SATELLITES

TRANSFORMING OUR LIVES

A Permanent Exhibit at the National Electronics Museum
Linthicum, Maryland

CORCORAN COLLEGE OF ART + DESIGN | Exhibition Design Studio III | THE NATIONAL ELECTRONICS MUSEUM | December 2010

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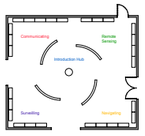
* NOTE

Within the document, a floorplan legend will be provided at the top right corner of the page, which will help to reference the discussed elevation.



Also, there are artist renderings of the exhibition showing various views and elevations. There is an appendix at the back of the package as a reference to these images for more detailed information and will be marked by [ ].

THE NATIONAL ELECTRONICS MUSEUM

We're Unique!

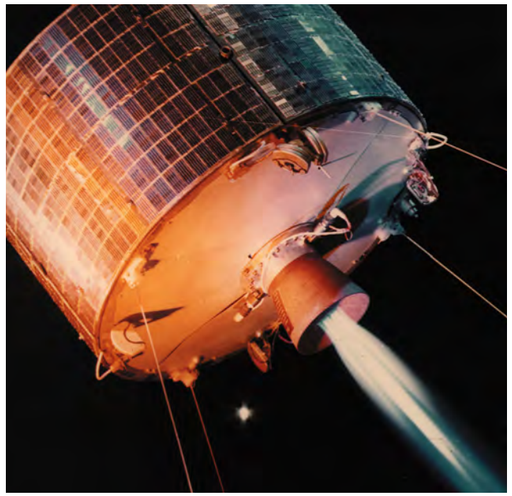
NEM is the only museum in the greater Washington, D.C. - Baltimore region devoted to the heritage of the electronics industry and its achievements.

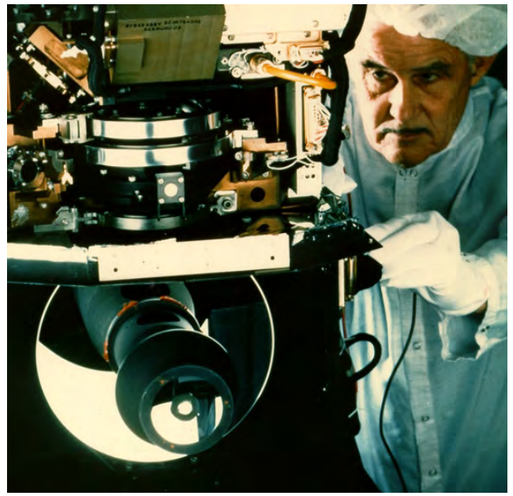
Our visitors are generally well-educated and interested in sophisticated presentations with substantive information.

We are located in the heart of the BWI Technology Corridor and BWI Hotel Historical District, near the Northrop Grumman Corporation, the National Security Agency, Fort George Meade, the Johns Hopkins Applied Physics Laboratory, the Goddard Space Flight Center, and the University of Maryland- Baltimore County.

We're located only five minutes from Baltimore's BWI - Thurgood Marshall Airport.

NATIONAL ELECTRONICS MUSEUM





OUR MISSION

Highlight the milestones in electronics that led to the sophisticated products we use today.

Honor the achievements of the pioneers who made these advancements possible.

Collect, preserve, and exhibit artifacts and documents that trace the development of the key electronics systems and their defense and commercial applications.

[See Appendix pg. 24, NEM Mission Statement]

WHO WE SERVE

Scientists and Engineers

Students, from middle school to college

Researchers

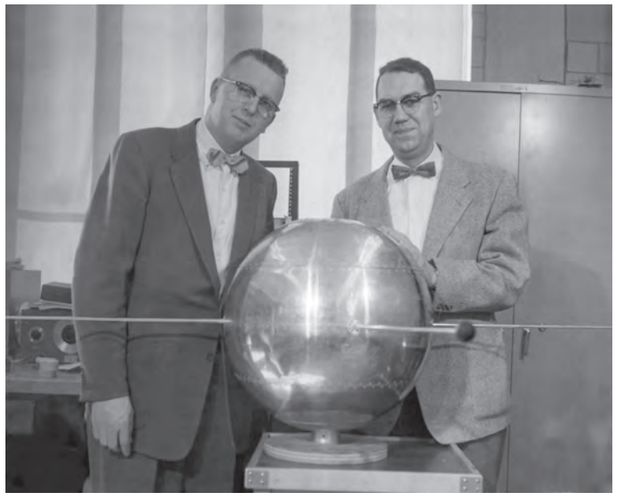
Clients and Visitors to nearby industries and agencies

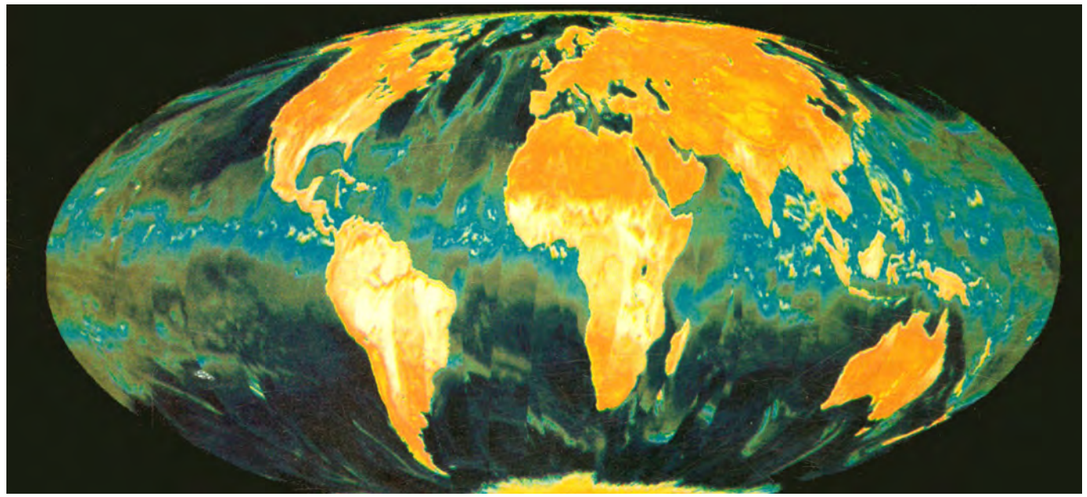
General Tourists

[See Appendix pg. 25, NEM Benefits: Education and Entertainment]

OUR INITIAL CORE PARTNERS

Arthur C. Clarke Foundation	National Electronics Museum
COMARA	Lockheed Martin Corporation
Intelsat	Old Crows
Intelsat Retirees	State of Maryland
SUIRG	And many more to come!





SATELLITES: TRANSFORMING OUR LIVES

Exhibition Theme:

Satellites give us the means to explore, understand, and unify our world.

Satellite technology gives us direct and practical benefits that we use in our everyday lives.

It allows us to prosper in ways we could only dream about fifty years ago.

SATELLITES
TRANSFORMING OUR LIVES

[See Appendix pg. 24, Exhibition Introduction]

WHAT OUR VISITORS WILL LEARN

Satellites have revolutionized our everyday lives.

