



**sustainability platform**

## Introduction

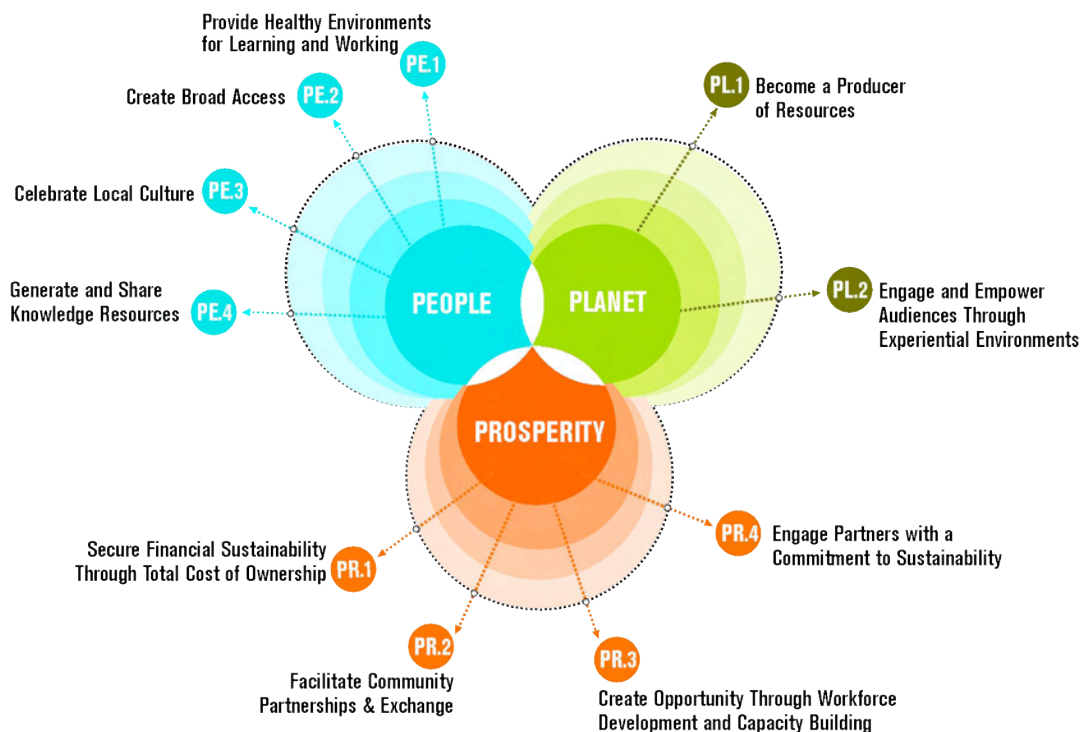
As MiaSci embarks on the construction of a new, state-of-the-art facility, sustainability has been identified as a core value, informing all aspects of the institution. In this context, the concept of sustainability takes on broad meaning, including operating in ways that are consistent with the highest standards of environmentally sound practice; contributing to the development of a vibrant, healthy, growing community; and drawing on and enhancing resources that exist in abundance in the larger community.

MiaSci has established a Sustainability Platform that aligns this broad view of sustainability with the organization’s mission, program, and operations. The Sustainability Platform encompasses a series of specific sustainability objectives and measurable success criteria, organized into the categories of *People, Planet and Prosperity*.

These categories represent sets of resources that exist in abundance in South Florida, providing the social, environmental and economic context for the larger MiaSci project:

- *People* refers to the rich diversity of language, heritage, ethnic and cultural backgrounds that make up Miami’s growing population;
- *Planet* refers to South Florida’s environmental attributes and resources, including abundant sun, wind and water as potential sources of energy, unique marine and wetland ecosystems, and varied wildlife;
- *Prosperity* refers to the region’s thriving economy, driven by its dynamic growth industries, geographic location, and medical, educational, technological and cultural infrastructure.

