NISE Network Online Workshop

Sustainability and Museum Operations: Practices, Partnerships, and Resources to Help Your Organization Become More Sustainable

February 25, 2020

Welcome! Today's presenters are:

- **Nich Weller,** Arizona State University
- **Cathy Dyer,** Leslie Science & Nature Center
- **Dave Laubenthal,** Oregon Museum of Science and Industry
- **Paul Martin,** Arizona State University

As we wait to get started with today's discussion, please:

- **Update your display name:** Include your first and last names and your institution
- **Introduce yourself!** Type your name and institution into the Chat Box
- **Questions?** Feel free to type your questions into the Chat Box at any time throughout the online workshop or use the raise your hand function in the participants list and we'll unmute your microphone

All online workshops are recorded and archived online:
http://www.nisenet.org/event-type/online-workshop

SUSTAINABLE FUTURES

Working Together to Create a Sustainable Future

ASU Center for Innovation in Informal STEM Learning
Arizona State University

NISE NATIONAL INFORMAL STEM EDUCATION NETWORK

Agenda

1. Program overview
2. Sustainability and museums: Partnerships and operations
3. Programs and partnerships for sustainability at the Leslie Science & Nature Center and OMSI
4. NISE Network sustainability programs and activities

NISE Network Sustainability Initiative

Purpose: Support museums and similar cultural organizations in their efforts to integrate sustainability into their program and operations.

Approach: Provide professional development and resources that share and develop sustainability science and practice.

Strategic outcome: Leverage the power of museums around the world to help millions of people understand the social, environmental and economic impact of human behavior on the planet's future.

NISE Network Sustainability Initiative

Professional development: Fellowship program, online workshops, and online resources

Public programs: New programs in a variety of formats to complement the existing sustainABLE kit of hands-on activities

http://www.nisenet.org/sustainability

Workshop Series

Aim: Support Network partners in engaging staff, visitors, and communities in creating a sustainable future.

Today's workshop:

- Partnerships and practices for sustainability

Upcoming workshops:

- Sustainability and Museum Visitors:
  - Tuesday, March 3, 2020; 2-3pm Eastern/11am-12pm Pacific.

What is Sustainability?

Sustainability

"meets the needs of the present without compromising the ability of future generations to meet their own needs"

United Nations. Our common future, *Brundtland Report,* (1987).

Sustainability

"meets the **needs** of the **present** without compromising the ability of **future** generations to meet their own needs"

Needs – include food, water, shelter, work, happiness, and respect.

Present – people all over the world have needs that are equally important and must be met.

Future – people in the future will also have needs. How will our actions affect them?

United Nations. Our common future, *Brundtland Report,* (1987).

United Nations Sustainable Development Goals

Education for Sustainability

"cultivates individual and collective potential … to increase the possibility that humans and other life can flourish on Earth now and into the future "

Cloud, ed. Education for a sustainable future: Benchmarks for individual and social learning, *Journal of Sustainability Education,* (2017).

Education for Sustainability

"cultivates **individual** and **collective** potential … to increase the possibility that humans and other life can flourish on Earth now and into the **future** "

