

# Field Building Collaborative Strategic Actions

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## Field Building Collaborative Strategic Actions

### ***Introduction***

The following document represents our process and Shared Vision deliverables for the NSF INCLUDES planning grant proposal: Exploring a Collaborative Model for Broadening Participation in STEM through Digital Fabrication and Making.

The Field Collaborative was created after our organizations (Fab Foundation, Maker Ed, Digital Promise, Citizen Schools and Fab Learn) recognized our shared priorities around maker and digital fabrication education. Through a series of meetings, convenings and workshops, we seek to explore the challenges related to creating inclusive and equitable high-quality STEM learning environments through maker and digital fabrication education.

These organizations represent varied stakeholders across the educational space, and by working together we will be better able to address systemic barriers to participation in making and digital fabrication.

Each organization has agreed to these key provocations:

- significant and impactful changes are possible if we commit to boldly doing this work together, to moving in formation, despite where we individually are
- anything is possible when we move toward expansion, sustenance, visioning and move away from protecting and defending, only and
- there are personal changes, behaviors, beliefs that need to shift inside of me. I have work to do.

Together, the FBC organizations have over 20 years of experience and can offer expertise in the areas of professional development, community engagement, consulting and design, and direct services to youth and can provide mentorship to each other, and the larger K-12 maker community in needed areas of growth.

As six organizations that are collectively a national and internationally respected network of networks, the FBC has the potential to reach educators and makerspace organizations of all kinds and make change at a strategic scale.

As a group of independent organizations using a wide range of entry points into maker and digital fabrication learning, together the FBC offers students and educators a full spectrum of access points and a continuum of learning.

Our goal during the NSF INCLUDES planning grant was to identify the focus areas and assets of the Field Building Collaborative organizations, and use them to shape a set of strategies to execute and offer to the field of digital fabrication and maker learning to broaden participation for underserved communities.

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Ultimately, we'd like to create a shared vision and action plan in collaboration with other stakeholders in education to ensure that all voices are represented and that we are designing a holistic approach that will empower all students.

***Deliverables and Activities***

The Shared Vision deliverables for our NSF INCLUDES grant included:

- For partners to have clarity and coherence around the vision for digital fabrication and making for All K-12 learners to engage in STEM
- For partners to develop a collective understanding and strategy for addressing underserved K-12 student populations in digital fabrication and making
- For underserved K-12 communities in STEM to be accounted for in the planning and execution of digital fabrication and making strategies and services
- A strategic plan of action that is carried out within each organization and as a collective field
- A set of agreed upon strategies that recognize existing funds of knowledge of learners, to be used in each organizations projects and programs
- A shared definition of equity, and mapping and analysis of current programming for underserved STEM communities

The following FBC activities map to the Shared Vision deliverables:

<b>Shared Vision Deliverable</b>	<b>FBC Activities</b>
<ul style="list-style-type: none"> <li>● FBC clarity and coherence around the vision for All K-12 learners to engage in STEM through digital fabrication and making</li> </ul>	<ul style="list-style-type: none"> <li>● FBC member ideation sessions and workgroup meetings.</li> <li>● A Day One policy recommendation document.</li> </ul>
<ul style="list-style-type: none"> <li>● FBC collective understanding and strategy for addressing underserved K-12 student populations in digital fabrication and making</li> <li>● A strategic plan of action that is carried out within each organization and as a collective field</li> </ul>	<ul style="list-style-type: none"> <li>● A defined set of strategic actions for FBC members to promote in support of broadening the participation of underserved K-12 student populations.</li> </ul>
<ul style="list-style-type: none"> <li>● A set of agreed upon strategies that recognize existing funds of knowledge of learners, to be used in each organizations projects and programs</li> <li>● For underserved K-12 communities in STEM to be accounted for in the planning</li> </ul>	<ul style="list-style-type: none"> <li>● The development of organizational profiles that highlight the strengths and growth areas for each FBC member.</li> <li>● Best practice sharing workgroups that match members with strengths with members desiring growth opportunities.</li> <li>● A shared learning experience for FBC</li> </ul>

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<p>and execution of digital fabrication and making strategies and services</p>	<p>members about an equity based approach to communications and storytelling</p> <ul style="list-style-type: none"> <li>● Develop a set of materials, resources and content that can be shared more broadly with the community which reflect this equity based approach</li> <li>● Support members to review their current communications from a foundation of equity and justice.</li> </ul>
<p>A shared definition of equity, and mapping and analysis of current programming for underserved STEM communities</p>	<ul style="list-style-type: none"> <li>● Workshops and coaching with AORTA to ;Learn and work with a tool that can help us identify areas where inequity impacts our work, begin to map ways that our collective of organizations and field can intervene with inequity as it shows up in our work, and envision bold possibilities for our network and collaborative building</li> </ul>

The Field Building Collaborative’s first priority was to engage in a shared learning experience through a series of equity and anti-racism workshops. In partnership with AORTA, the FBC members were able to learn and identify how oppression and inequitable practices impact our work. The FBC moved from this series of workshops to a mapping process to uncover our current strengths and opportunities for growth.