### Sustainability Platform for Community Building



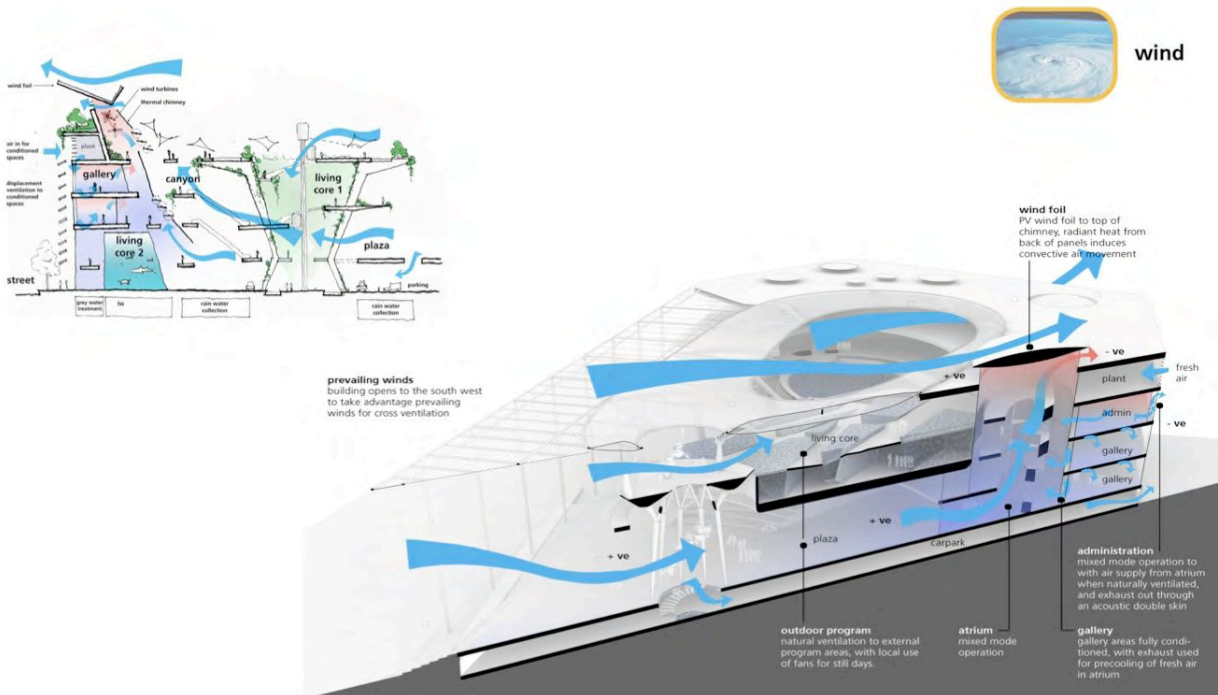
To determine the objectives and success criteria, the Sustainability Platform explores three questions:

- What is the vision, consistent with MiaSci’s mission, for the building, for content (programs and exhibitions), and for interactions with the broader community?
- Where is MiaSci starting from? How do the stated objectives relate to the current situation, and how does current practice inform strategies to achieve the vision for the future?
- How will MiaSci measure success? What specific targets must be met to ensure successful achievement of the Sustainability Platform?



The success criteria outlined in the Sustainability Platform guide current operations, while building MiaSci’s capacity to realize its broad sustainability goals in the future. The Sustainability Platform will also support communication messages, to engage potential partners and financial sponsors.

Throughout the design phase, MiaSci will validate all emerging concepts and strategies against these success objectives, to ensure consistent alignment of mission, program and building. Specific targets will be developed during the schematic design phase, in part through input from the community.



## People

People, the human resource, are at the heart of the MiaSci project, as visitors, learners, staff, partners, educators. Harnessing and growing the intellectual and creative resources of Miami's diverse resident and tourist populations is the primary and greatest source of abundance for MiaSci, representing a virtually limitless pool of ideas, talent and imagination.

According to the 2000 US Census, Miami ranks among the top five cities in the nation for largest South and Central American populations, and is the 12th most diverse county overall. Of the county's 2.3 million residents, just over 20% are African American or Afro Caribbean, and over 60% are Hispanic, including sizable populations from Cuba, Venezuela, Peru, Brazil, Argentina, Colombia, Nicaragua, Honduras, the Dominican Republic, and Puerto Rico. Among Miami residents, almost 70% speak a language other than English in the home; while among students at Miami-Dade County Public Schools, the nation's fourth largest school district, over 150 different languages are spoken.

Connecting this cultural and social diversity to MiaSci's science mission is an indispensable prerequisite for achieving the goals of the Sustainability Platform, and represents the most critical factor for success.

Realizing this potential is not without challenges, including creating an environment that is inviting and accessible for all visitors, regardless of language, background, physical ability or socio-economic level; offering opportunities for learning and participation that are appropriate and relevant for diverse audiences; and enabling personalized learning, lifelong learning and long-term involvement in MiaSci programming.