Individual – empowering learners

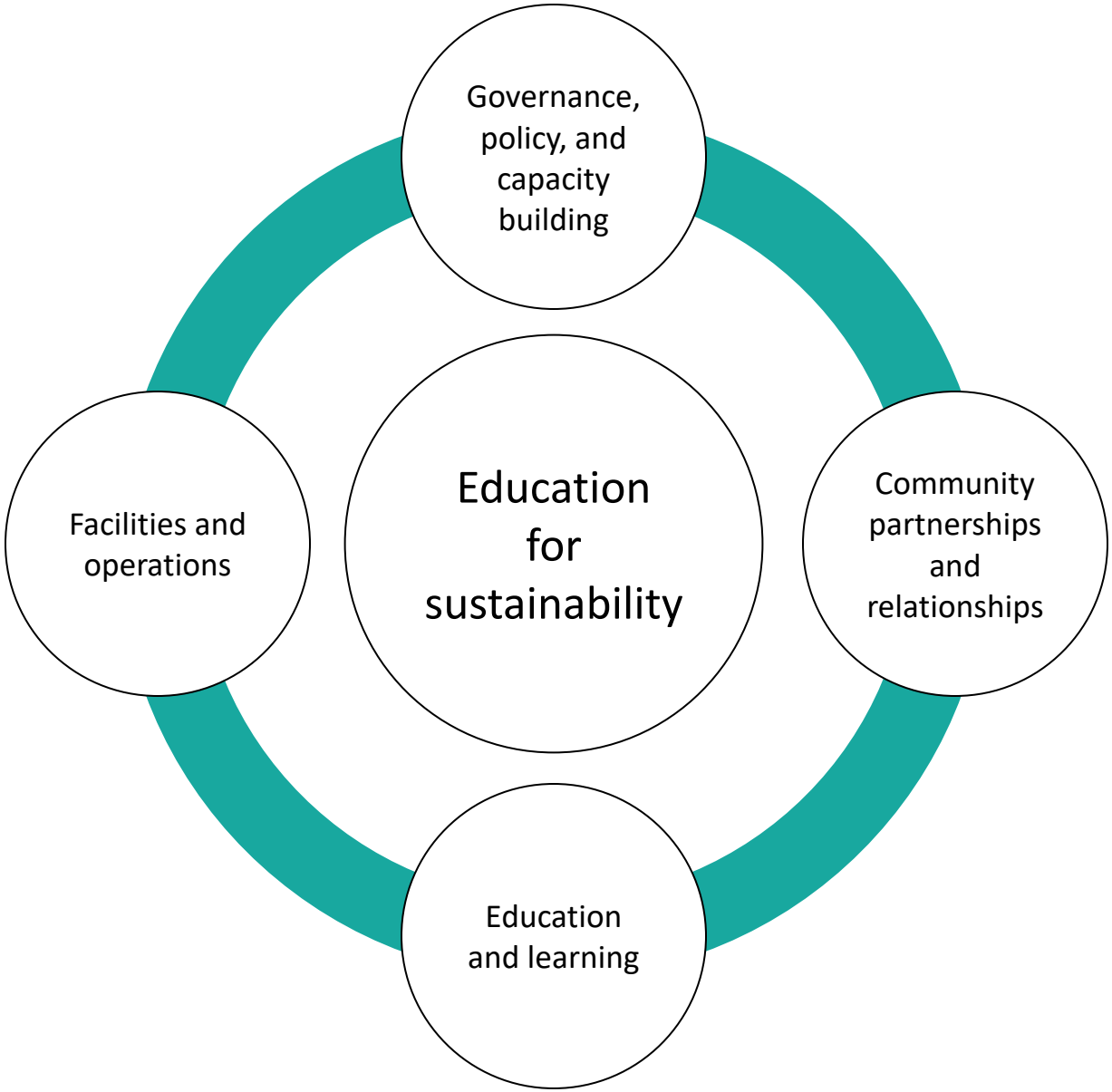
Future – making a difference as an organization

Collective – connecting with our communities

Cloud, ed. Education for a sustainable future: Benchmarks for individual and social learning, *Journal of Sustainability Education,* (2017).

Sustainability means healthy people, communities, and environments, now and in the future.

Whole Institution Approach



Sustainable Practices

- Purchasing, retail policies
- Redesign activities for re-use
- Create a sustainability team
- Long-term sustainability planning
- Composting and recycling
- Waste, energy, or water audits
- Sustainability improvements during renovations
- Sustainability training for staff

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Partnerships can help develop these practices

Partnerships for Sustainability

- Build local sustainability coalitions
- Share resources, expertise for sustainability-related programs
- Contribute to broader community-wide efforts

POLL

What does your organization do behind the scenes to be more sustainable?

Exhibit re-use
Composting
Recycling
Renewable energy
Water conservation
Partner with other orgs
Other
We're still planning!

Cathy Dyer

Leslie Science & Nature Center

Ann Arbor, Michigan

Project Goals

Members of the community appreciate and care for the unique wetlands and forests within our watershed.