***Mapping Process***

We prioritized the identification of each organization’s strengths and assets and opportunities for growth. This data supports a vision for the engagement of key stakeholders in the collective action of ensuring maker centered learning and digital fabrication for all K-12 students.

The mapping process included a survey, three facilitated discussions, and the development of organization profiles. This process coupled with our AORTA training led us to a set of strategic actions for our organizations to promote, test, and share with educators and other stakeholders.

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*Growth Opportunities*

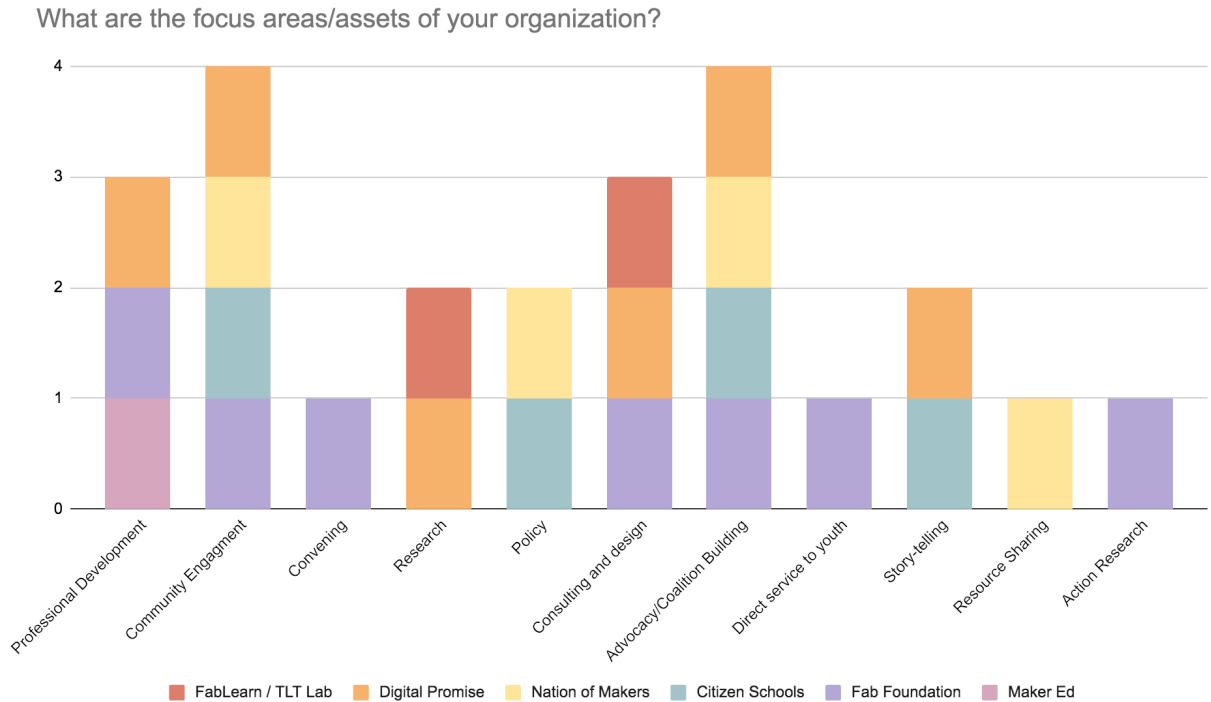
The data from the survey highlighted potential partnerships within the FBC. We found that each organization had a specific strength that could support another organization in a self-identified growth area. One commonality among the growth opportunities was a focus on Race, Equity, Diversity, and Inclusion. The chart below illustrates a theme related to the growth opportunity of each organization and a potential partner for each organization within the collaborative.