### PE.1 Provide healthy environments for learning and working

Green schools have been shown to be more conducive for learning, and encouraging learning is at the heart of the MiaSci mission. MiaSci will enhance visitors' learning experience by designing the museum spaces to promote health and wellbeing through clean air and water, ample light, thermal comfort, noise-free acoustics, and personal space.



These design attributes will also support the well-being and enhanced productivity of MiaSci staff. The building should be designed to maximize daylight, views, and comfort; use non-toxic materials, and filter air and water to the highest standards. By ensuring protection from exposure to toxins, particulates and pathogens, and creating pleasant, productive, and flexible working spaces, MiaSci will ensure that this valuable human resource remains a growing asset.

#### Success Criteria

- Appropriate spaces use daylight as the ambient source
- Appropriate spaces have exterior views
- Visitors experience appropriate thermal comfort
- All spaces use materials that are VOC/formaldehyde free
- Operation and maintenance staff utilize green procedures and products

**PE.2 Create broad access**

MiaSci seeks to engage all members of Miami's diverse community in lifelong opportunities for learning, information sharing, and participation. To achieve this aim, MiaSci enables the broadest possible access. The new facility will be accessible via rail, car, bus, bike, boat, and on foot, inviting easy entry. Pricing structure reflects MiaSci's mission and values as well as the range of experiences available, and is affordable to all members of the community. Content of exhibits and programs is designed for visitors of all ages and educational levels, and accommodates a variety of physical abilities and learning styles.



**Success Criteria**

- Physical access encourages a diversity of arrival methods, especially public and mass transit
- Mix of rates for residents and tourists and expanded Open Door Access Fund ensure financial accessibility for all members of the community
- The facility and all exhibitions reflect principles of universal design, broadening access for all persons through the removal of architectural and communication barriers

**PE.3 Celebrate local culture**

MiaSci buildings, programs and exhibits are grounded in the cultural, environmental and economic diversity of Miami-Dade County and the region. MiaSci taps the cultural abundance represented by the ideas, perspectives and cultural preferences of its diverse audiences to inform design of buildings and content, ensuring cultural relevance. South Florida's distinctive environmental features and resources and Miami's vibrant industries provide the broad context for exhibitions, programs and events, ensuring that locally important science is continuously united with locally important culture, while linked to an understanding of global issues and challenges.

**Success Criteria**

- Incorporate input from the community through diverse focus groups that identify cultural differences/preferences related to various topics
- Staffing reflective of cultural diversity
- Use new and emerging communication technologies to provide multi-lingual support
- Engage local and regional artists, musicians, scientists, chefs, inventors, etc. in development and delivery of exhibits and programs

**PE.4 Generate and share knowledge resources**

MiaSci enables visitors to engage as active participants in the generation of content, data and knowledge resources. From the moment visitors arrive, sensors embedded throughout the new facility will record a broad range of information about their interaction with the facility, from attendance numbers and time spent in different exhibit areas, to impacts on the building's energy consumption.

Visitors can also use personal digital devices to download content and contribute their own data and images, building a knowledge base that evolves from many authors and sources.

MiaSci exhibits and programs also offer opportunities for visitors to participate in authentic research projects, contributing to creation of new scientific insights and research-based findings.

MiaSci will collect and harness all of this demographic, operational and research data for the advancement of scientific learning, both locally and globally, through onsite exhibits and interactive internet access.



**Success Criteria**

- Expand online resources allowing visitors to plan their visit, explore opportunities, contribute input, and share information
- Develop and implement sensor and data collection technology
- Make building and operational data live and accessible
- Create infrastructure to support use of personal digital devices
- Engage visitors in scientific research

## Planet

Key to MiaSci's Sustainability Platform is the exploration and demonstration of alternative use of resources. Miami's physical environment offers an abundance of sun, water and wind, providing a potentially limitless source of clean, affordable and renewable energy.

South Florida is also home to distinctive ecological resources, including the vast tracts of wetland wilderness encompassed by the Everglades; the sea grass beds and mangrove forests that define much of the South Florida coastline; and the Florida Keys national Marine Sanctuary, the nation's only living barrier coral reef. The region also boasts over 4,000 native species, including 118 that are endangered or threatened.

