Agenda

- PRESENTATION
  01. Intro
  02. Case Study- DaVinci
  03. Case Study- Gateway to Science
  04. Planning 101
  05. Lessons Learned

- SMALL GROUP DISCUSSION

- SHARE OUT / Q+A
The best laid plans of mice and men often go awry.

Robert Burns
What is a “small” center?
Profiles of Typical Science Centers*

**VERY SMALL CENTER**
- 12,000 SF
- 78,000 visitors

**SMALL CENTER**
- 43,000 SF
- 189,000 visitors

**MEDIUM CENTER**
- 131,000 SF
- 407,000 visitors

* A New Place for Learning Science by Sheila Grinell
ASTC
How about a “small” budget?
“Small” Budget

VALUE-DRIVEN SOLUTIONS

- Purpose-built facilities
- Built to last
CASE STUDY

- Bullets can be turned off for subheads in a bullet palette.
- Left on for lists.

10/20/2015

DA VINCI SCIENCE CENTER
Open for Exciting Possibilities™

Images showing the interior and exterior of the Da Vinci Science Center with people engaged in activities.
History

23 YEARS OF GROWTH

- 1992: Established as a part of Lehigh University in Bethlehem PA
- 1999: Reincorporation as an Independent Nonprofit Organization
- 2005: Opened new facility on Cedar Crest College campus
- 2014-16: Exploring expansion possibilities
BETHLEHEM STEEL SITE

- Located on abandoned steel property
- The building was designed in the 40’s for plant offices.
- Ambitious plans to rejuvenate area were stalled.
Existing Bethlehem Facility

COMPROMISED SPACES

- Limited ceiling height
- Inability to move partitions
- Accessibility issues
- Mechanical systems at end of useful life.
Allentown Site

PLANNING PROCESS

- Identify the Need
- Explore Options
  - Major renovation
  - New site
- Evaluate Sites (Board Committee)
- Define Space Requirements
- Architect & Construction Manager Selection (Board Committee)
Allentown Site

PLANNING PROCESS CONT’D

▶ Develop conceptual design (staff + arch)
▶ Conduct $10M capital campaign (Board committee)
▶ Identify and hire exhibit consultant(s) (staff)
▶ Execute capital program
  ▶ Site Development
  ▶ Detailed Design
  ▶ Construction
  ▶ Exhibit Design + Development
Timeline
4 YEAR PROCESS

2002
Site selection

2003
Building Design

2004
Construction

2005
Capital Campaign
2005 BUILDING PROJECT

- Dramatic Transformation
- Planning Process
- Impact
FIRST FLOOR

Traveling Exhibit Hall

Cafe

Store

Exhibit Hall

Entrance
## Impact By the Numbers

<table>
<thead>
<tr>
<th>Category</th>
<th>FY2004</th>
<th>FY2015</th>
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</thead>
<tbody>
<tr>
<td>Total Participants</td>
<td>37,571</td>
<td>127,720</td>
</tr>
<tr>
<td>In-Building Participants</td>
<td>28,534</td>
<td>86,825</td>
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<tr>
<td>School Field Trip Students</td>
<td>16,722</td>
<td>22,429</td>
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<tr>
<td>Outreach Participants</td>
<td>8,968</td>
<td>39,212</td>
</tr>
<tr>
<td>Membership Sales</td>
<td>121</td>
<td>1,479</td>
</tr>
</tbody>
</table>
Engaging Board and Staff
Timeline
Defining the Need
Evaluating Expansion Possibilities
Expansion Planning
2014-2016

- Engaging Board and Staff

- Board of Trustees
- Executive Committee
- Strategic Planning Oversight Committee
- Staff Leadership Team

Trustees
Staff Leadership
Expansion Planning

2014-2016

Defining the Need

Board adopts Strategic Plan & authorizes Expansion Feasibility Study
Expansion Planning

2014 - 2016

- Strategic Data Sets
- SWOT Revisited
- Benchmarking Study
- Updated Strategic Plan
Strategic Data Sets

Public:
- Zip Code mapping (>30,000), surveys (>100), interviews (25)

Schools:
- Supt. Interviews (5), teacher surveys (>100), GAMSP teacher focus group (58)

Supporters:
- Leonardo Society (75), corporate meetings (~30), Marketing Advisory Com., LV STEM Education Group (50)

+ DSC Leadership: Staff Leadership Team, Board of Directors

+ Consultants: Brand Experience, White Oak Associates
### SWOT Revisited

#### Strengths:
- Programs, Partners, People, Financially Viable
  - STEM Programs

#### Weaknesses
- Earned Revenue Limitations
- Floor Space Limitations, Aging Exhibits
- Lean and overworked staff
- Operational need to focus

