OMAHA STEM ECOSYSTEM

2017
ANNUAL REPORT

Transforming Omaha
into a Robust Stem Community

MESSAGE
FROM THE DIRECTOR

Dear Friends and Colleagues,

The Omaha STEM Ecosystem recently celebrated its first year as an organization and what a year it has been! The STEM Ecosystem is a citywide organization designed to maximize collaboration on science, technology, engineering and mathematics (STEM) learning initiatives, building STEM educational pathways from preschool to career, and supporting a vibrant STEM workforce that will lead to collaborative and innovative solutions for tomorrow.

The initial organizational visionaries, the University of Nebraska at Omaha, and Omaha's Henry Doorly Zoo and Aquarium *(OHDZA)* and their respective Foundations, provided the initial funding and leadership support to craft the architecture of this new collaboration for the Greater Omaha Area. Additional Founders and Partners joined quickly, and now include a significant list *(see end of report)*. With their support, STEM Ecosystem engaged a Full Time Director, completed a strategic plan, established mission and goals for the future and began initiatives across five working committees.

Building on our goals, we have collaborated with stakeholders from over 80 organizations, that include business, education, non-profits, museum and science centers, government agencies and families. Together we are creating a system that encourages STEM learning opportunities for all members of our community.

We realize, as with any new organization, that the work is far from completed. As the STEM Ecosystem grows in the roles of convener, facilitator, and a tool for citywide collaborators, we will continue to build and stimulate activities in the Greater Omaha area to create a true STEM Learning Ecosystem. We are thankful for all the supporters, community members and partners that generously give their time, talent and creativity.

This report is a snapshot of our accomplishments to date. We look forward to working with members of the community in continued collaboration and growth in the years to come.

Thank you,

Julie Sigmon / *Director*

STAKEHOLDERS

The Omaha STEM Ecosystem created an organizational structure that was flexible and inclusive enough to welcome all stakeholders, yet includes sufficient structure and support to facilitate and coordinate the work. Organizational partners agreed from the start that having a full-time Director, dedicated to the organizational support and growth of the STEM Ecosystem would be the most effective method to achieve the goals.

In 2016, the National STEM Funder Network selected the Omaha STEM Ecosystem as a member of the National STEM Learning Ecosystem Initiative and along with the 56 other communities, was able to build the strategic direction of our organization. The Teaching Institute for Excellence in STEM *(TIES)* facilitated two Design Studio sessions that focused on determining the Omaha STEM Ecosystems' strategic plan blueprint:

- Alignment of Vision
- Creation of Design Principles *(value statements)*
- Defining Key Design Feature
- Creation of an Action Plan

Stakeholder engagement during the organization process was very strong at both the broader stakeholder meetings and TIES facilitated sessions as identified below.

- 42 stakeholders participated in "Next steps for Engagement"
- 26 stakeholders participated in "Stem Ecosystem Director roles"
- 63 stakeholders participated in Dr. Koebley' s Introduction to STEM Funders Network
- 64 stakeholders participated in Social Network Analysis survey I – 12/16
- 27 stakeholders participated in TIES/Omaha STEM Attitudes, Awareness and Assets survey
- 37 stakeholders participated in the Design Studio I
- 36 stakeholders participated in the Design studio II
- 57 stakeholders participated in the World Café, a broader discussion of draft Strategic Plan
- 200+ receiving email updates on report of the progress involved in the Design Process
- 89 stakeholders participated in Social Network Analysis Survey II

At the conclusion of the Design Studio sessions, the stakeholders collaborated on and produced the following Non-negotiable Vision Statement and Design Principles.

VISION

The Omaha STEM Ecosystem envisions a community where all young people, especially those underrepresented in STEM Careers, will have the opportunities needed to be successful in learning, scientific thinking, examining potential career paths and exploring opportunities to extend their educational achievements.