Develop partnerships with local organizations:

Natural Area Preservation (NAP), Huron River Watershed Council (HRWC), Rain Gardens Washtenaw County, Legacy Land Conservancy, Rudolph Steiner High School

Project Activities

- Meet a Salamander
- Hike to forest, pond, wet prairie view,)
- Your water address and using hands on map of St Lawrence system Follow a drop of water from A2 to the ocean.
- Wetland in a pan- small groups
- Share Stories about exploring wetlands
- Opportunities to Help (NAP, HRWC, Rain Gardens Washtenaw, Legacy Land Conservancy)

Expected Outcomes

CD
Rotary Park
Bell Branch
Middle Rouge
Rouge River
Detroit River
Lake Erie
Lake Ontario
St. Lawrence Seaway
Atlantic Ocean

OBJECTIVES

Participants will…

- figure out and write down their water address.
- demonstrate the importance of wetlands in the Traver Creek and St. Lawrence Watersheds.
- understand the role of forests and wetlands in watershed locally and regionally via a hands on map. Experience a first-hand connection with local wetlands and with ways to take care of these areas.
- be able to explain why Southeast Michigan has a unique ecological role.

Other Sustainability Practices

- Committee to research recruitment and retention strategies for increasing diversity of staff
- Composting and recycling
- Participating organization in A2 Climate Zero
- Partnership with a local artists' exhibit on climate change at our hands on museum
- Quality education-land and water, STEM, zero waste events

Dave Laubenthal Creative Director

OMSI Portland, OR

Project:

Green Exhibits Checklist

GreenExhibit Checklist

OMSI GREEN EXHIBIT CHECKLIST

A Model for Evaluating Exhibit Sustainability

The **Oregon Museum of Science and Industry (OMSI)** in Portland, a national leader in science exhibit design and production, has created a tool that can help museums evaluate the sustainability of exhibits.

Inspired by the Leadership in Energy and Environmental Design (LEED) rating system, which is the "gold standard" used in building design and construction, OMSI's Green Exhibit Checklist rates an exhibit in terms of its environmental impact.

The Green Exhibit Checklist awards 0–4 points when evaluating each of eight elements common in exhibit design:

1. **Rapidly Renewable Materials.** Does the exhibit use resources that renew themselves quickly in nature, such as bamboo, cork, sunflower seed composite, and wheatboard?
2. **Resource Reuse.** Is the exhibit designed with materials that can be reused in other exhibits when this one is retired? And/or does this exhibit reuse materials from other sources?
3. **Recycled Content.** Does the exhibit use recycled materials rather than plastic laminates and acrylics, which are not yet made of recycled materials?
4. **End-life Assessment.** What portion of the exhibit can be reused or recycled at the end of the exhibit's life? For example, does the exhibit use a modular construction that can be updated or modified with new content?
5. **Low-Emitting Materials.** Does the exhibit use low- or zero-Volatile Organic Compound (VOC) paints, adhesives, and sealants?
6. **Certified Wood.** Does the exhibit use wood harvested from forests that have been managed in environmentally responsible ways?
7. **Conservation.** Is the exhibit designed for energy efficiency, including types of lighting, motion sensors which turn off electrical elements when not in use, etc.?
8. **Regional Materials.** Does it use regional materials that support the economy and reduce environmental impacts from transportation of materials?

An exhibit's total number of points determines its level of rating. For example, an exhibit that scores 6–10 points receives a "green" rating while one that scores 19–26 points receives a "gold" rating.

OMSI's goal is to have all OMSI-built exhibits qualify for green rating or higher by 2012. Our hope is that the OMSI Green Exhibit Checklist programs may help other museums worldwide plan exhibits with environmental considerations in mind and that it can also be a resource in the renting and buying of exhibits.

OMSI

OMSI GREEN EXHIBIT RATING	
0 - 5	No Rating
6 - 10	Green Rating
11 - 18	Silver Rating
19 - 26	Gold Rating
27 - 32	Platinum Rating

NEW PROJECT - EXAMPLE

Example of Green Exhibit Checklist process for new projects

Step 1. As the timeline, budget, and deliverables are being established, the design and production teams decide on the rating goal.

Step 2. The designer specifies materials, mindful of the goal.

Step 3. The production lead oversees implementation of specifications.

Step 4. Once the exhibit opens, a rating assessment is done using the checklist. The design manager, lead designer, production manager, and production lead each assess the exhibit.

Step 5. Scores are reviewed and a final assessment is given.

Step 6. Rating is awarded.

