In March, University of Illinois Extension, in collaboration with Illinois Informatics Institute and Champaign-Urbana Fab Lab convened a half day workshop at the Peoria PlayHouse Children's Museum that brought together experts and leaders in science, technology, engineering, arts, and mathematics (STEAM) teaching and learning to share their ideas and recommendations for strengthening STEAM education throughout the Greater Peoria Region. More than 30 individuals, representing a wide range of expertise, contributed to this plan. These individuals were selected based on their work in the areas of learning sciences, equity and access, preschool through 12th grade education, education technology, afterschool and informal STEAM learning and community networks of learning. This report synthesizes the key observations, considerations, and recommendations put forth by the workshop participants.

Building on the priority to support science, technology, engineering, arts, and mathematics (STEAM) education, which is reflected in numerous programming and outreach efforts within the Greater Peoria region, the group embraced the following core visions of impact:

Engaging in STEAM educational activities provides youth with opportunities to foster critical thinking skills and inspires young people to engage in innovative learning experiences, which can also help:

1. *Lead to improved high school graduation rates.*
2. *Develop creative problem solving skills sets among our future workforce*
3. *Develop collaborative skill sets among our youth.*

The complexities of today's world require all people to be equipped with a new set of core knowledge and skills to solve difficult problems. Engaging in STEAM learning activities helps develop these skills and prepare students for a workforce where success results not just from what one knows, but what one is able to do with that knowledge. The Greater Peoria Region is very fortunate to have a great number of individuals and organizations willing to engage in strengthening STEAM education for the region.

The goals set forth through this planning process largely focus on strategies that will allow us to leverage and strengthen our 'communities of practice'. Building a truly engaged community of practice will draw upon the knowledge, tools, resources and expertise of many to create rich STEAM teaching and learning experiences, in and outside formal school settings.

GOAL 1: Build an Engaged and Networked Community of Practice *focused on STEAM education*

GOAL 2: Develop a Social Marketing Campaign – highlighting the relevance and value of STEAM education for our region

GOAL 3: Expand volunteer engagement in STEAM educational programming.

The contributors to this planning process acknowledge that developing and achieving a forward-thinking approach to STEAM education is a complex and evolving task. The project team and contributors expect and trust that the vision described here will be revised and refined as new knowledge, evidence and experiences are gained in the process of pursuing these goals.

Participants

Jay	Babin	River City Labs
Brent	Baker	Greater Peoria EDC
Courtney	Baxter	Peoria PlayHouse Children's Museum
Lorie	Becraft	East Peoria Community High School
Lisa	Bievenue	Illinois Informatics/C-U Fab Lab
Kathie	Brown	Community & Economic Development Educator University of Illinois Extension
Joanna	Carroll	Tech Coach Princeville School District
John	Closen	Illinois Computing Educators (ICE)
Patrick	Durley	Regional Office of Education - Tazewell
Shawn	Edwards	Peoria Heights Library
Kervin	Evans	National Center for Agricultural Utilization Research
Randon	Gettys	Greater Peoria Greater Peoria EDC
Jen	Gordon	Arts Partners
Matthew	Hagaman	Bradley Center for STEM Education
Jennie	Hawkey	East Peoria Community High School
Amber	Heffner	Illinois Computing Educators
Rebecca	Herz	Peoria Playhouse Children's Museum
Xavier	Horton	Central IL NSBE Jr and Girls Who Code
Jeff	Kena	Regional Office of Education - Tazewell
Timothy	Koch	First Robotics
Eileen	Leunig	Youth Arts Programming
Doug	Leunig	Youth Arts Programming
Christiana	McDaniel	Bradley University
Julie	Reyer	Bradley University - Mechanical Engineering Associate Dean for External Affairs
Judy	Schmidt	4-H Youth Development - Metro Educator University of Illinois Extension
Emily	Schoenfelder	4-H Youth Development Educator University of Illinois Extension
Molly	Schumacher	National Center for Agricultural Utilization Research
Kristi	Short	Peoria Heights Library
Ursula	Towne	Society of Women Engineers
Laura	Turner	Caterpillar STEM Library
Hosea	Washington	National Center for Agricultural Utilization Research
Anita	Wilkinson	Communications - Program Coordinator University of Illinois Extension