DESIGN PRINCIPLES

- Foster a culture where values, beliefs, interest, and strengths of the diverse cultures we serve are reflected. The cornerstone of the Omaha STEM Ecosystem is to ensure youth and adult learners, of all socio-economic backgrounds, have access and opportunities for STEM related programs.
- Sustain an overarching structure to bring community partners together to advance STEM learning as a priority in Omaha. We welcome diverse partners and experiment with innovative ways for engagement. By creating a network of community organizations, we provide a venue for collaboration around solutions to STEM issues and leveraging of resources.
- Create pathways through experiential learning, high quality STEM programs, and job-connected mentorships/internships that create lasting career opportunities. Formulate workforce development opportunities for individuals of all ages.
- Support a research-informed culture of reflection and improvement. The measurable impact data include increased opportunities in high quality STEM programs, student participation in STEM courses, and a decrease in STEM vacancies in the Omaha community.
- Foster a STEM culture where awareness of community needs is identified, a common language around STEM is clearly defined for all stakeholders, and is guided by best practices for youth. With increased collaborative STEM efforts, we will celebrate success, apply lessons learned and provide an increase in STEM achievement.
- Create and maintain a system that informs and educates community members about STEM related issues, events, and resources as well as highlighting activities and celebrate STEM achievements.
- Develop a system that provides continual professional development opportunities for educators, parents and business partners in STEM. Cultivate STEM professional development for educators with opportunities for mentoring, internships and externships.

Through the design process, the following goals and priorities were identified for the next two years' of the STEM Ecosystem work:

- Build capacity of collaboration through consistent, engaged, and diverse stakeholders.
  - › Determine a baseline for current stakeholder engagement
  - › Assure leadership and membership is diverse and reflective of the community we serve
  - › Develop a platform for engagement

- Identify a shared framework that evaluates measurable effects of high quality STEM programs, and their impact on STEM workforce.
  - › Generate a consensus of high quality STEM programs
  - › Develop a database resource of tools for assessing outcomes and programs

- Develop a system that engages students in high quality STEM programs that builds complex career ready skills.
  - Develop an asset map of high quality STEM programs that currently exists from PK – career
  - Identify the gaps in STEM opportunities
  - Develop linkage between STEM-related industry/business and STEM programs

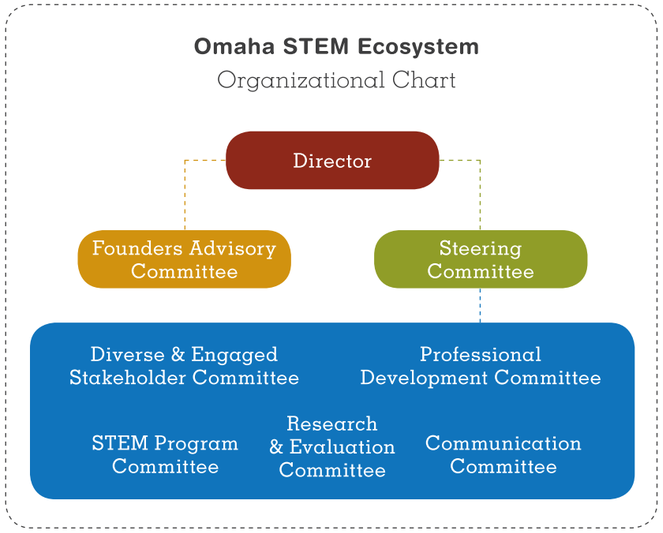
- Promote and provide professional development and training for educators with STEM knowledge, competencies and pedagogy.
  - Identify specific STEM skills needed by industry/business to utilize in professional development and training opportunities
  - Involve a number of diverse career connections *(stakeholders)* from all sectors in planning professional development and training opportunities

- Develop a communication system with increased awareness of STEM priorities and access to resources and STEM programs
  - Create a broader communication strategy
  - Develop a comprehensive communication tool to increase access to resources
  - Prioritize communication needs

The Charter, developed in Feb. 2017, reflects the collaborative design with stakeholder investment at all levels within the organizational chart. The Founders' Advisory Committee serves as advisors on key strategic initiatives and sustainability plans. The Steering Committee provides on-going support, guidance and oversight of the STEM Ecosystem. While the Action Committees work on clearly assigned tasks and timeline aligned with goals in the strategic plan.

The Steering Committee and Action Committees consists of over 70 members with a minimum of two representatives from each of the following sectors:

- **BUSINESS & INDUSTRY**
- **INFORMAL/OUT OF SCHOOL**
- **HIGHER EDUCATION & PK-12**
  (to include both administrators & educators)
- **NON-PROFIT**
- **GOVERNMENT**
- **SCIENCE CENTERS & MUSEUM**



2017 COMMITTEE **ACCOMPLISHMENTS**

Diverse and Engaged Stakeholders Committee

- Developed and sent a survey to measure stakeholder's:
  - Level of understanding mission and goals of the STEM Ecosystem
  - Assets stakeholders can share to help in success of STEM Ecosystem
  - Stakeholders goals in participating in the STEM Ecosystem
- Increased number of stakeholders involved from 180 *(January)* to 444 *(November 2017)*

Research and Evaluation Committee

- Worked on developing a Best Practice Assessment template – a self-assessment for STEM programs to help identify their program's impact in engagement in STEM.
- Identified 10 rubric tools for program to utilize and measure quality STEM programming.