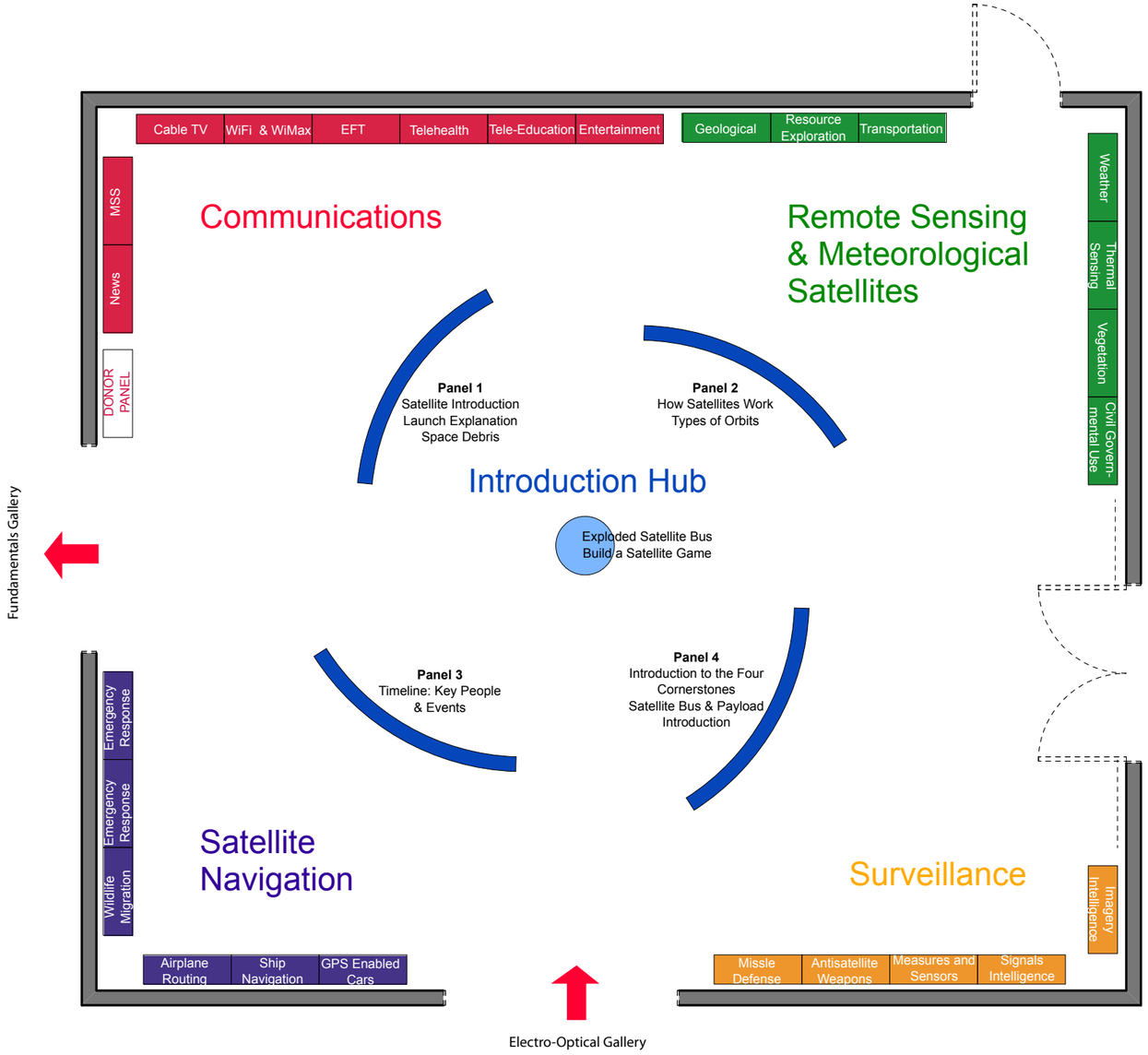
Today, satellite technology is based on four cornerstones: Communications, Satellite Navigation, Remote Sensing and Meteorological Satellites, and Surveillance.

The technologies employ a wide range of scientific and engineering disciplines and principles.

This technology is constantly expanding into new areas such as accessing solar power from space and space explorations.

Challenges remain, including the amount of space debris floating above the earth.

- Donor Panel
- News
- MSS
- Cable TV
- WiFi & WiMax
- EFT
- Tele-Health
- Tele-Education
- Entertainment



- Geological
- Resource Exploration
- Transportation
- Weather
- Thermal Sensing
- Vegetation
- Civil Governmental Use

- Emergency Response
- Wildlife Migration
- Airplane Routing
- Ship Navigation
- GPS Enabled Cars

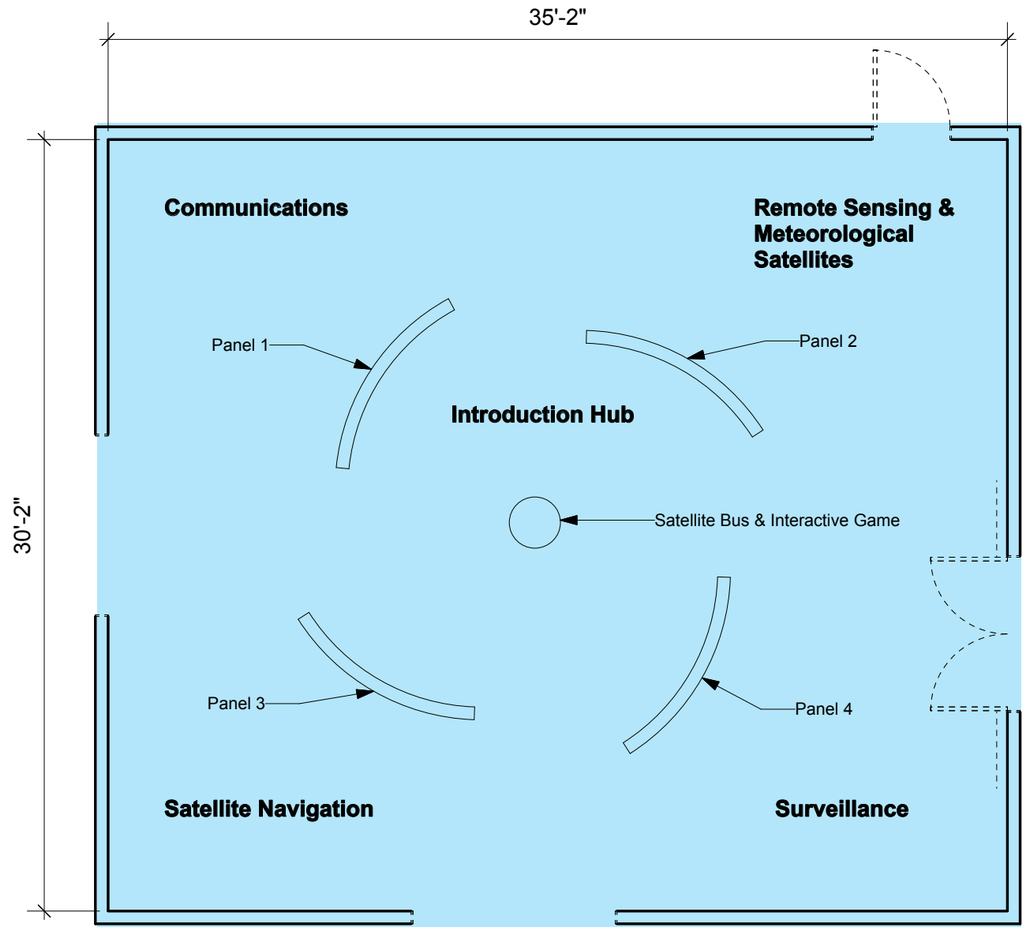
- Imagery Intelligence
- Signals Intelligence
- Measures and Sensors
- Anti-satellite Weapons
- Missile Defense

VISITOR EXPERIENCE

The exhibition will be organized into the four cornerstones with a central introductory hub.

[See Appendix pg. 24, Narrative and Visitor Experience]