#### Opportunities
- Expand to Serve Market (MSA)
- Expand to Leverage Strengths (Increase Earned Revenue)
- Expand to Serve Mission (Outreach)
- Expand to Serve pre-STEM
- Improve Customer Experience

#### Threats
- Competition for Earned Revenue
- Loss of Key Staff
Benchmarking Study

WHITE OAK ASSOCIATES

- Compared DSC operations with 10 science centers/children’s museums with similar sized operating budgets.
- Compared DSC operations with 5 science centers/children’s museums in similar size markets.
Ratio of On-site School Attd. to Metro Population

2013 ASTC Sourcebook of Statistics and Analysis and DSC

70 Science Centers
- 4.1% average
- 3.0% median

Schenectady
Dayton
Fort Wayne
Allentown
Syracuse
Wichita
Albuquerque
Des Moines
Ithaca
Toledo
Greensboro
Little Rock
Hickory
Rochester
Ann Arbor
## FY 2016-19 Strategic Plan

<table>
<thead>
<tr>
<th>Impact &amp; Influence</th>
<th>Expand STEM leadership • Increase numbers served • Strengthen educational capacity • Invest in pre-K • Benchmark and track success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth &amp; Stewardship</td>
<td><strong>Launch capital campaign and meet with public funders to scale up DSC</strong> • Continue positive net income • Expand public/private partnerships for STEM • Expand support from individuals • Broaden &amp; deepen relationships through outreach and stewardship</td>
</tr>
<tr>
<td>People Power</td>
<td>Recruit best and brightest • Align staffing with structure and invest in growth • Expand and restructure volunteer program • Develop and engage Board</td>
</tr>
<tr>
<td>Customer Experience</td>
<td>Expand exhibit area • Invest in playful and engaging exhibits • Expand auxiliary businesses • Expand outreach • Invest in staff training &amp; systems</td>
</tr>
<tr>
<td>Strategic Partnerships</td>
<td>Develop new multi-year partnerships • Support STEM workforce development • Increase sponsorships and enhance value • Reach more diverse audiences</td>
</tr>
<tr>
<td>Brand &amp; Market Development</td>
<td>Deepen articulation of Center’s identity, marketing plan, and strategy • Use playfulness to differentiate DSC • Strengthen connection to Leonardo • Increase market penetration • Attract larger preschool audience</td>
</tr>
</tbody>
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Scenario Planning

OPERATIONALIZING THE VISION

- We considered three “end-member” future scenarios to explore variables and envision possible futures.
  - A. Optimize existing space
  - B. Cedar Crest expansion
  - C. Urban site

- Scenario development was an iterative process by staff, SPOC and consultants.
Scenarios

A. OPTIMIZING EXISTING SPACE
- Small increase in exhibit space (1,000 – 3,000 SF)
- Reconfigure office/support spaces
- Maximize revenue within constraints (88,000 in-building)

B. CEDAR CREST EXPANSION
- Significant expansion of exhibit space (to 25,000 SF)
- 2 additional classrooms/maker space
- Addition of auxiliary spaces, e.g. small theater
- Constrained by parking and lease (147,000 in-building)

C. URBAN SITE
- Maximally serve potential market (196,000 in-building)
- Major exhibit expansion (to 40,000 SF)
- Greater auxiliary capacity/urban partnership potential
Results So Far

- We must increase in both quality and capacity to increase the impacts we currently have, and possibly even to sustain them.
- Status quo limits our ability to deliver the mission.
- Growth may be possible on our current site, contingent upon approval from Cedar Crest, but will not allow us to achieve our full market potential.
- Optimal growth requires a less-constrained site.

CURRENT FOCUS: EVALUATING FEASIBILITY OF PROPOSED SCENARIOS
03. Case Study
Gateway to Science

NORTH DAKOTA’S ONLY HANDS-ON SCIENCE CENTER

- Incorporated as a nonprofit organization in August 1994.
- Annual attendance has grown to over 23,000
- Ages range from preschool through adult
- Audience consists of gallery visitors (including field trips), students in our educational programs, families attending our free events and outreach to the community
Background

GATEWAY TO SCIENCE

- Moved from Gateway Mall to current facility in January 2005
- Staff of 15:
  - Full-time Director, Gallery & Programs
  - Part-time development, support staff & students
Where to Start?

