role it plays in educating a wider audience about the technology, applications and impact of computers in today's society. *hmw?*

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The Museum's Founding President, Dr. Gwen Bell, has been the major organizing force of the Museum since its inception. Dr. Bell received her Ph.D. from Clark University. She serves on the editorial board of the Annals of Computer History, on the program committee of the Charles Babbage Institute for the History of Information Processing and on the Board of the Boston Computer Society. Dr. Bell is a frequent speaker on the history of computers. She and Dr. Strimpel are consultants to the Time/Life book series Understanding Computers.

The Curator, Dr. Oliver Strimpel, holds a Ph.D. from Oxford; he came to the Museum from a curatorial position at the Science Museum (London), where he was responsible for developing exhibits on computing. He designed the permanent exhibit, Photography and Beyond - Seeing the Invisible, at the National Museum of Photography, Film and Television in London. At the Science Museum in London he designed Information Technology, Science in India and The Challenge of the Chip. He read papers at the ACM's SIGGRAPH conference and at the 1984 Society for the History of Technology meeting. He continues to keep current in Computer Science by taking courses and workshops at MIT.

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The Director of Development, Michael N. Oleksiw II, is responsible for the Museum's Capital Campaign, Annual Giving, and Corporate Membership. Mr. Oleksiw, former Director of Development and Vice President for External Affairs at the Philadelphia College of Art, holds B.A. and M.A. degrees from St. Lawrence University and the University of Delaware respectively. Mark Hunt, the Director of Marketing, received his B.A. from the University of New Hampshire and has held marketing positions at the Mystic Seaport Museum and in private industry. He is active in NEMA and the Museums of Boston (MOB). Bonnie Turrentine, Education Director, has been involved with education for the last twenty years--teaching, consulting, and selling. She has taught high school math and programming for twelve years. She received her B.A. degree in math/political science from the University of

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Houston. Matthew Murray, CPA, the interim Director of Finance received his B.A. from the University of Massachusetts, Amherst, and is currently enrolled in the Masters Program at Bentley College (evenings). He is active in the MSCPA. He has held similar positions in the private sector. Gail Jennes, Public Relations Manager, ----- The Registrar, Lynn Hall, received a B.A. in Art History from Boston University, was the Registrar at ~~The Children's Museum~~^{, Boston} and has received training at the Smithsonian.

The Museum is fortunate to be located in Boston, a center for both education and computing; qualified supplementary staff has been easily recruited. The supplementary staff is divided into three categories, regular staff (full or part-time interpreters, administrative staff, technical/exhibit developers, and Museum store staff), temporary exhibit developers (commissioned or volunteer), and interns.

The interpretive staff is recruited from the Boston Metropolitan area with special attention given to the academic and non-profit communities. Each receives extensive training in security and safety procedures, public presentation, and briefings on the history and technology of computing.

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PHYSICAL FACILITIES

The Computer Museum jointly occupies a renovated, six-story, 110,000 sq. ft., brick warehouse building on Museum Wharf in downtown Boston with ~~The~~ Children's Museum. The building is structurally divided into six bays per floor and is serviced by two elevators. Each bay has its own heating and cooling system; the building has a sprinkler system throughout. Both Museums share 1/3 acre of land adjacent to the building.

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The building is managed by a separate, non-profit institution, Museum Wharf, that provides security, janitorial, computer, and maintenance service. The Museum Wharf's Board of Directors is composed of members from ~~The~~ Children's Museum and The Computer Museum.

The Computer Museum's portion, 55,000 square feet, includes the lobby and Museum store on the ground floor and the 5th and 6th floors. Thirty-five thousand square feet is allocated for exhibitions (24,000 square feet is now open to the public. Two new exhibits totaling 11,000 sq. ft. are being developed and will open in 1987.); 4,000 square feet for the lobby and Museum store; 4,000 square feet for an auditorium; 4,000 square feet for offices; and 4,000 square feet for on-site storage. The exhibition galleries, auditorium, bathrooms, and store are barrier free and accessible to the handicapped via elevators.

FINANCIAL AND IN-KIND SUPPORT

When the Museum was granted its non-profit status in 1982, its fundraising efforts began. The Museum's first effort was The Founders' Campaign. Seventy-one corporations and professional organizations each contributed \$2,500 or more; 495 individuals

each contributed \$250; and 1,000 individuals each contributed \$30 for membership, totaling \$585,000 in start-up funds.

In 1983 Robert Corcoran, Fundraising Counsel, conducted a feasibility study; he found that there was substantial support for a major institution devoted to chronicling and exhibiting the achievements of information processing. His findings prompted the Board to launch a Capital Campaign and approve the search for a new facility. When the Museum located its present facility,

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Digital Equipment Company purchased the space for the Museum and agreed to a four-year grace period in which time the Museum would raise \$2.5 million to reimburse DEC for the down payment and assume the mortgage payments.

The information processing industry community (corporations, academia, and individuals) fully supports the Museum. Since its inception in 1979, its leaders have volunteered to serve on the Board of Directors and special committees (including development, finance, exhibition and collection) and participate in Museum lectures.

To date corporations have donated over \$650,000 of employee time and field services for the exhibits and \$2.5 million in equipment, and publishers have donated over \$375,000 in advertising for the Museum's activities.

The Boston Computer Society (BCS), a 23,000 member user group, is developing a 7,000 square foot Computer Discovery Center gallery cooperatively with the Museum. The BCS is raising the funds and obtaining equipment donation for the project, and in coordination with the Museum's staff, will design and install the exhibits in the Center. On completion, the BCS will turn over the exhibit to The Computer Museum.