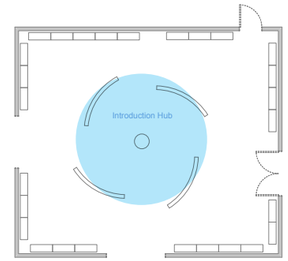
SITE PLAN

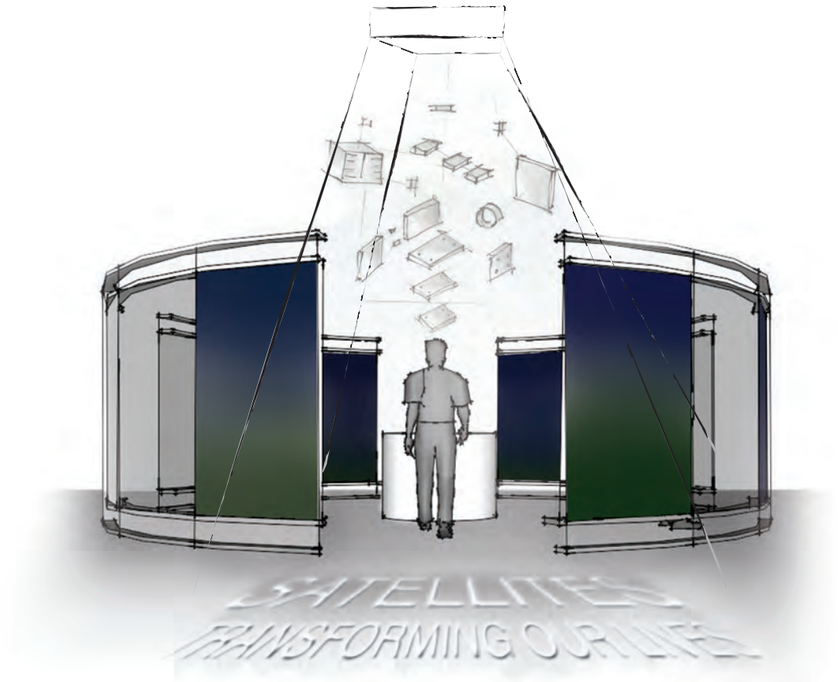


Total Gallery: 1,000 Square Feet

Information Hub: 200+ Square Feet

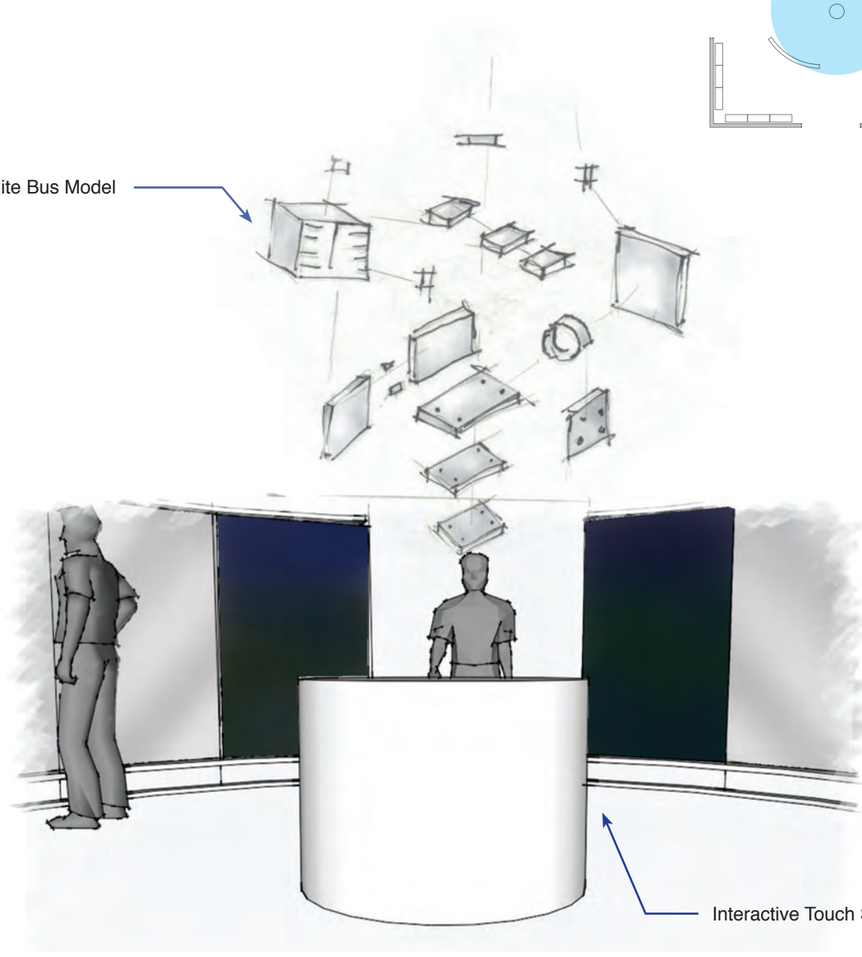
Hub Text Panel Surface: 200+ Square Feet





Title projected onto the floor drawing visitors into the Information Hub

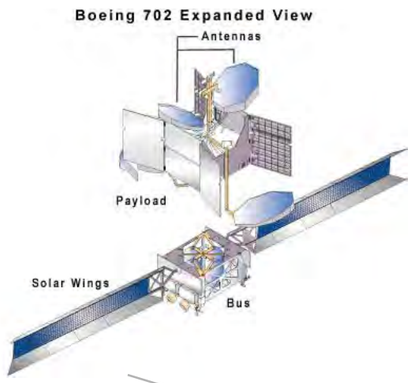
Exploded Satellite Bus Model

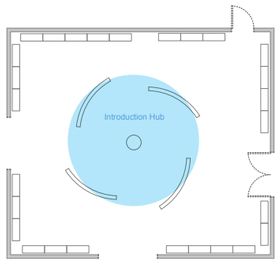


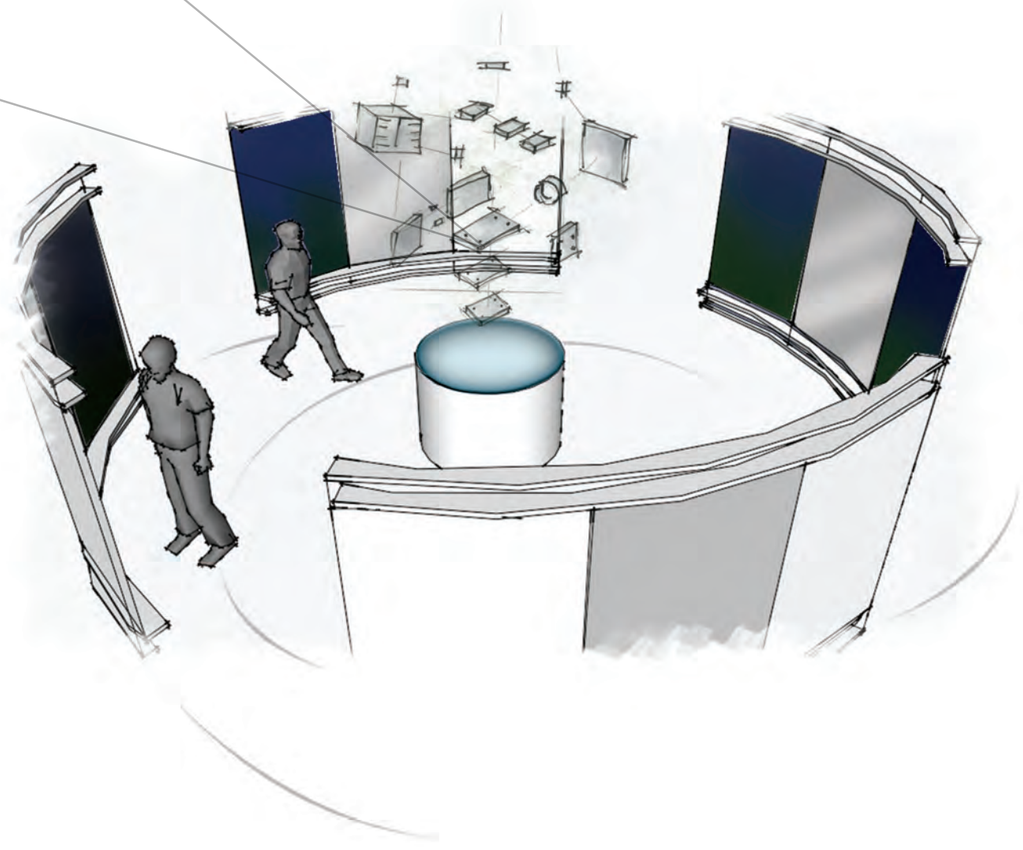
Interactive Touch Screen

ENTRANCE

[See Appendix pg. 25, Information Hub]