OMSI

Project:

Green Exhibits Checklist

Green Exhibit Checklist

The Green Exhibit Checklist (GEC) is a tool to evaluate the environmental sustainability of exhibits. The goal of the checklist is to inspire exhibit teams to reduce the environmental impacts of exhibit production.

The Green Exhibit Checklist can be a useful tool in early planning to help set project goals. Then, once the exhibit is on the floor, the checklist is used to assess the final outcome.

The GEC awards points in 5 KEY STRATEGIES:

- Reduce new material consumption
- Use local resources
- Reduce waste
- Reduce energy consumption
- Reduce products with toxic emissions

A sixth category awards points for innovation in the design and construction of the exhibit. This encourages exhibit teams to strive for new and creative solutions to reduce environmental impacts.

Step 1 Team sets the goal for the exhibit: Platinum, Gold, Silver, or Bronze.

Step 2 Designer and fabricator review checklist to find the best strategies for meeting the goal.

Step 3 After production, the fabricator fills out the GEC with the relevant material information.

Step 4 Exhibit team conducts walk-through, using the material information to award points.

OMSI

Project:

Green Exhibits Checklist

Reduce new material consumption.

INTENT: Reduce demand for virgin materials thereby reducing industrial practices that pollute the environment and exploit natural resources.

STRATEGIES:

- Use recycled materials (regrind HDPE, aluminum, etc.).
- Reuse building materials (from previous exhibits or deconstruction of houses, etc.).
- Use wood from responsibly managed forests.
- Use rapidly renewable materials (bamboo, wheat board, etc.).
- Construct exhibits using fewer materials.

List all materials that were recycled, reused, FSC-certified wood, or rapidly renewable:	Estimated % of total exhibit (by volume):

List any virgin materials (no recycled content, newly purchased, not renewable):	Estimated % of total exhibit (by volume):

SCORING:

SCORE: ☐

- ☐ 4 points if **AT LEAST 90%** of the materials are recycled, reused, or renewable.
- ☐ 3 points for **AT LEAST 75%**
- ☐ 2 points for **AT LEAST 50%**
- ☐ 1 point for **AT LEAST 10%**
- ☐ 0 points if **LESS THAN 10%**