High Quality STEM Programs Committee

- Developed a document to capture STEM program mapping details i.e. location, topic, link to business/career, age, fees, etc. This document will curate content for on-line portal.
- Started mapping STEM Program pathways around business/industry needs.

Professional Development and Training Committee

- Worked on a framework model and toolkit for facilitating engagement between business and education.
- Offering Professional Development opportunities:
  - Graduate Level Class for Educators–in collaboration with Prairie STEM, UNO, Omaha's Henry Doorly Zoo and Aquarium, and STEM Ecosystem *(14 students)*.
  - Math Series
    - Math at the Aquarium – Omaha's Henry Doorly Zoo and Aquarium
    - Math at the Biomechanics Research Facility – UNO
    - Math with an Architect – BVH Architecture

Communication Committee

- Reviewed all marketing and communication pieces to assure message is compelling and clear.
- Identified model communication templates.

YEAR IN REVIEW

2017

JANUARY

Conducted Social Network Analysis – Stakeholder Connectedness

Teaching in Excellence in STEM *(TIES)* Design Studio I "Omaha STEM Attitudes, Awareness and Assets" review

FEBRUARY

Omaha STEM Ecosystem Launch
Sponsored by:
BVH & Gould Evans
Over 130 stakeholders participated

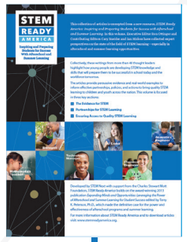
Organizational Charter adopted

STEM Ecosystem Facebook Page launched

MARCH

STEM Ecosystem Website launched

STEM Ecosystem is featured in a "STEM Ready in America" article; STEM Next: Charles Stewart Mott Foundation



APRIL

Omaha STEM Ecosystem members attend the STEM Funders Network National Conference – Tampa, FL

COMMUNITY MEMBER OF THE STEM ecosystems Cultivate. Learn. Innovate. An Initiative of the STEM Funders Network

TIES Design Studio II - Establishing Design Principles and Vision for the STEM Ecosystem

MAY

Strategic Plan draft reviewed at World Café event with over 57 stakeholders involved

Strategic Plan adopted

JUNE

NSELA Conference at Omaha's Henry Doorly Zoo and Aquarium, in collaboration with STEM Ecosystem

NATIONAL SCIENCE EDUCATION LEADERSHIP ASSOCIATION NSELA

JUNE 28 - JULY 1

Committee Chairs are selected for each of the five Action Committees

Monthly Newsletter launched

JULY

Stakeholder list grows to 353 members. Including over businesses, educators, non-profits, museums and science centers, government and families involved.

Participating in Lights ON Afterschool!

Graduate Level Course for educators in collaboration with Prairie STEM, OHDZA, UNO and Omaha STEM Ecosystem

AUGUST

SEPTEMBER

Conducted second Social Network Analysis. Results indicated an increase in STEM connectivity and diversity among stakeholders.

Ecosystem hosts two sessions - "Not Random Acts of STEM" - Building a STEM Centered Workforce

Morning session comprised of over 40 business partners discussing STEM workforce trends

Evening event, with 100 stakeholders present, highlighted key aspects of the morning discussion and the importance of developing STEM pathways to careers.

Omaha STEM Ecosystem presented at the STEM Funders Network National Conference in Kansas City - "Making Data Driven Decisions"

OCTOBER

NOVEMBER

Math Series "Math at the Aquarium" in partnership with UNO and OHDZA

Celebration of STEM Learning

DECEMBER

We Could Not Do this Without YOU!

FOUNDERS

PARTNERS

OMAHA STEM ECOSYSTEM

In the coming year,
we look forward to expanding
partnerships and collaborations
of the Omaha STEM Ecosystem,
both at the local and national
level, as we transform Omaha
into a robust STEM community
to grow our talent pipeline.