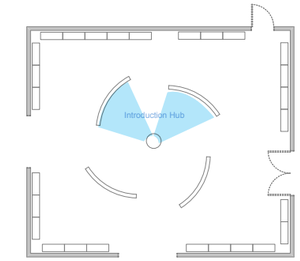


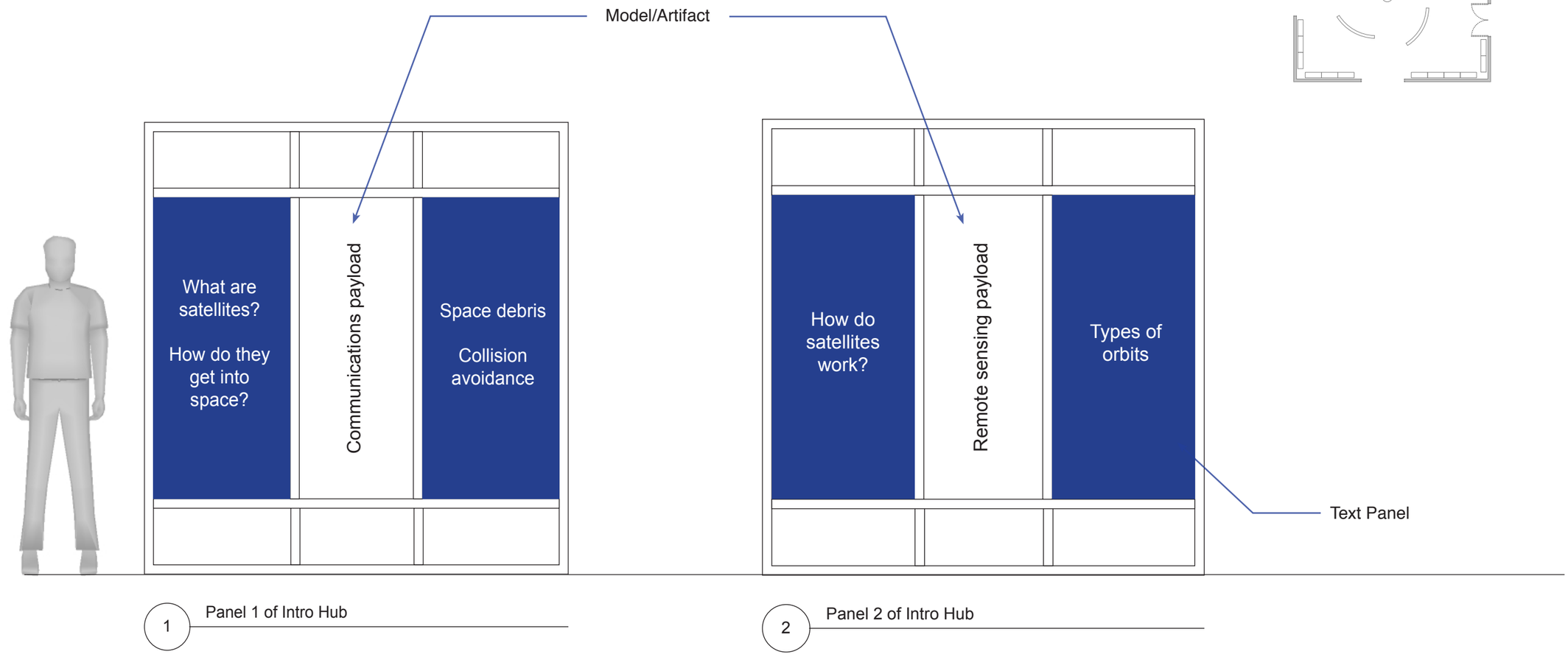


INTRODUCTION HUB

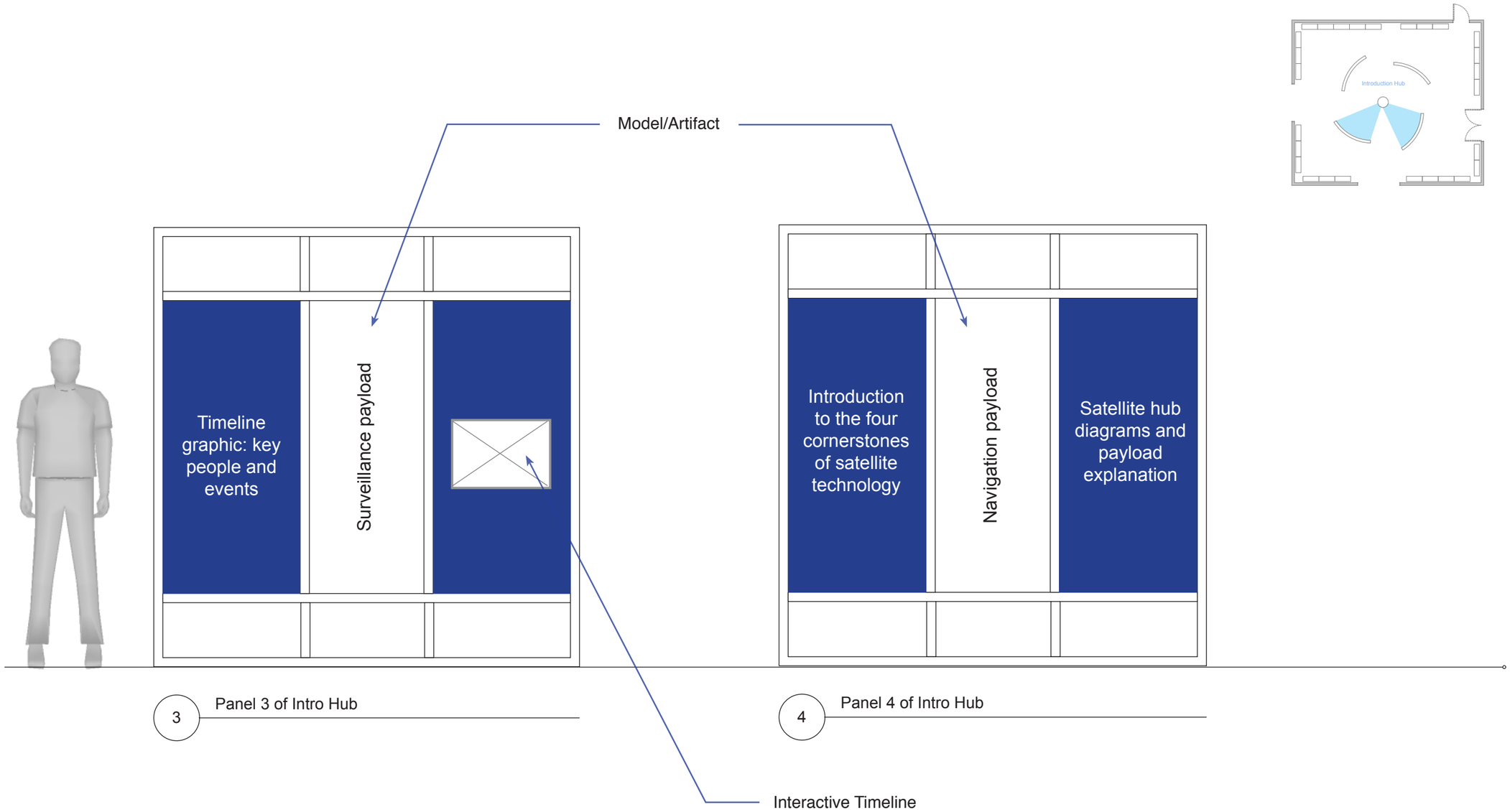
This section will introduce visitors to the basic concepts of satellites. It serves to provide fundamental ideas to visitors so they continue their experience with an appropriate foundation of knowledge.