<b>Organization Name</b>	<b>Theme</b>	<b>Potential Partner</b>	<b>Theme</b>	<b>Potential Partner</b>
<b>Maker Ed</b>	Research	Digital Promise, FabLearn	Storytelling	Citizen Schools, Digital Promise
<b>Fab Foundation</b>	Community Engagement	Fab Foundation, Citizen Schools, Nation of Makers, Digital Promise	Race, Equity, Diversity and Inclusion	AORTA
<b>Citizen Schools</b>	Community Engagement	Fab Foundation, Citizen Schools, Nation of Makers, Digital Promise	Race, Equity, Diversity and Inclusion	AORTA
<b>The Fab Foundation</b>	Race, Equity, Diversity and Inclusion	AORTA		
<b>Nation of Makers</b>	Coalition Building	Fab Foundation, Citizen Schools, Digital Promise		
<b>Digital Promise</b>	Race, Equity, Diversity and Inclusion	AORTA		
<b>FabLearn / TLT Lab</b>	Research	Fab Foundation, Maker Ed	Race, Equity, Diversity and Inclusion	AORTA

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### *Focus Areas/Assets*

The chart below illustrates the range of focus areas and assets within the FBC. These categories and the work that each organization is engaged in brought us to our strategic actions. Our Mapping workgroup led the synthesis of these actions with feedback from the group on each iteration.



### **Shared Strategy**

The mapping survey results identified four initial shared strategies. These strategies included professional development, community engagement, advocacy, and storytelling. The following descriptions offer some insight into the FBC approach.

#### *Professional Development*

Members of the Field Collaborative will promote and support professional development for educators interested in digital fabrication technologies and maker-centered learning, in order to ensure that youth from marginalized communities feel safe and supported in makerspaces. By focusing on inclusion and access for underrepresented groups, the Field Collaborative hopes that youth will feel more supported, encouraged, and excited about pursuing educational opportunities in STEM fields. Member organizations will also promote and provide resources for educators to develop and implement STEM outreach that prioritizes the voices and participation of youth who are BIPOC, living with disabilities, and/or LGBTQ.

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### *Community Engagement*

The Field Collaborative acknowledges that community members are the best experts on their own learning conditions, and many engage in a wide range of making and technology adoption practices. Member organizations will strive to involve educators and learners in the development and design of policy and programs as early as possible. Organizations will also aim to convene a wide diversity of stakeholders, while always considering equity as a guiding principle.

- Stakeholders might include: higher education institutions, K-12 schools and organizations, non-profits, museums, libraries, companies, and policymakers
- Stakeholders represent a variety of ethnicities, states, learning environments, age ranges, genders, and abilities, prioritizing the participation of teachers and learners with multiple intersecting marginalized identities.

### *Policy/Advocacy/Coalition Building*

Members of the Field Collaborative will advocate for support for the maker education movement, either through encouraging adoption of new educational policies, or funding for makerspaces and maker-centered programs. As part of this advocacy work, FC members will regularly convene with each other to define shared goals and move them from vision to reality.

### *Storytelling*

Field Collaborative member orgs commit to documenting and sharing the progress of stakeholders involved in maker-centered learning and digital fabrication. Sharing stories of success around transformative teaching and learning helps provide blueprints for best practices and re-invigorates commitment to equitable participation of all youth in maker and digital fabrication learning .