IDENTIFY THE NEED

- Gallery – currently 2,500 sq. ft. w/low ceilings
- Exhibit support space – no workshop, limited storage
- Program space – no lab, additional spaces shared by other partners in building
- Prep/Storage space – very limited
- Administrative – small office shared by multiple staff members
- Attendance – increased by 95% in past five years
Exploring Options

GTS EXPLORED MULTIPLE OPTIONS WITH EXISTING PARTNERS

- Expansion of current facility: Asbestos, small lot, partners unable to contribute to major project
- Renovate another facility: a few options were explored, but locations were less desirable
- New: GTS Board decided this was the best option, which means discontinuing our partnership with Park District and arts groups
Assembling the Team

EXPLORATORY COMMITTEE

- Board and Staff Involvement
- Initial exploratory committee consisted of a contractor, developer, engineers, attorney and science educator
- Meetings with stakeholders
- Building Committee established
Selecting a Site
Timeline
CONSULTANTS

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<th>2014</th>
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<td>Mar</td>
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<td>Apr</td>
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<tr>
<td>Dec</td>
<td></td>
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<tr>
<td>Jan</td>
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Fundraising
Architects
Exhibits
Choosing Consultants

ARCHITECTS, FUNDRAISER AND EXHIBITS

- Request for Proposals
- Selection Committee
- Criteria Matrix (should reflect RFP)
- Review of Proposals to Narrow Down
- Conduct Interviews (3-5)
- Selection & Contract Negotiation
Fundraising

GATHERING THE RESOURCES

- Feasibility Study
- Campaign Leadership & Committee
- Campaign Training
- Case for Support
- Major Gifts come First
- Taking the Campaign Public
03. Planning
How soon can we move in?
Design to Move In: Likely 3 years
Definitions of Design Phases

PD- PROGRAMMING & PREDESIGN
SD- SCHEMATIC DESIGN
DD- DESIGN DEVELOPMENT
CD- CONSTRUCTION DOCUMENTS
### Schedule

**TYPICAL**

- **PD-SD**
  - 4-8 mos.
- **FUNDRAISING**
  - Time varies
- **DD-CD**
  - 6-12 months
- **CONSTRUCTION**
  - 16-24 months

**ALTERNATIVE**

- **PD-CD**
  - 10-18 mos.
- **FUNDRAISING**
  - Time varies
- **CONSTRUCTION**
  - 16-24 months
How much will it cost?
Cost Benchmarking

**USE CAUTION!**

- Adjust for escalation and location
- Understand unique conditions (collections protection?)
- Get information from experts in the building type

Gateway to Science Museum

DaVinci Science Center

University of Alaska Museum of the North

Pier Wisconsin

10/20/2015
Construction + Exhibits + Soft Costs

CONSTRUCTION COSTS:

- Core & Shell
- Everything attached to the building (not AV)
- Demolition & site prep
- Site development
- Need to include contingency and escalation factors.

SOFT COSTS

- FF&E: Furniture, Fixtures & Equipment
- AV/ Technology
- Consultant fees
- Owner costs- moving, ground-breaking
- Reimbursables – printing, travel, etc
- Fundraising costs
How big should the new facility be?
Program Benchmarking

<table>
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<tr>
<th>Service</th>
<th>CMC %</th>
<th>GTS %</th>
<th>Alaska %</th>
<th>DaVinci %</th>
<th>ASTC %</th>
<th>AAM %</th>
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<td></td>
<td>32K</td>
<td>65K</td>
<td>75K</td>
<td>30K</td>
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What spaces do you need?
Flexible Exhibit Halls

BLACK BOX, ADAPTABLE, WINDOWS?
Flexible Exhibit Halls
WATER, NOISE, MESSY
Science Center Experience Model

Immersive Exhibits

TECHNOLOGY - RICH
Lobby

FIRST IMPRESSIONS + FUNCTIONAL EFFICIENCIES
Flexible Education Spaces

MOVEABLE WALLS, STORAGE
Flexible Education Spaces

MAKER SPACES
Flexible Multi-purpose Spaces
Revenue Generating

RENTALS AND EVENTS

- Mission first
- Catering and storage space required
Outdoor Events
Revenue Generating

FOOD SERVICE AND STORE
Can the building itself be an exhibit?
Building as Exhibit
Building as Exhibit
Building as Exhibit
05. Lessons Learned
If I was to do it again.....
Lessons Learned

BY BETH

- Clear communication with all consultants
- Keeping on the right track
- Fundraising takes longer than expected
- Expertise on committees is invaluable!
Lessons Learned

BY LIN

- Design matters ++
- Do not skimp to $ for exhibit experiences / programs
- Do not value engineer out acoustics and/or lighting control
- Invest in greater resources to support planning and staff
- Develop a comprehensive capital budget with realistic projections for planning fees & studies, campaign, moving & setup, IT systems, operating support funds
The best laid plans of mice and men often go awry.

Robert Burns
IF "Plan A" Didn't Work.
The alphabet has 25 more letters!
Stay Cool.