[See Appendix pg. 25, Information Hub]

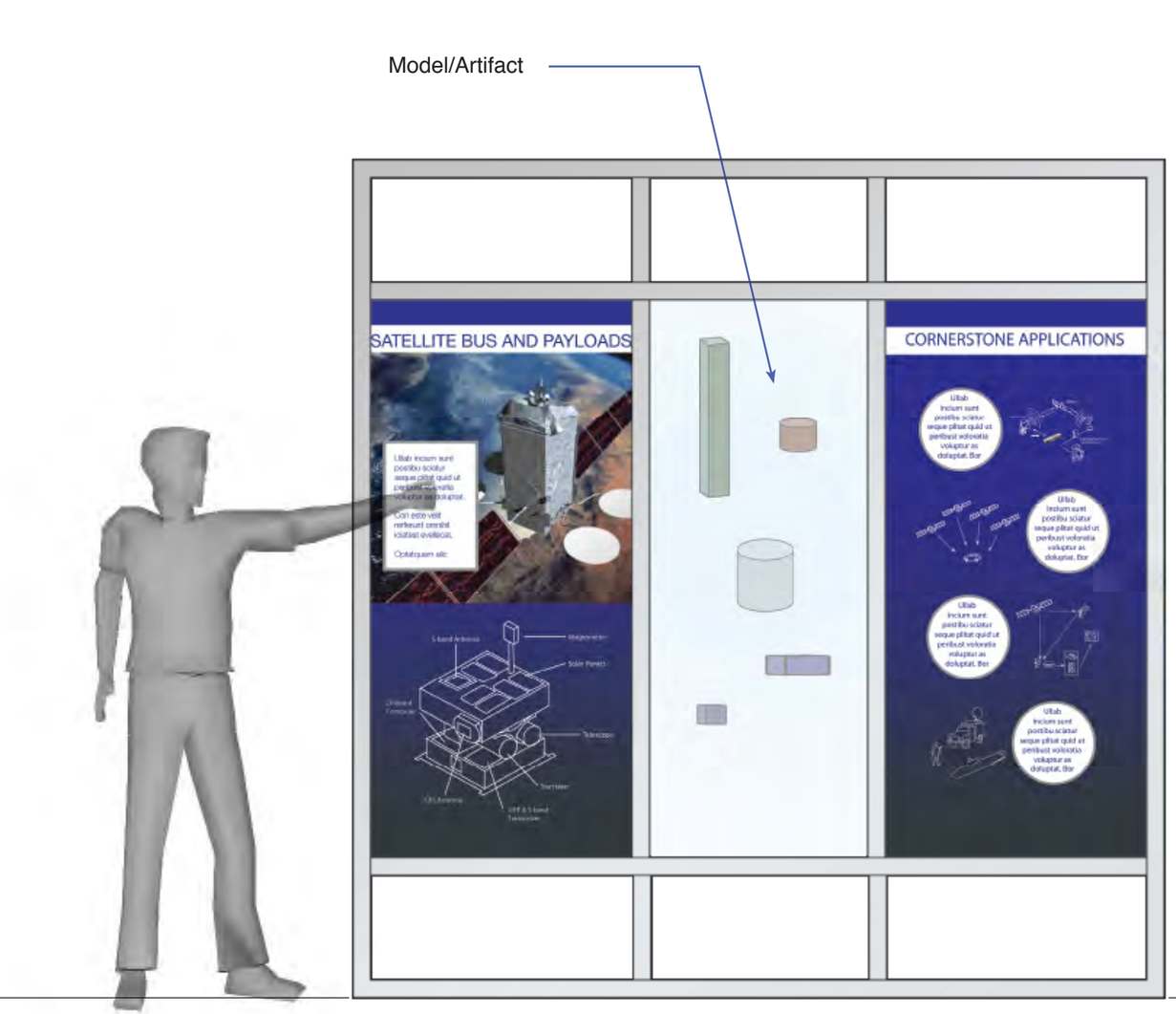


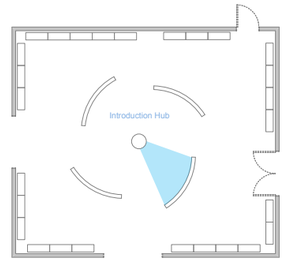


HUB INTERIOR CONTENT

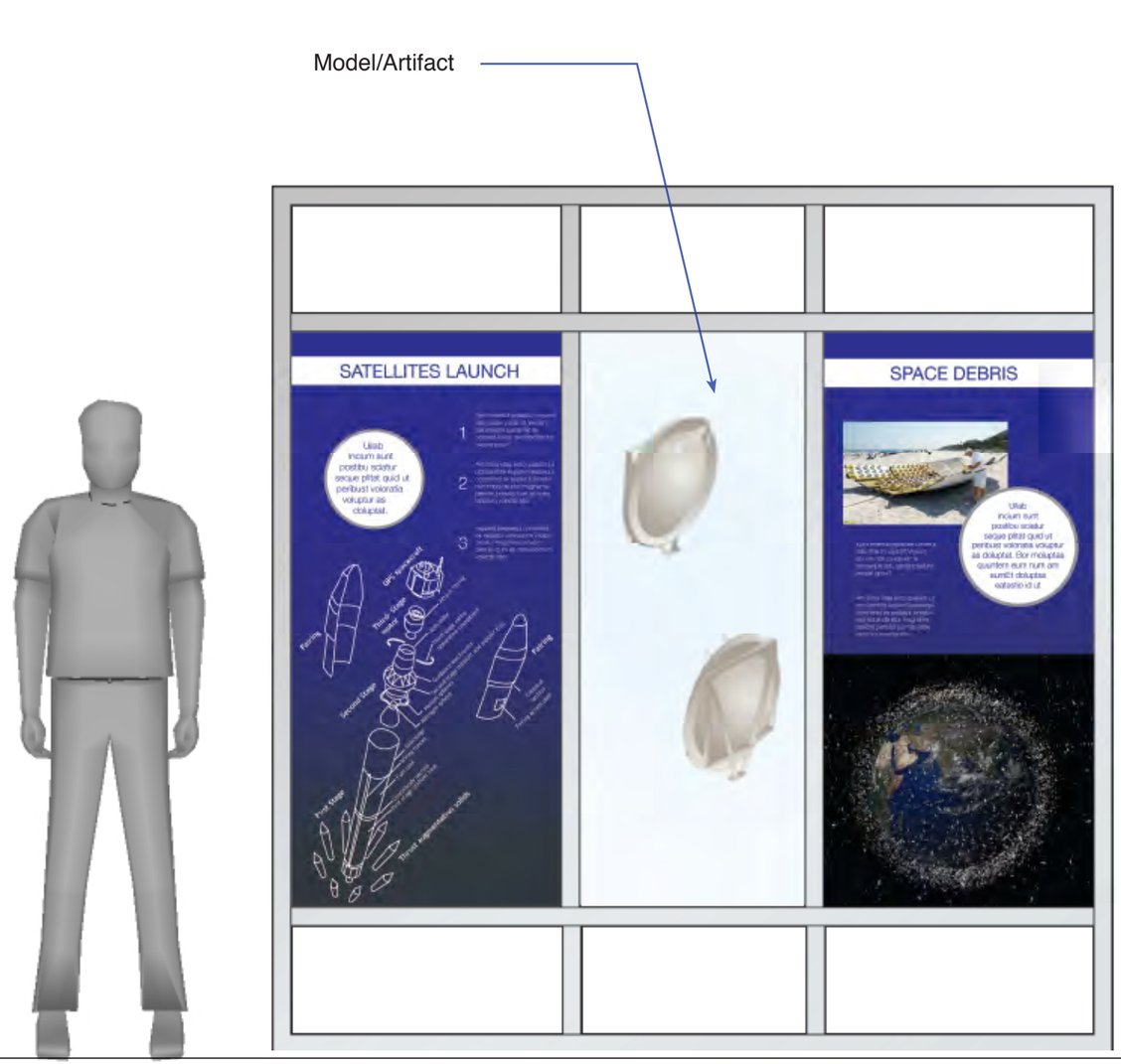


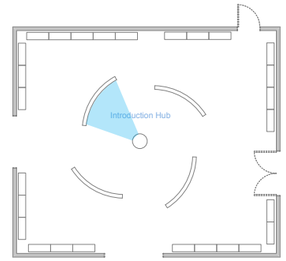
HUB INTERIOR CONTENT



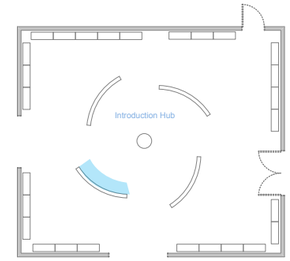


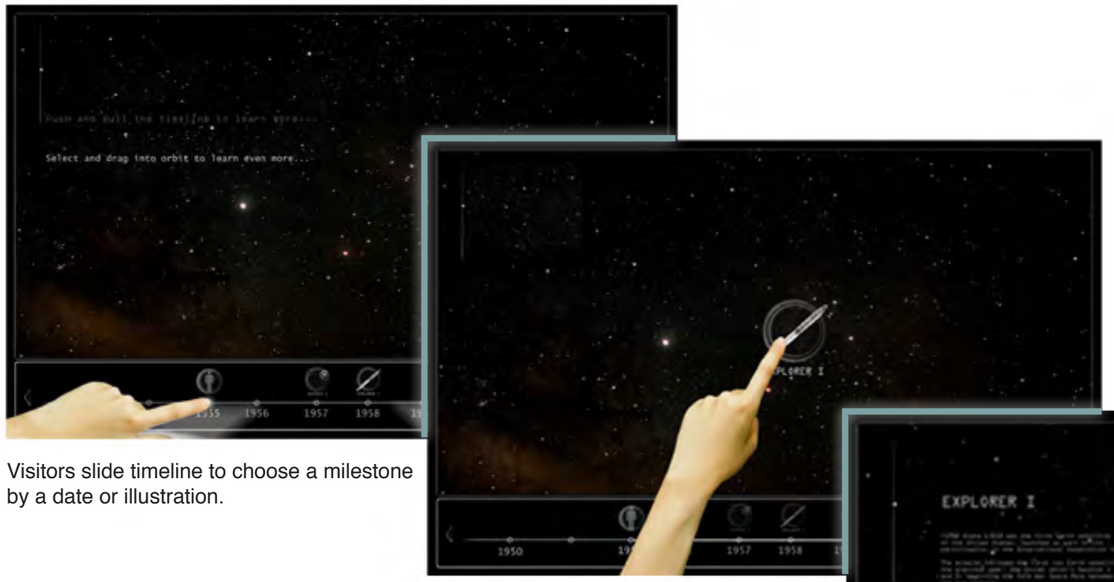
HUB INTERIOR ELEVATION





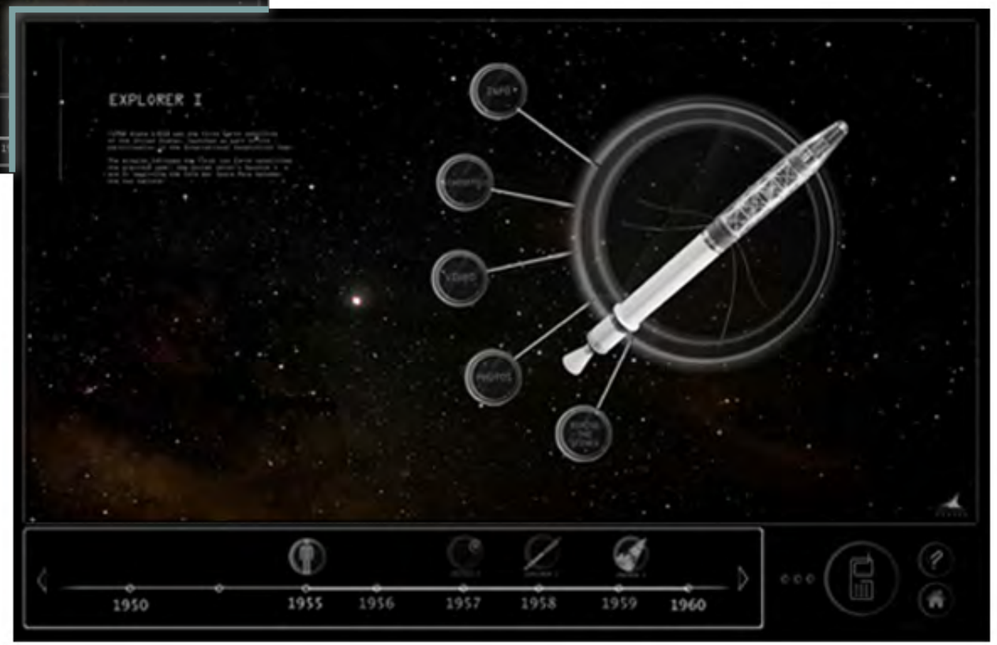
HUB INTERIOR ELEVATION





Visitors slide timeline to choose a milestone by a date or illustration.

Drag figure into space to activate.