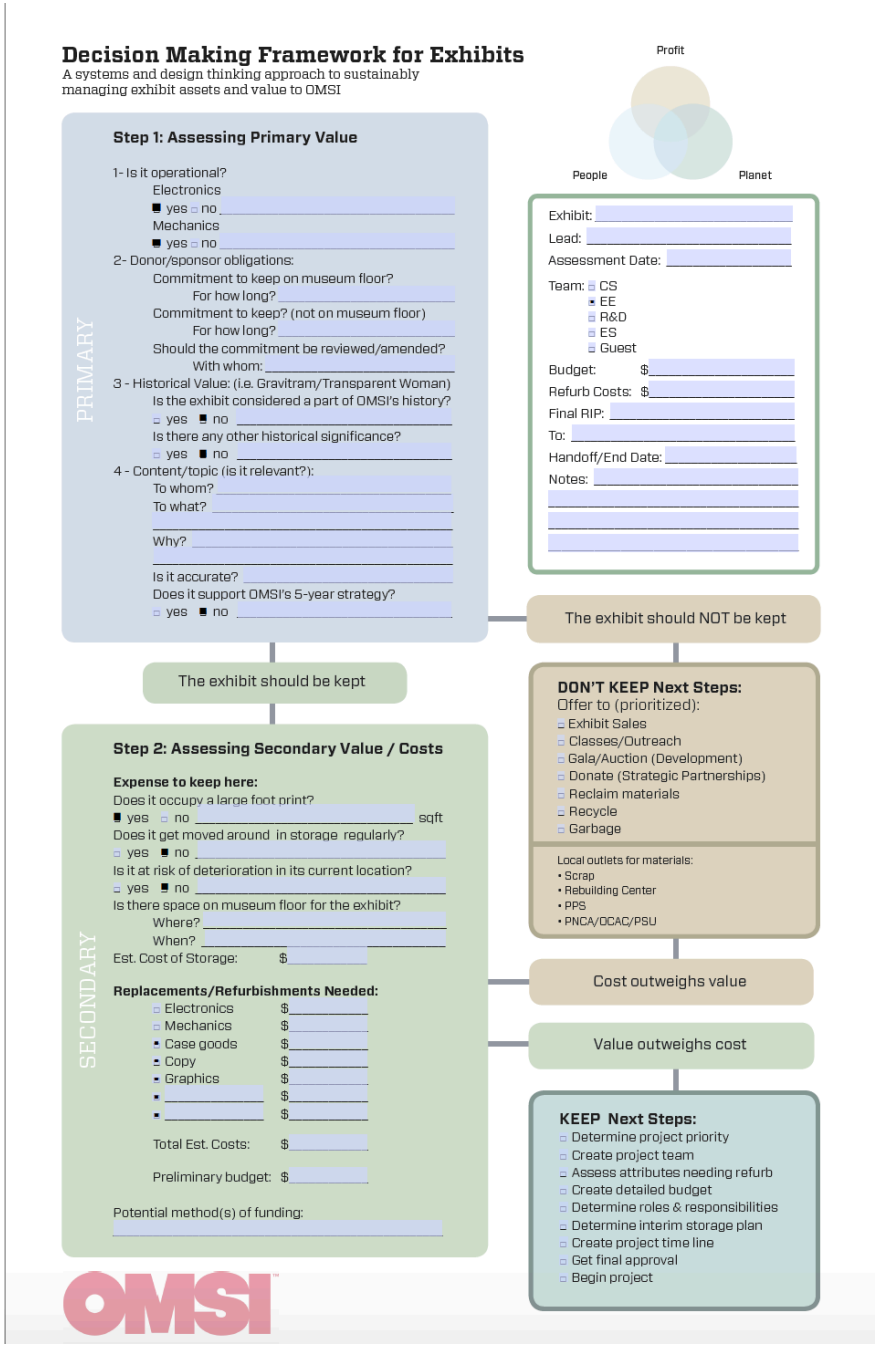
WAYS TO IMPROVE SCORE: _____

OMSI

Project:

Decision Making Framework for:

Exhibits (EOL)



Decision Making Framework for Exhibits

A systems and design thinking approach to sustainably managing exhibit assets and value to OMSI

Profit / People / Planet

PRIMARY

Step 1: Assessing Primary Value

1- Is it operational?
Electronics
■ yes □ no
Mechanics
■ yes □ no
2- Donor/sponsor obligations:
Commitment to keep on museum floor?
For how long?
Commitment to keep? (not on museum floor)
For how long?
Should the commitment be reviewed/amended?
With whom:
3 - Historical Value: (i.e. Gravitram/Transparent Woman)
Is the exhibit considered a part of OMSI's history?
□ yes ■ no
Is there any other historical significance?
□ yes ■ no
4 - Content/topic (is it relevant?):
To whom?
To what?
Why?
Is it accurate?
Does it support OMSI's 5-year strategy?
□ yes ■ no

Exhibit:
Lead:
Assessment Date:
Team: □ CS ▪ EE □ R&D □ ES □ Guest
Budget: $
Refurb Costs: $
Final RIP:
To:
Handoff/End Date:
Notes:

The exhibit should NOT be kept

The exhibit should be kept

SECONDARY

Step 2: Assessing Secondary Value / Costs

Expense to keep here:
Does it occupy a large foot print?
■ yes □ no sqft
Does it get moved around in storage regularly?
□ yes ■ no
Is it at risk of deterioration in its current location?
□ yes ■ no
Is there space on museum floor for the exhibit?
Where?
When?
Est. Cost of Storage: $

Replacements/Refurbishments Needed:
□ Electronics $
□ Mechanics $
▪ Case goods $
▪ Copy $
▪ Graphics $
▪ $
▪ $

Total Est. Costs: $

Preliminary budget: $

Potential method(s) of funding:

DON'T KEEP Next Steps:
Offer to (prioritized):
□ Exhibit Sales
□ Classes/Outreach
□ Gala/Auction (Development)
□ Donate (Strategic Partnerships)
□ Reclaim materials
□ Recycle
□ Garbage

Local outlets for materials:
• Scrap
• Rebuilding Center
• PPS
• PNCA/OCAC/PSU

Cost outweighs value

Value outweighs cost

KEEP Next Steps:
□ Determine project priority
□ Create project team
□ Assess attributes needing refurb
□ Create detailed budget
□ Determine roles & responsibilities
□ Determine interim storage plan
□ Create project time line
□ Get final approval
□ Begin project