Eight professional and financial institutions (BayBanks, Coopers & Lybrand, Gaston Snow & Ely Bartlett, Eastech, Greylock, Hambrecht & Quist, Pell Rudman and Ropes and Gray) sponsor the Museum's Corporate Breakfast Seminar series: "The Next Five Years: The Evolution of the Industry and its Technology". These sponsors, not only fund the program, but also act as solicitors for new corporate members.

The Museum has over 50 volunteers, other than board members, who provide technical, fund raising, and financial services on an ongoing basis, ranging from special fund-raising events to maintaining vintage computers. The volunteers contributed over 1,200 hours of their time each year.

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The most significant non-cash contribution to the Museum comes from the Digital Equipment Corporation (DEC). Through 1988 DEC is underwriting the cost of the building's operation and is paying for the interest and principal on The Computer Museum's portion of the building. The Museum's agreement with DEC is that at the conclusion of the Capital Campaign in March 1988, the Museum will assume these expenses. DEC's non-cash support is valued at \$450,000 per year.

The Capital Campaign, chaired by Paul Severino, Chairman of Wellfleet Communications, Inc., includes Gardner Hendrie, founder of Data General and Stratus Computer; Thomas Franklin, partner at Gaston Snow & Ely Bartlett; and Hal Shear, partner at Pell Rudman. Each Capital Campaign Committee Member has a team of Board members who solicit assigned prospects. The Committee has developed a comprehensive fund-raising plan based on the feasibility study and additional research; appropriate support materials including videotapes and slide shows have been developed for volunteer solicitors' use. The pool of prospective donors includes international hardware and software companies, major computer users (such as banks and insurance companies), and individuals who have profited from the industry. As of June 30, 1986, the Museum completed Phase I of the Campaign (\$3.7

million), receiving cash and pledges from 51 corporations and 127 individuals. Phase II of the Campaign (\$2.8 million) was kicked off in January 1987 with the funding of a major new Artificial Intelligence and Robotics exhibit. Phase III will be started in July 1990.

Operating funds are provided in part by 1,500 individual and 102 corporate members. The individual membership campaign is conducted by direct mail and contributed advertising space. Special attention is given to members of professional computing societies, employees in the computer industry and major users, and the growing number of personal computer owners throughout North America.

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Admission fees (\$4.50 for adults; \$3.50 for students, children, and senior citizens) will provide \$210,000 of earned income this year. Special rates are provided for school and adult groups. The Museum received a \$25,000 grant from the Massachusetts Council on the Arts and Humanities for a reduced admissions program for 18,750 Commonwealth students in FY 1987. The IMS FY 1987 grant is being used in part to improve the quality of the visits by groups.

The Museum operates a retail store selling computer books, memorabilia, and computer related gifts to museum visitors, members, and mail order buyers.

THE AUDIENCE

Overall, attendance to date is 45% adults and 55% students; 45% of those students come in groups. A summer 1986 survey of adult visitors revealed the following: 60% male/40% female; the median age of visitors was 35 years. A summer 1985 survey showed 60% of the adult visitors expressed a high level of interest in computers and 35% were highly knowledgeable; the average length of stay was two hours; and 40% of the parties include children.

The Museum reaches the Boston metro residential and tourist markets through advertising in local newspapers and displaying large posters prominently in and around Boston; distributing discount coupons; inserting brochures into registration packets of some incoming convention groups; distributing color brochures to hotels and tourist information centers within Boston and on major arteries coming into the city. The Honeywell Corporation donated billboard space on the Massachusetts Turnpike to advertise the Museum during summer 1986. The computer trade press has been especially generous in helping the Museum communicate with the computer community. Free advertising space has been given on a space-available basis by over a dozen computer magazines, allowing the museum to promote visitation, membership, exhibits and events.

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Student group visits are promoted by mailing educational group tour planners to over 18,000 New England teachers. Each brochure includes a pass allowing the teacher a free museum pre-visit to explore the Museum and meet with museum staff to arrange group visit details. Some advertising has been placed in publications read by teachers for planning field trips. Teachers in communities deemed at risk regarding computer literacy received supplemental information explaining alternative funding for their visits. Over 2,000 members, corporate sponsors, scholars and teachers receive The Computer Museum Report, a quarterly magazine that publishes articles on the history of computers, including synopses of significant Museum lectures, and informs members about acquisitions and upcoming Museum activities.

The Museum takes advantage of various outreach opportunities, such as participation in the Harborpark Festival in downtown Boston and the Roxbury public school system's Family Day. The education department staffs an exhibit booth, distributing literature and explaining the Museum's programs and exhibits.

Media coverage is widening each year, both in terms of volume and international scope. Over 800 articles appeared worldwide in 1986 versus 350 in 1985. Print articles have appeared in the New

York Times, Der Spiegel (Germany), the Wall Street Journal, USA Today, and the Christian Science Monitor. Stories have been sent over the wire services of both the Associated Press and United Press International. CBS Morning News covered a Museum event commemorating the 40th anniversary of digital computing, and Boston's three network affiliates have done stories on the Museum. National Public Radio's "All Things Considered" dedicated the first segment of a four-part series about computers to the Museum. Film crews from the Soviet Union and TV Ontario visited the Museum; and public broadcasting produced two programs here, one for Science Gazette and one for a series on mathematics.

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The Museum is provided free exhibit space at various computer trade shows each year, giving the Museum exposure to the individuals that attend the BYTE show, MacWorld show, the Northeast Computer Fair and the Mass High Tech Marketplace. The Museum distributes promotional literature and discount coupons, and whenever possible participates in the program.