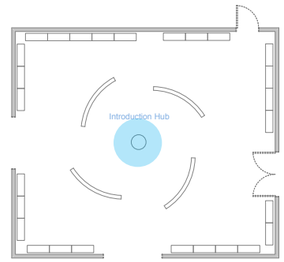


They learn about key events through videos or images and brief text.

The timeline can also be developed in the future as part of a self-guided cell or smart-phone tour.

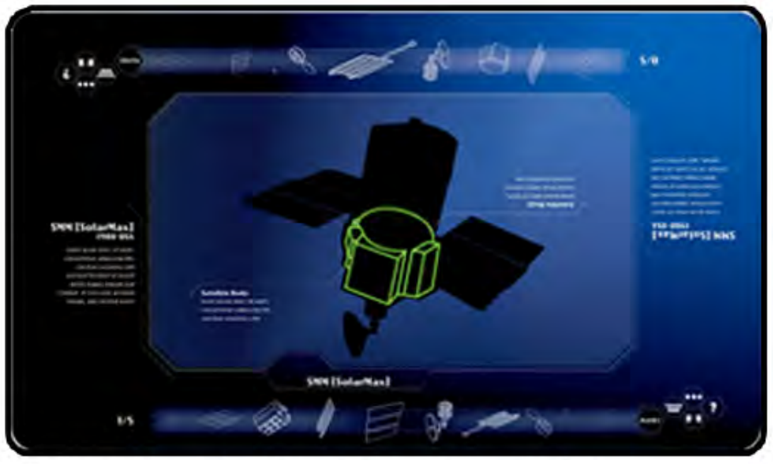
INTERACTIVE TIMELINE

[See Appendix pg. 26, Interactive Touch Screen Display]



Visitors choose a satellite and are challenged to build it by selecting the correct parts.

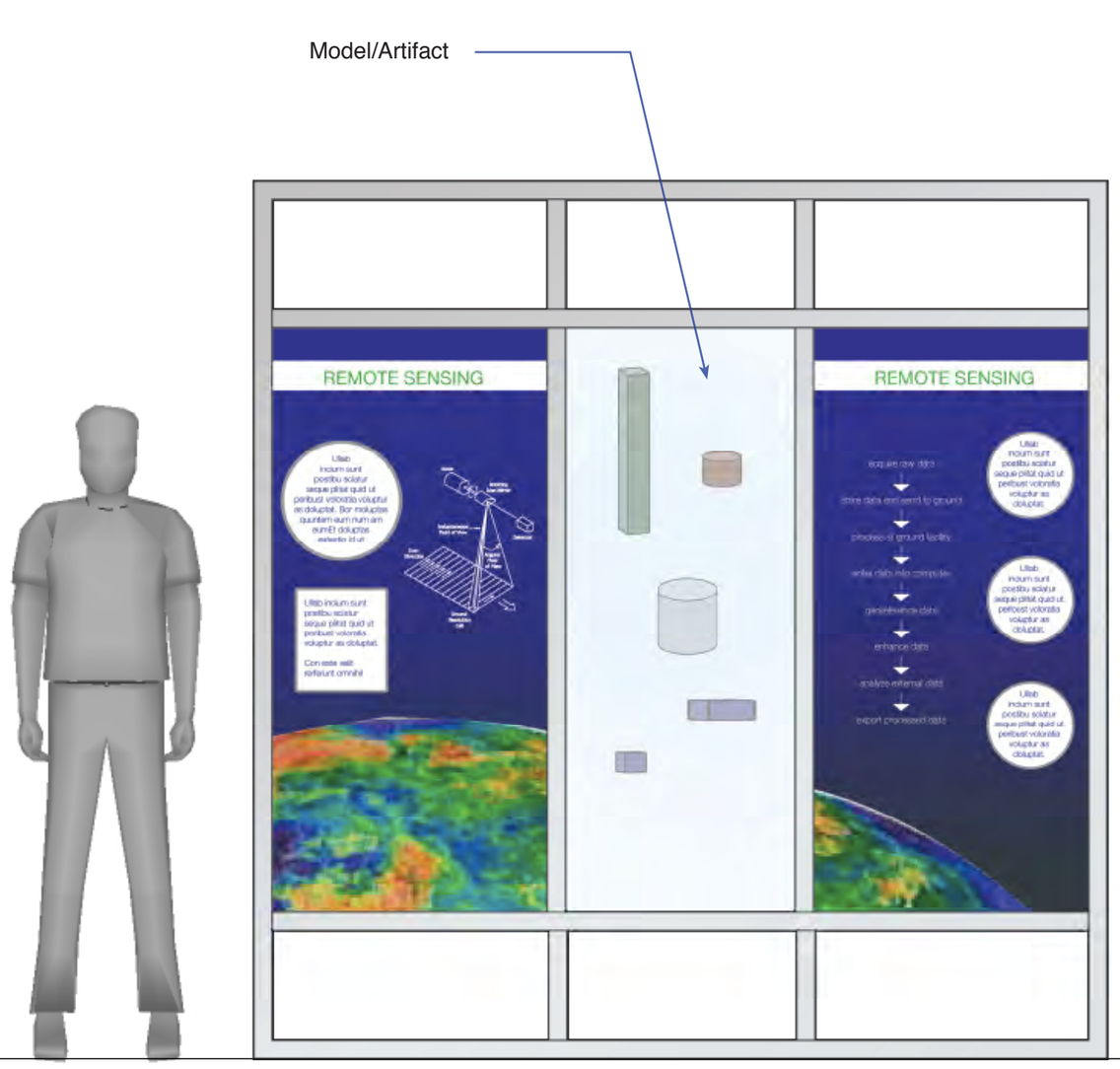
They drag selected pieces to satellite silhouette to test if the part fits the satellite.