Asset Mapping

Organizations	Places
American Chemical Society	Bradley University, Center for STEM Education
ASCE(American Society of Civil Engineers) - Bridge Building	Bradley University, College of Engineering
ASM (American Society of Microbiology)	Caterpillar Innovation Accelerator
ASQ (American Society for Quality)	Common Place
Bradley University - Student Clubs	Community Centers
Engineering Associations	CoMo Indiana - Maker Space
First Robotics	CU Community Fab Lab
GP Pathways	DePaul University - Idea Realization Lab
Greater Peoria EDC	Dream Center
Horizons Club -Peoria Public Schools	East Bluff Community Center
Illinois Math and Science Academy	ICC (Illinois Central College)
Librarians	JUMP Simulation
Park District	Libraries
Peoria Academy of Science Geology Section	National Center for Agricultural Utilization Research
School Districts	Neighborhood House
Skills USA	Peoria Children's Playhouse Museum
SME (Society of Manufacturing Engineers)	Peoria Riverfront Museum
Society for Women Engineers	Proctor Recreation Center
Sun Foundation	RCL 2.0 (River City Labs)
Tri-County Urban League	Real Tools
University of Illinois Extension	Regional Office of Education
	River City Labs
	Wildlife Prairie Park
Events	
IGNITE - August	
4G STEM Camp - Summer	
BIG Picture Arts Festival – October, 2018	
Bradley Best – Summer	
Clean Water Celebration – Earth Day	
First Robotics - Ongoing	
Manufacturing Expo – October 2-3, 2018	
STEAM TREK	
STEM Boot Camp – April 2018	
Teacher Tuesdays – First Tuesday of Month	
Teen Teacher Trainings	
UIUC GAMES Camps - Summer	

SWOC Worksheet

Internal Factors – Strengths and Weaknesses

Evaluating strengths and weaknesses explores the internal factors that may have an effect on your community or organization. Focus on factors that your organization can change. To describe your strengths and weaknesses explore the following resources: 1. Human capital, strong leadership base, skilled and knowledgeable workforce, availability of job skills or other training programs; 2. Organizational capital -- Networks of organizations working toward common goals; 3. Financial resources -- Adequate access to capital; and 4. Local infrastructure -- Evaluation of road infrastructure, telecommunications infrastructure.

Strengths	Weaknesses
• Lots of extra-curricular programming • Level of interest for STEAM • Connections • Cognitive diversity • Community	• Branding STEAM • Not viable as region • Competition for resources • Human Capacity • Funding • Silos- need for multi levels of expertise • Transportation • Parental engagement

Opportunities

- Grow connections – strengthen collaboration among organizations and school districts
- Cross-promotional outreach opportunities share knowledge/tools
- Share across region – ideas/resources
- Build a database of resources and expertise
- Integration of STEAM/STEM into our lives
- IGNITE – Outreach launch event
- Grant proposal development
- Training mentors/coaches
- Cross – training
- Parent/child engagement

Challenges

- How to coalesce capacity
- Getting connections together
- Assessment mindset
- State policies to support STEAM
- K-12 > College alignment
- Ideation vs execution
- Funding
- Collecting information – communication

External Factors – Opportunities and Challenges

Evaluating opportunities and threats explores the external factors that may shape your community or organization. These are forces that your organization cannot change. To describe opportunities and challenges focus on: 1. Markets -- Change in global markets, Internet impact on local markets, changing profiles of customer demand (aging baby boomers, etc.); 2. Government Policy -- trade policies, trade policy impact on sales of agricultural products, Nature of government investment/loan programs, economic development investment programs; and 3. Competition for Local Resources -- Community support for your programs, Other community initiatives that compete for resource available for your programs.

The day's planning discussion included a series of questions and activities all designed to help us build a regional focus to support science, technology, engineering, arts, and mathematics (STEAM) education. In addition to looking at regionally assets to support this work, we also sought to identify core values that are driving our actions by asking the following questions.

Economic & Workforce Development (EWD)	**Citizenship & Civic Engagement (CC)**	**Competencies & Literacies (CL)**
What kinds of visions of impact are referenced in talk about STEAM education?		

Technological, Social & Scientific Innovation (TSS)	**Equity & Social Justice (ESJ)**	**School Reform & Improvement (SRI)**	**Personal Agency, Joy & Fulfillment (PJA)**

- Do we have a healthy mix of visions as a community?
- Who is involved in determining our visions? How can we make visioning processes inclusive?
- Do our visions match our context and our community's needs?
- How are we communicating about our visions when we talk about what we do?
- How are we aligning visions to implement?