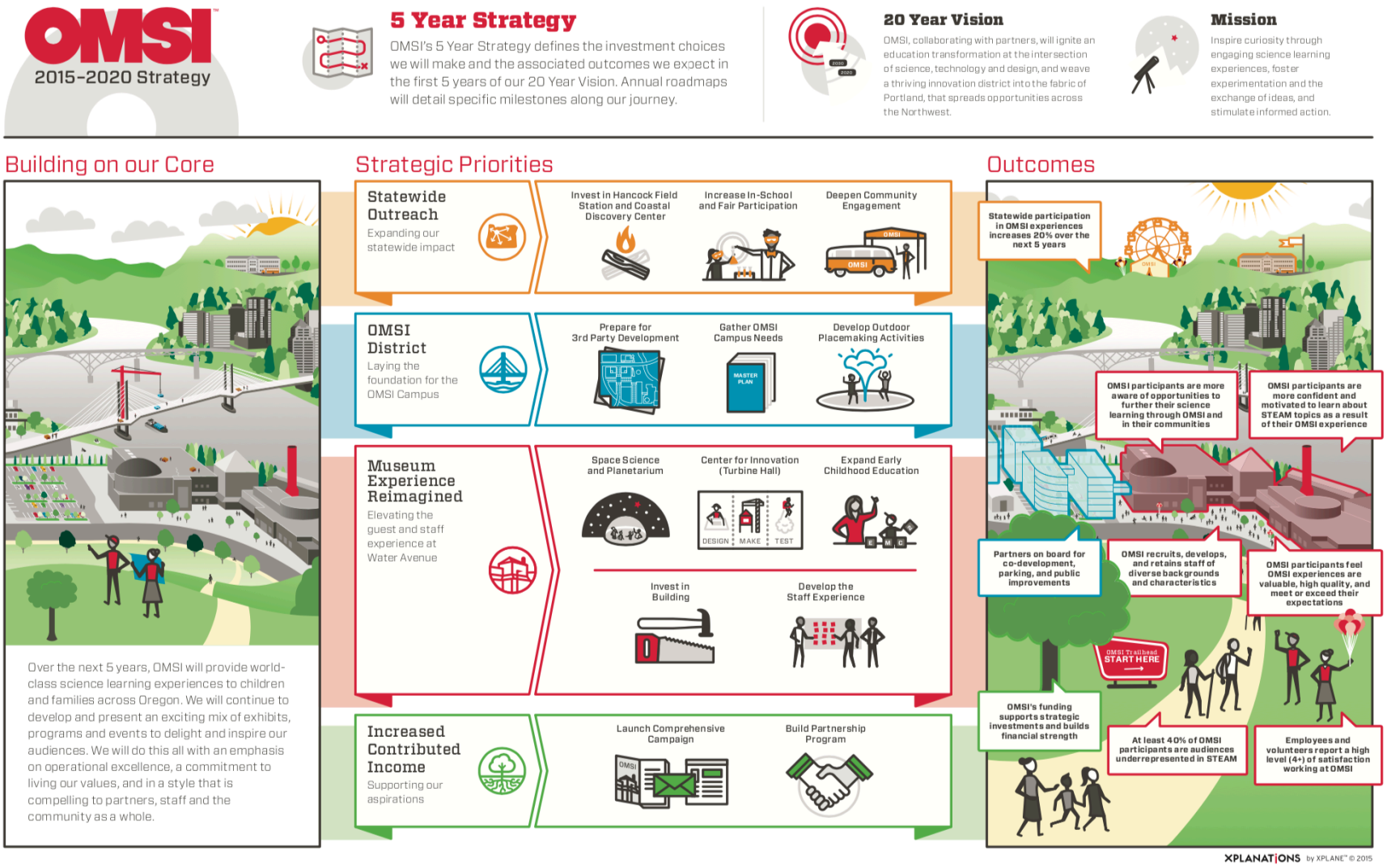
Project:

Decision Making Framework for:

Exhibits (EOL)

OMSI

Project: Strategic Planning and Visioning



Project: Strategic Planning and Visioning

OMSI

Vision 2015-2035

Vision

OMSI, collaborating with partners, will ignite an education transformation at the intersection of science, technology and design, and weave a thriving innovation district into the fabric of Portland, that spreads opportunities across the Northwest.