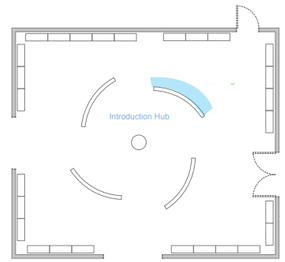


They will learn about the satellite part's function if correct.

Once all the correct parts are chosen, the visitor has completed building the satellite and is announced as the winner.

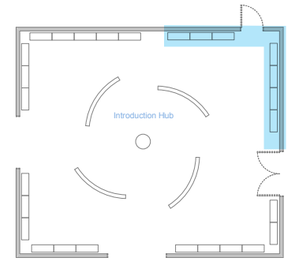
INTERACTIVE GAME

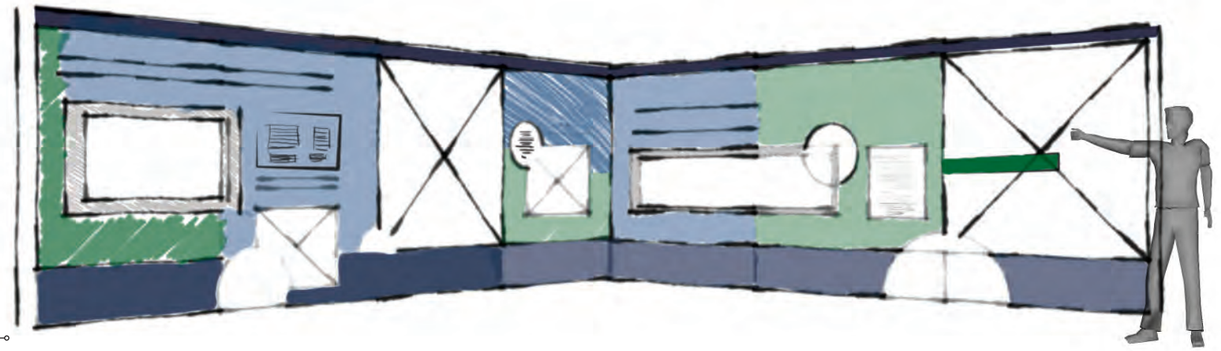




REMOTE SENSING ELEVATION

[See Appendix pg. 25, Remote Sensing]





REMOTE SENSING ELEVATION

[See Appendix pg. 25, Remote Sensing]

WHAT RESOURCES DO WE NEED?

Funding for the exhibition's final design and construction.

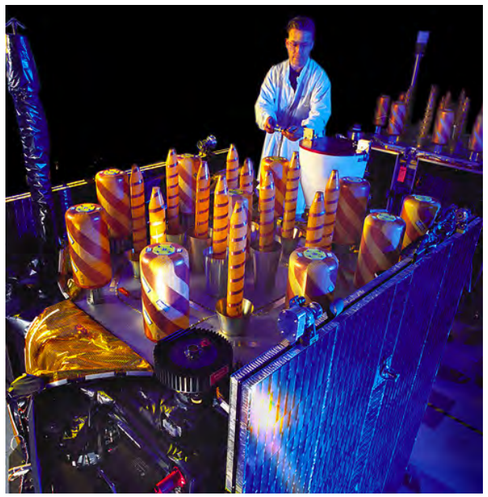
Satellites and satellite models.

Examples of on-board systems, gear and structural components, including antennas, transceivers, processors, motors, batteries, fuel tanks, structural elements.

Examples of ground-based systems and gear including antennas, transceivers, processors, launch equipment.

Examples of satellite-related objects such as GPS receivers, UAV's, medical devices, search and rescue devices, survey equipment, communication devices, and surveillance equipment.

Historic objects, photographs, archival material and ephemera relating to all aspects of satellites and the satellite industry.



BENEFITS TO SPONSORS

By becoming a sponsor and donor to this exhibition, you will:

Gain public recognition of your organization and industry, and the contributions you have made to modern-day life.

Help preserve key artifacts that are the heritage of the electronics industry.

Be honored in a donor recognition area of the gallery.

Give back to the community!

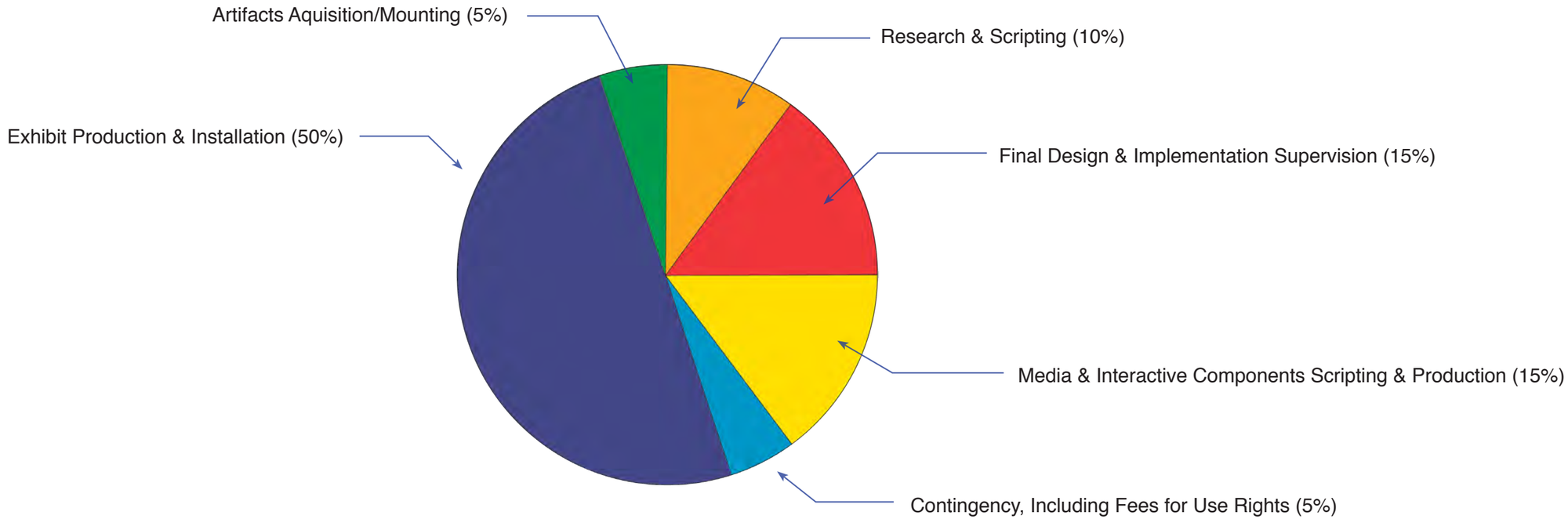
INTELSAT. Closer, by far

LOCKHEED MARTIN

NORTHROP GRUMMAN

THE ARTHUR C. CLARKE FOUNDATION

sspi



FUNDING REQUIRED

Research and final scripting of the exhibition and media.

Production of media and interactive units.

Professional conservation and mounting of artifacts.