### ***Priorities and Actions***

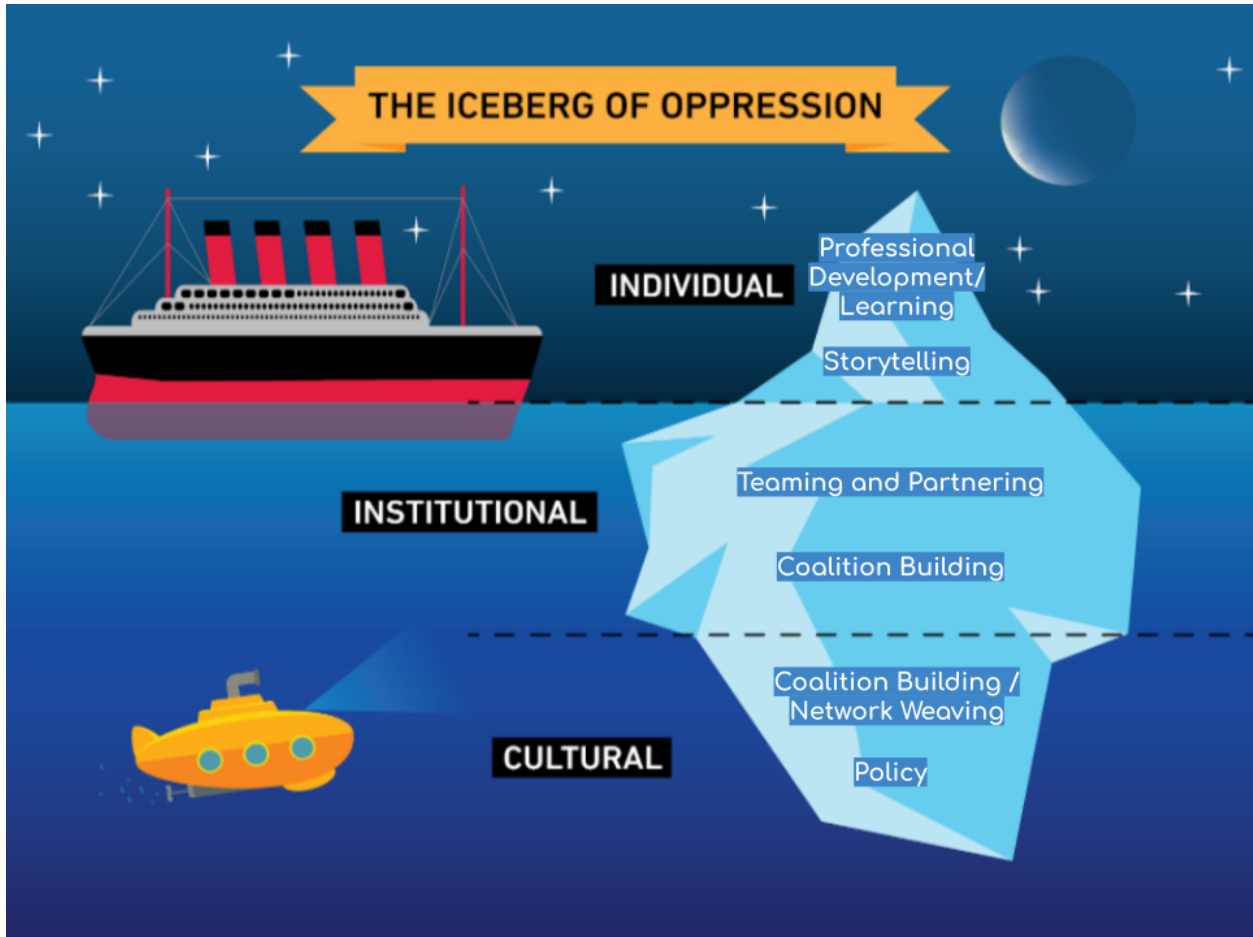
Through a series of discussions, these strategies were further refined and reorganized into strategic priorities and actions.

Our strategic priorities are advocacy and community engagement. Through an equity lens we are committed to addressing change and co-creating interventions at the personal, institutional, and systems levels. Our shared advocacy work includes action around policy, coalition building and storytelling. Our desire is to create both understanding and scalable actions for stakeholder driven participation. Community engagement is focused on supporting stakeholder specific needs which acknowledges their range of strengths and limitations. This includes professional development and learning, partnering, and network weaving as tactics for growth and change.

A visual representation/metaphor of this approach is what AORTA refers to as the Iceberg of Oppression, and the tactics included in our strategic priority areas are intended to serve as catalysts for addressing these levels of inequities. The Iceberg of Oppression model is based on anthropologist Gary Weaver's work on cross cultural orientation. The image of the iceberg illustrates those individual and collective shared practices that are both above and beneath the water. Helping us to contextualize them at various levels.

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As a collaborative, our strategic actions intend to address the challenge of broadening participation at each level. The chart below illustrates how the FBC is working on advocacy and community engagement at each level of structural oppression.



<b>Advocacy</b>	<b>Community Engagement</b>	<i>Equity</i>
Storytelling	Prof Development/Learning	<i>Individual/</i>
Coalition building	Teaming & Partnering	<i>Org/Institutional</i>
Policy	Coalition building/Network Weaving	<i>Systems/Cultural</i>

Specifically, the FBC is initially investing our shared resources at the personal level of equity building work. Through professional development we will support educators with the integration of maker-centered learning and digital fabrication literacy and technologies, a focus on STEM outreach that prioritizes the voices and participation of youth who are BIPOC, living with disabilities, and/or LGBTQ.



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In our collective advocacy work, we will improve our own communications through storytelling technique and practices. FBC members commit to documenting and sharing the progress of stakeholders involved in maker and digital fabrication learning. We believe that sharing stories of success around transformative teaching and learning helps provide blueprints for best practices and re-invigorates commitment to equitable participation of all youth. This is also essential to advocate for the expansion and adoption of policies and funding that support maker-centered learning and digital fabrication literacy and technologies.

Our outreach to the maker and education community will be featured on a website where we will demonstrate and test strategies and tactics. Our plans for engagement and continuous improvement will include a series of feedback loops and other opportunities for input.

As an ongoing strategy to move from our initial learning and focus to sustainable practices that permeate the work of the FBC and our individual member organizations, best practice workgroups will continue to be used as an opportunity to strengthen all of our member organizations. This approach will also allow for us to continue to nurture our group dynamics as we team and partner to broaden participation for all K-12 students in STEM.