Taken together, these rich natural resources provide a compelling and enduring context for MiaSci's exhibitions and programs, informing MiaSci's broad educational and community outreach efforts. These in turn contribute to increased visitor awareness of the region's social ecology, positioning MiaSci as a genuine force for sustainable community building.



### PL.1 **Become a producer of resources**

MiaSci is first and foremost a producer of human resources. Through the ongoing educational impact of its programs and exhibits, MiaSci raises public awareness of alternative use of resources, enhancing stewardship of the environment.

MiaSci's influence goes beyond its direct impact on visitors, physically altering the inputs and outputs of operations to yield a positive impact on the local environment. Tapping the abundance of South Florida's natural resources, MiaSci will be a net benefactor to the environment and community.

Through architectural design and strategic partnerships with industry and research, MiaSci will pilot and implement alternative energy strategies that harness the power of sun, wind and water.

MiaSci operating systems reflect the institution's commitment to environmental sustainability, from use of green materials to state-of-the-art technology for collecting and recycling water.

### Success Criteria

- Develop metrics to measure efficiency of operational systems
- Produce on-site energy from renewable resources to help offset MiaSci's energy demand
- Storm water discharge is higher quality than Biscayne Bay
- Building as human resource center (job training, mentoring, volunteerism)

**PL.2 Engage and empower audiences through experiential environments**

The MiaSci facility is designed as a learning tool, drawing on the natural abundance of the site and local materials of the region to test and showcase design elements and building technology most relevant to Miami's climate. In effect, the building and the site serve as a tangible macro-exhibition, prompting visitors to consider how they might incorporate new and emerging technologies into their own lives and homes.



Learning is enhanced through experience and, as such, MiaSci will place an emphasis on maximizing quality immersion experiences for all of its audiences. MiaSci programs will create a new generation of environmental advocates by engaging visitors in a manner that is experienced rather than explained.

Community efforts harness the enthusiasm of local volunteers to conserve, restore, and manage South Florida's natural resources, and result in environmental improvements.

Natural elements from the Miami ecology (wind, sun, flora, and fauna) are incorporated into exhibits and programs, building awareness of the relationships between human activity and South Florida's distinctive habitats and ecosystems. Visitors will be encouraged to look, hear, smell, touch and taste. For example, a geology exhibit might simulate a portion of the Floridian Aquifer to tour, observe, touch, etc., making the experience distinctly sensory and Floridian.

Program content emphasizes that individual actions can make a difference, mobilizing the abundant visitor base. Each exhibit on an environmental issue (e.g. global warming, water pollution) includes a message about what the visitor can do to contribute to a sustainable solution (e.g., turn off lights at night, take public transit to work, plant a tree, etc.) By presenting issues in a positive light, and focusing on solutions that are being pursued and have realized positive results, the impact of learning experiences continues beyond the visit to MiaSci.



**Success Criteria**

- Every sustainability strategy incorporated into the building and site can be experienced by, and has relevance for, the visitor.
- All environmental exhibits provide an immersion experience including opportunities for debate and proactive solutions.
- Environmental programs and exhibits engage visitors in efforts to preserve, create or restore natural habitats.



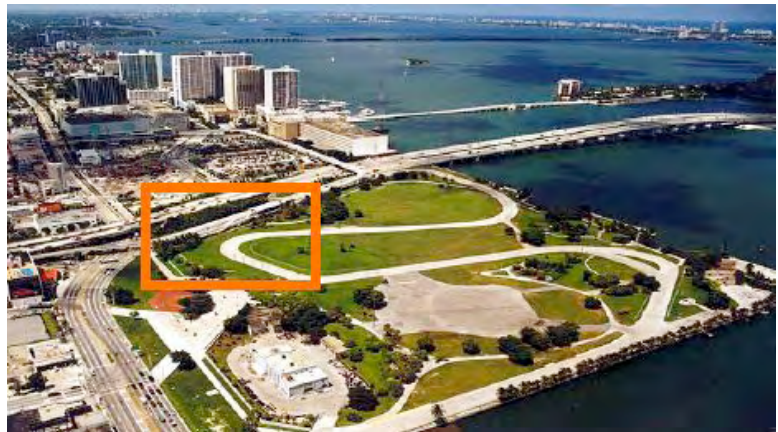
## Prosperity

Miami's geographic location is the driver of the region's economic success. Long the gateway to Central and South America and the Caribbean, Miami has become a global destination, attracting visitors and investors from around the world.