Planning of complementary public programs, including a self-guided cell-phone tour and exhibition website.

Implementation and installation.

To accomplish this we are seeking funding and in-kind donations.

Contributions will be allocated to essential required services.

WILL YOU HELP
THE NATIONAL ELECTRONICS MUSEUM
MAKE THIS EXHIBITION POSSIBLE?

“A whole generation is growing up which has been attracted to the hard disciplines of science and engineering by the romance of space.”

“The only way of finding the limits of the possible is by going beyond them into the impossible.”

- Sir Arthur C. Clark

APPENDIX: THE EXHIBITION BRIEF

NEM INTRODUCTION

From telegraph and radio to radar and satellites, the National Electronics Museum offers visitors free access to the electronic marvels that have helped to shape our country and our world. Located within minutes of the BWI Thurgood Marshall Airport and the BWI Rail Station, the museum offers a wide variety of both static and interactive displays, as well as a research library that is open to the general public, with holdings that focus on all aspects of electronics history.

NEM MISSION STATEMENT

We promote and encourage the study of science and engineering using our electronic heritage to educate and inspire students and the general public. The Museum collects, preserves, exhibits, and makes available for research various artifacts, documents, and publications related to development of defense and other key electronics systems and the commercial products derived from them. We provide visitors with an appreciation of the evolutionary milestones in electronics that led to the sophisticated products in use today, and honor the achievements of the pioneers who made these advancements possible.

NEM BENEFITS: LOCAL COMPARISONS

NEM is conveniently located near downtown Baltimore and Thurgood Marshall Airport. The museum attracts a well-educated audience. Its extensive collection of electronics sets it apart from other attractions in the area.

NEM BENEFITS: EDUCATION AND ENTERTAINMENT

- Inspire and fuel a passion for science for all visitors, especially school aged children who will become future leaders in science and engineering.
- Form partnerships with schools and universities in order to provide educational programing and facility usage.
- Further promote NEM as a forum for professionals.
- Promote community involvement and interest through special programing, tours, seminars, and camps.
- Keep the museum relevant to encourage repeat visits and become an attractive destination spot for visitors.
- Extend the visitor experience beyond the physical exhibit through the internet and interactive media.
- Provide the most up-to-date and relevant fddddinformation about satellites today.

EXHIBITION INTRODUCTION

This new exhibition is a collaborative initiative among NEM, the Society of Satellite Professionals International and its partners. The exhibition serves to educate the public and build a greater community among the satellite industry. This exhibition has evolved from the desire to expand the current Space Exhibition Hall and Satellite Hall of Fame into a more in-depth narrative on satellites. The exhibition covers significant topics in the history of the electronics industry. Key points to be expressed in this display are: the rapid development of satellite technology; the evolution from military to civilian applications; how satellites play a role in our daily lives; the key people in satellite history; satellites' impact as a global change agent; and the opportunity to preserve key artifacts, documents, video and audio materials.

NARRATIVE AND VISITOR EXPERIENCE

The story of satellites, their technological development, and service to humanity will be told from various voices of satellite experts and technology users, speaking to both a technical audience and the general public. The story will spark interest in satellite technology by making it relevant to the visitors' everyday lives.

APPENDIX: THE EXHIBITION BRIEF

TEACHING POINTS

- The four cornerstones of satellite technology are Communications, Satellite Navigation, Remote Sensing and & Meteorological Satellites, and Surveillance.
- Satellites continuously revolutionize and play a vital role in our everyday lives.
- To operate in space, satellites incorporate a myriad of technologies and disciplines.
- Many satellites and related technologies were developed through military initiatives, which have expanded to become leading civilian technologies.

INFORMATION HUB

Placement: Center of gallery

Content: This section will introduce visitors to the basic concepts of satellites. It serves to provide fundamental ideas to visitors so they continue their experience with an appropriate foundation of knowledge.

I. What are satellites?
II. How do they work?
III. Introduction to the four cornerstones
IV. Key historical moments and figures
V. Key terminology
VI. Types of orbits

Voice: The expert scientist/engineer with a technical voice will explain general information in the third person.

Methods of communication:
1. Text panels
2. Graphic diagrams
3. Models

Visitors will be guided by the projected exhibition title on the floor of the gallery leading to the center introduction hub. They will also be visually drawn into the center by an exploded satellite bus suspended from the ceiling. This exploded bus will display an abstract view of what fundamental parts of a satellite make the bus a key component in every satellite. In addition, there will be silhouettes of various types of satellites projected on the floor on the outside of the hub that will pertain to each cornerstone.

COMMUNICATIONS

Placement: Gallery corner

Content: This section will divide the communications cornerstone into subcategories placing emphasis on how satellites allow us to connect the world and transfer information.

I. Technical features of communications satellites
II. Important communication satellites
III. Uses
    1. Fixed Satellites
        A. Electronic funds transfer
        B. Virtual private networks
        C. Wi-Fi, WiMax
        D. Cable television
        F. Tele-health and tele-education
    2. Broadcast Satellite Services
        A. Entertainment
        B. News
    3. Mobile Satellite Services

Voices: Uses and objects will be explained by the experts particular to each uses, e.g., doctors/ teachers that use tele-services.

SATELLITE NAVIGATION

Placement: Gallery corner

Content: This section will divide the navigational and GPS cornerstone into subcategories placing emphasis on how navigation and GPS satellites are allowing us to navigate around the world and provide precise timing information.

I. Technical features particular to navigation and GPS satellites
    1. Three segments
        A. Space
        B. Control
        C. User

II. Systems Around the World
    1. Russian GLONASS System
    2. Europe and Galileo
    3. China's Beidou
    4. India's IRNSS

III. Uses
    1. Take off, routing, landing of airplanes
    2. Making of maps
    3. GPS enabled cars
    4. Trucks and bus routing systems
    5. Ship navigation
    6. Security verification systems
    7. Emergency response vehicle routes
    8. Track wildlife migration
    9. Agriculture

Voices: Uses and objects will be explained by the experts particular to each uses, e.g., pilots, emergency response operators.

REMOTE SENSING & METEOROLOGICAL SATELLITES

Placement: Gallery corner

Content: This section will divide the remote sensing cornerstones into the subcategories placing emphasis on how satellites are "eyes in the sky" and the best means to study and monitor the health of Earth.

I. Technical features particular to remote sensing and meteorological satellites
    1. Orbits
    2. Ways of measuring
    3. Sensors
    4. Data handling

II. Important remote sensing and meteorological satellites and people

APPENDIX: THE EXHIBITION BRIEF

III. Uses
1. Remote Sensing
A. National security/defense
B. Mapping and cartography
C. Civil governmental use
D. Transportation
E. Environmental analysis
F. Agricultural, wildlife, resources exploration, forestry, etc.

2. Meteorology
A. Cloud type
B. Cloud patterns
C. Water vapor patterns
D. Analysis of fronts
E. Radiative transfer equation
F. Cyclone development
G. Other phenomena

Voices: Uses and objects will be explained by the experts particular to each use, e.g. geologist, global warming, military defense expert.

SURVEILLANCE

Placement: Gallery corner

Content: This section will divide the surveillance cornerstone into subcategories placing emphasis on how surveillance satellites are closely linked to remote sensing and earth observations, but their applications are being militarized and take on a new light.

I. Technical features particular to surveillance satellites
II. Uses
1. New level of spying and intelligence
2. Military reconnaissance
3. Navigation
4. Mapping
5. Satellite tracking
6. Anti-satellite weapons
7. Ballistic missile defense imagery intelligence
8. Signals intelligence
9. Wide area/ocean surveillance
10. Missile warnings

Voices: Uses and objects will be explained by the experts particular to each use, e.g military experts.

INTERACTIVE TOUCHSCREEN DISPLAYS

TIMELINE

Placement: Interior hub panel

Content: Timeline of milestones in satellite history.

How it functions: Users interact with a touch screen, allowing them to scroll through a timeline and pick key dates and figures. Once a milestone is chosen, users will be able to learn detailed information through photos, diagrams, video, and text.

BUILD YOUR OWN SATELLITE

Placement: Below exploded satellite

Content: Variety of satellite types and explanation of parts

How it functions: Users unteract with touch screen, challenging them to build particular satellites by selecting the correct parts while learning about their functions.