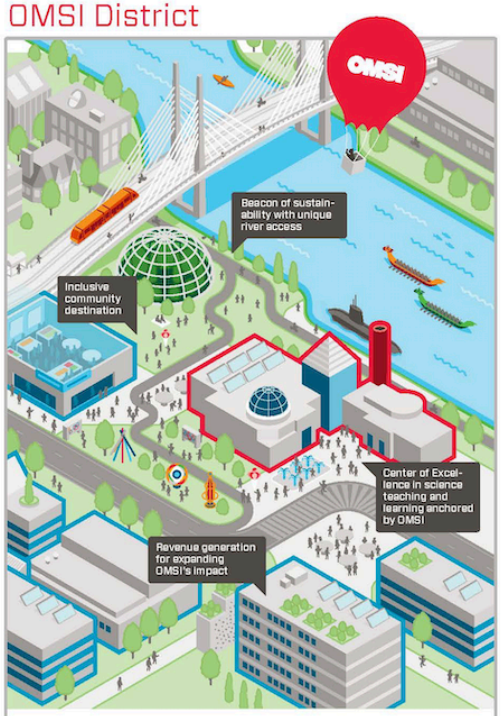
2030

2020

Mission

Inspire curiosity through engaging science learning experiences, foster experimentation and the exchange of ideas, and stimulate informed action.

OMSI District



The OMSI District will be a playful, immersive place for the exchange of ideas and creative expression—among scientists, artists, engineers, teachers, inventors, and people from diverse backgrounds and cultures—that stimulate innovative problem-solving.

OMSI of the Future

Partners

We will build an ecosystem of communities and partners, creating mutually-beneficial relationships. OMSI co-develops and curates content with partners, packages it into immersive experiences, and engages broad audiences.

Revolutionizing Science Learning

OMSI will be a change agent in STEAM education quality as traditional education systems are disrupted.

- We augment the established school system (through teacher training, pre-school, OMSI science school).
- We recognize that education increasingly takes place across a broad range of institutions, media, and community actors.

Around the Region

Reaching beyond the museum campus through outdoor science camps, traveling programs, teacher professional development, and virtual connections, OMSI is committed to accessibility across our region.

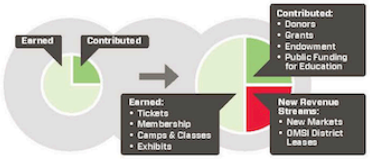
OMSI experiences provide trailheads to deeper learning. OMSI sparks curiosity through immersive experiences that cannot be replicated in schools or online. With the learner at the center, OMSI orients people of all ages to paths to deeper engagement and connection through diverse programming and partnerships across the region.

Equitable Impact

We will work to dismantle barriers to equity and access to the experiences OMSI provides and to create welcoming environments and conditions where all people can reach their full potential. We lead with race.

New Revenue Model

Current State | Future State



New revenue streams support expanding capacity, including multiple streams of earned income. Operational excellence keeps us continuously improving how we create value for our audiences.

Advocating Informed Action

We will actively advocate for science understanding, scientific method, evidence-based decision making, and STEAM educational policies. OMSI will use its convening power to elevate voices, stimulate critical thinking about important local and global challenges, and position STEAM as a means for creating community benefit and achieving social justice goals.

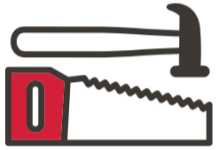
Project: Strategic Planning and Visioning

OMSI VALUES *& Signal Behaviors*

Values are powerful drivers of how we think, make decisions, and behave. They define the culture of our organization. The following are OMSI's Values and the signal behaviors that indicate that we live those values every day.