With its mix of cultures, beautiful natural surroundings, and robust technological, financial and transportation infrastructure, Miami has become synonymous with innovation and experimentation. From banking and biotechnology to tourism and film and entertainment, the region's vibrant growth industries have tapped Miami's rich resources to create products and services with global recognition and appeal.

MiaSci contributes to the realization of the region's economic potential by serving as a catalyst for strategies that make full use of Miami's human and natural resources, ensuring development that is equitable and environmentally sound.

MiaSci pursues proactive measures to engage all members of the community in ongoing exploration, discovery and self-improvement, through exhibits and programs that are relevant to Miami's cultural, environmental and economic context. Through strategic partnerships with businesses, colleges and universities, research facilities, and other cultural institutions, MiaSci fosters the continued social, environmental and economic prosperity of the community and the region.



### **PR.1 Secure financial sustainability through total cost of ownership**

As a major community asset, MiaSci has the benefit of being able to demonstrate value in generational timeframes, rather than by fiscal calendar quarters. As such, the design of the new facility is consistent with a long-term view of investment in the community, rather than a first-cost model, resulting in improved efficiency and visitor service.

Long-term investments in assets in all three realms (people, planet and prosperity) contribute to the sustainability of the greater MiaSci enterprise, and also lead to stronger financial performance. Investments in these realms will have both direct financial impacts (utilities, maintenance, cleaning) as well as indirect impacts (worker productivity, health costs, etc.) that make up the total cost and benefit equation.

#### **Success Criteria**

- Operating cost metrics, incorporating data from building sensors (to be developed)
- Metrics related to benefits in the realms of People, Planet, and Prosperity (e.g., local jobs created; local contracts awarded, interns placed, program participants enrolling in college, etc.)

## PR.2 Facilitate community partnerships and exchange

As a repository of the community’s memory, spanning multiple generations and cultures, MiaSci is uniquely positioned to respond to changing demographics, community relations, municipal vibrancy, and environmental health. MiaSci serves as a community hub, connecting groups with complementary pursuits to solve social, economic and environmental issues.

MiaSci can be catalyst for these groups, not just passively observe them. For example, it can be the broker between wetland restoration efforts and volunteers, or between educational specialists and after-school programs. Facilitating partnerships at the local and county level will boost community prosperity.



### Success Criteria

- Provide a neutral party venue for meetings between community groups
- Foster public/private partnerships connecting people and economic resources
- Serve as a venue for supporting wider community programs and initiatives
- Build an endowment supporting an expanded Open Door Access program

## PR.3 Create opportunity through workforce development and capacity building

MiaSci contributes to broad-based, sustainable, and equitable prosperity by facilitating access to science and technology learning opportunities directly related to Miami’s industry and resource base.

MiaSci will build on a national reputation for excellence in this area, offering award-winning youth development initiatives that engage groups traditionally under-represented in science and technology fields; partnerships with area colleges and universities to prepare the next generation of scientists, researchers, and science educators; and ongoing interaction with the business and research communities to identify expertise, internships, and professional mentors.



The design and construction of the new facility will provide additional opportunities to engage members of the community, expanding local opportunities for skills development and careers.

With content designed to reflect the region’s economic context and the cultural diversity of the audience base, MiaSci exhibits and programs will have broad appeal; offer learning and skill building experiences appropriate for different points of entry; serve as a broker for related information and services available elsewhere in the community; and provide opportunities for long-term engagement and capacity building.

**Success Criteria**

- Engage visitors from traditionally underrepresented groups in in-depth capacity building experiences
- Deliver professional development to faculty, teachers, and future teachers
- Create data bank of local experts, mentors, internship providers
- Engage partners through local industry, including opportunities for local small businesses
- Create partnerships with local industry to provide opportunities for training and mentoring in conjunction with design and construction of the new building



**PR.4 Engage partners with a commitment to sustainability**

Though MiaSci has a steady stream of self-generated income, it cannot be a world-class institution without the support of donors, the partnership of non-profits and governments, and the involvement of private corporations and vendors.

MiaSci will generate and pursue partnerships that create positive impact and are mutually beneficial, while passively and proactively persuading partners, donors, and vendors to adopt sustainability ethics and business practices.



**Success Criteria**

- Products and services must demonstrate environmental and fair-business best management practices (BMPs)
- Partners, donors, and vendors are committed to sustainability
- Create partnerships that are beneficial to the broader community over the long-term