We should teach STEAM Because … 1…there is a shortage of engineers and programmers and we need to fill it. (EWD)	**We should teach STEAM Because …** 2…it will strengthen our local economy by attracting companies looking for technologically competent workers. (EWD)	**We should teach STEAM Because …** 3…being a good citizen in the 21st century will include digital citizenship. (CC)
We should teach STEAM Because … 4…informed citizens need to understand the basics of how the technological world works in order to contribute productively to society as a whole. (CC)	**We should teach STEAM Because …** 5…it promotes 21st century skills like creativity, collaboration, and communication. (CL)	**We should teach STEAM Because …** 6…being involved in creating technologies can give confidence in dealing with complex, open-ended problems and persistence in the face of challenges. (CL)
We should teach STEAM Because … 7…being able to understand and make technologies gives kids power and agency. (PJA)	**We should teach STEAM Because …** 8…creating new technologies like apps, websites or robotics is fun! (PJA)	**We should teach STEAM Because …** 9…the more people we have that understand computer science, the more innovations and new knowledge we can produce as a society.(TSS)
We should teach STEAM Because … 10…we need to produce scientific and technological innovations that solve "wicked" problems such as climate change or 'runaway" technologies. (TSS)	**We should teach STEAM Because …** 11…there are major disparities in young women's engagement in STEM fields and universal CSED is part of addressing that. (ESJ)	**We should teach STEAM Because …** 12…it will level that playing field and help close the 'digital divide' and 'participation gap' around tech for lower income youth. (ESJ)
We should teach STEAM Because … 13…teaching CS is a compelling new area that teachers are interested in and is a place where they can experiment with pedagogy. (SRI)	**We should teach STEAM Because …** 14…CSed often uses project-based approaches that can enhance school pedagogy and move away from sage on the stage approaches. (SRI)	**We should teach STEAM Because …** _____ _____

- *Areas of greatest importance to the region are shown in shaded boxes above.*

Goal and Objective Worksheet

GOAL 1: Build an Engaged and Networked Community of Practice focused on STEAM education.		
Objective 1:	Develop a database of organizations and key contacts.	Resources – ICE google doc
Objective 2:	Develop a comprehensive calendar of STEAM events for the region.	Resources – Arts Partners Calendar Tim Koch's CAT database
Objective 3:	Develop teamed approach for collecting and updating information. i.e. libraries, museums, ROE etc.	Resources
Objective 4:	Host quarterly coffee or networking session, just for the purpose of providing programming updates and facilitating collaboration among organizations.	Resources
Objective 5:		Resources
Objective 6:		Resources
GOAL 2: Develop a Social Marketing Campaign – highlighting the relevance and value of STEAM education for our region.		
Objective 1:	Build awareness for a broad cross-section of stakeholders – highlighting existing resources and opportunities for engagement.	Resources – Simental, Bradley University, ICC, High Schools
Objective 2:	Improve on the level of connectedness among organizations and individuals to enhance learning experiences for everyone in the community.	Resources
Objective 3:	Highlight the level of talent, community engagement and business contributions that currently exists and is contributing towards development of our "Maker City" ecosystem.	Resources
Objective 4:	Empower youth to be active partners in design and implementation of a STEAM Social Marketing Campaign.	Resources

Objective 5:	Create partnerships and a safe place for youth – 'APSCO' Web Club	Resources
Objective 6:		Resources
GOAL 3: Expand volunteer engagement in STEAM programming.		
Objective 1:	Develop volunteer incentives – to sustain volunteer engagement. Consider a badging system and other volunteer recognition strategies.	Resources
Objective 2:	Develop succession planning for volunteer roles – identify mentors and cross-training opportunities to support ongoing programming goals.	Resources
Objective 3:	Develop a technical volunteer database.	Resources
Objective 4:	Develop strategies to overcome transportation barriers.	Resources
Objective 5:	Create opportunities that support parent/child engagement.	Resources
Objective 6:		Resources

Timeline

Activity	Duration	Completion Date	Person Responsible	Completed
1. Develop a database of organizations and key contacts	April	Ongoing Quarterly review & update		❑
2. Form teams to expand development of database – libraries, arts, schools, out of school youth programming	April			❑
3. Host a networking session to further refine organizational database and engage STEAM Community of Practice	April, 2018 **Quarterly –** July, October, January, March		Host locations will be identified for the year.	❑
4. Explore strategies for developing a social marketing campaign.	April, 2018			❑
5. Develop a comprehensive calendar of STEAM Events for the region.	May, 2018			❑
6. Develop a volunteer database – identifying ways individuals can support programming.	Summer, 2018			❑
7. Develop social marketing campaign	Summer, 2018			❑
8.				❑
9.				❑
10.				❑
11.				❑
12.				❑
13.				❑
14.				❑

Notes