CORE VALUES *Practiced nearly all the time by nearly all our people*

- **LEARNING** teaching; asking questions; sharing; experimenting
- **CREATIVITY** making (new) mistakes; sharing ideas; innovating; pushing the envelope
- **INTEGRITY** publishing visitor comments; accepting and acting on feedback; taking pride in our work; presenting accurate science; supporting honest communication; taking responsibility for our actions
- **SUSTAINABILITY** promoting fiscal responsibility; making triple bottom line decisions ($/environment/people); identifying and meeting community needs; measuring and reporting impacts and results for all activities



STRATEGIC VALUES *In practice, but we want to make them more core*

- **OUR PEOPLE** providing a flexible and fun workplace; listening and communicating openly; compensating fairly; allowing people to grow in and outside of their jobs; providing the tools to do the job; setting measurable goals and holding ourselves accountable to results
- **COLLABORATION** creating high performing work teams; supporting onstage staff during busy times; exchanging value with partners; caring about each other
- **ACCESSIBILITY AND EQUITY** listening to audiences we are trying to reach; offering a welcoming guest experience; proactively increasing diversity of staff/diversity of guests; serving underserved audiences through sustainable programs; proactively working to eliminate barriers

OMSI EQUITY STATEMENT

OMSI respects, values and celebrates the unique attributes, characteristics and perspectives that make each person who they are. We believe that we will be successful in accomplishing our mission and vision when we seek out and respond to diversity of participation, thought and action. We will work to dismantle barriers to equity and access to the experiences OMSI provides and to create welcoming environments and conditions where all people can reach their full potential.

OMSI

Thank You!

OMSI

Resources

NISE Network sustainability initiative: http://www.nisenet.org/sustainability

NISE Network sustainability public programs: https://www.nisenet.org/sustainable-futures

NISE Network selection of Earth Day resources: https://www.nisenet.org/earth50

Association of Zoos & Aquariums Green Guides:
https://assets.speakcdn.com/assets/2332/aza_green_guide_volume_1.pdf
https://assets.speakcdn.com/assets/2332/aza_green_guide_volume_2.pdf

Planning Sustainability Efforts

1. Sustainability vision and goals
2. Current programs and efforts
3. Limitations and challenges
4. Broadening impact

SUSTAINABLE FUTURES

Sustainability & Museums

Conversation Guide

Sustainability means healthy people, communities, and environments, now and in the future. Cultural organizations like museums and gardens can promote learning about sustainability through programs and exhibits, can build community partnerships for sustainability goals, and can lead by example by adopting sustainable practices.

USING THIS GUIDE

Sustainability efforts often span people and departments. Use this guide in meetings, workshops, or one-on-one conversations with others at your organization to identify existing sustainability efforts, create a sustainability vision and goal, and identify pathways to reach those goals. Encourage yourself and others to be both open-minded and critical in answering the questions below. Be sure to consider your organization's public-facing efforts as well internal efforts like changes to policies or operations.

1. **Sustainability vision and goals**
   a. What is our organization's goal and vision for sustainability?

https://www.nisenet.org/sites/default/files/catalog/uploads/conversation_training_guide.pdf

Planning Sustainability Efforts

	Operations	Programs & Exhibits	Capacity Building & Policy	Community Partnerships
Well established program or practice				
Efforts that could be improved or are under development				
Ideas for future efforts				

https://www.nisenet.org/sites/default/files/catalog/uploads/planning_table_training_guide_and_worksheet.docx

Sustainability Workshop Series

SUSTAINABLE FUTURES

This three-part series of online workshops is aimed at supporting Network partners in engaging their staff, visitors and communities in creating a sustainable future. Participants will also learn about new NISE Network public programming resources for use in your Earth Day 2020 offerings and beyond.

Sustainability in Museums Around the World: Working Together to Create a Sustainable Future (Recorded Session)

Sustainability and Museum Visitors: Exhibits, Programs, and Other Ways to Engage the Public
Tuesday, March 3
2-3pm Eastern / 11am-12pm Pacific

Sign up for the upcoming online sustainability workshops at: https://www.nisenet.org/events

Check out nisenet.org/earth50 for all your Earth Day resources!

NISE Network Public Programs

Games for the Future:

- Silly Sustainability Stories
- Cards for Humanity
- Seeing Sustainability

Survival: A Game Show about People, Planet, and Prosperity

https://www.nisenet.org/sustainable-futures

NISE
NATIONAL INFORMAL STEM EDUCATION NETWORK

The *Rob and Melani Walton Sustainability in Science and Technology Museums* initiative is supported by the Rob and Melani Walton Foundation.