DESIGNING FOR EQUITY
Programme & Activity Design

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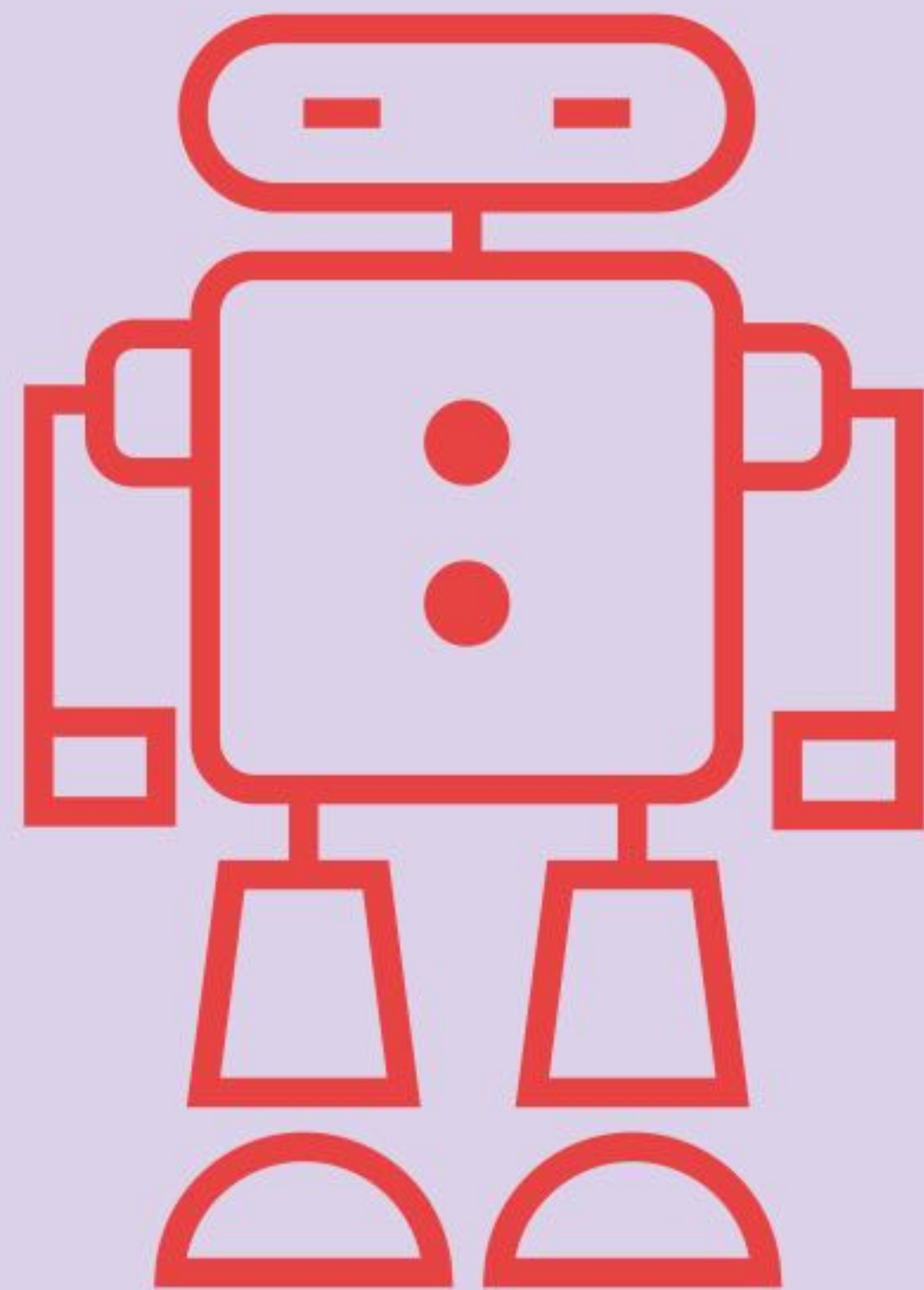# IGNITE CREATIVITY & DISCOVERY WHERE SCIENCE & ART COLLIDE

EXHIBITIONS
EVENTS
LEARNING & RESEARCH

RESEARCH & PRACTICE
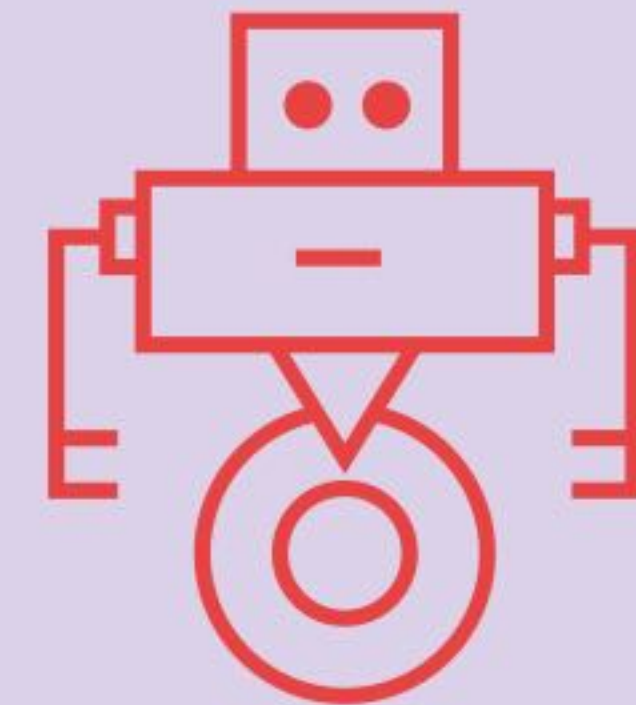
LIFELONG, LIFE-WIDE, LIFE-DEEP LEARNING

LEARNING ECOLOGY MODEL

SCIENCE
LEARNING
OUTSIDE
THECLASSROOM

SY
STEM
2020

Map current informal learning structures across Europe

1175 STE(A)M organisations layed out by: GEO LOCATION

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SYSTEM 2020

SCIENCE LEARNING OUTSIDE THECLASSROOM
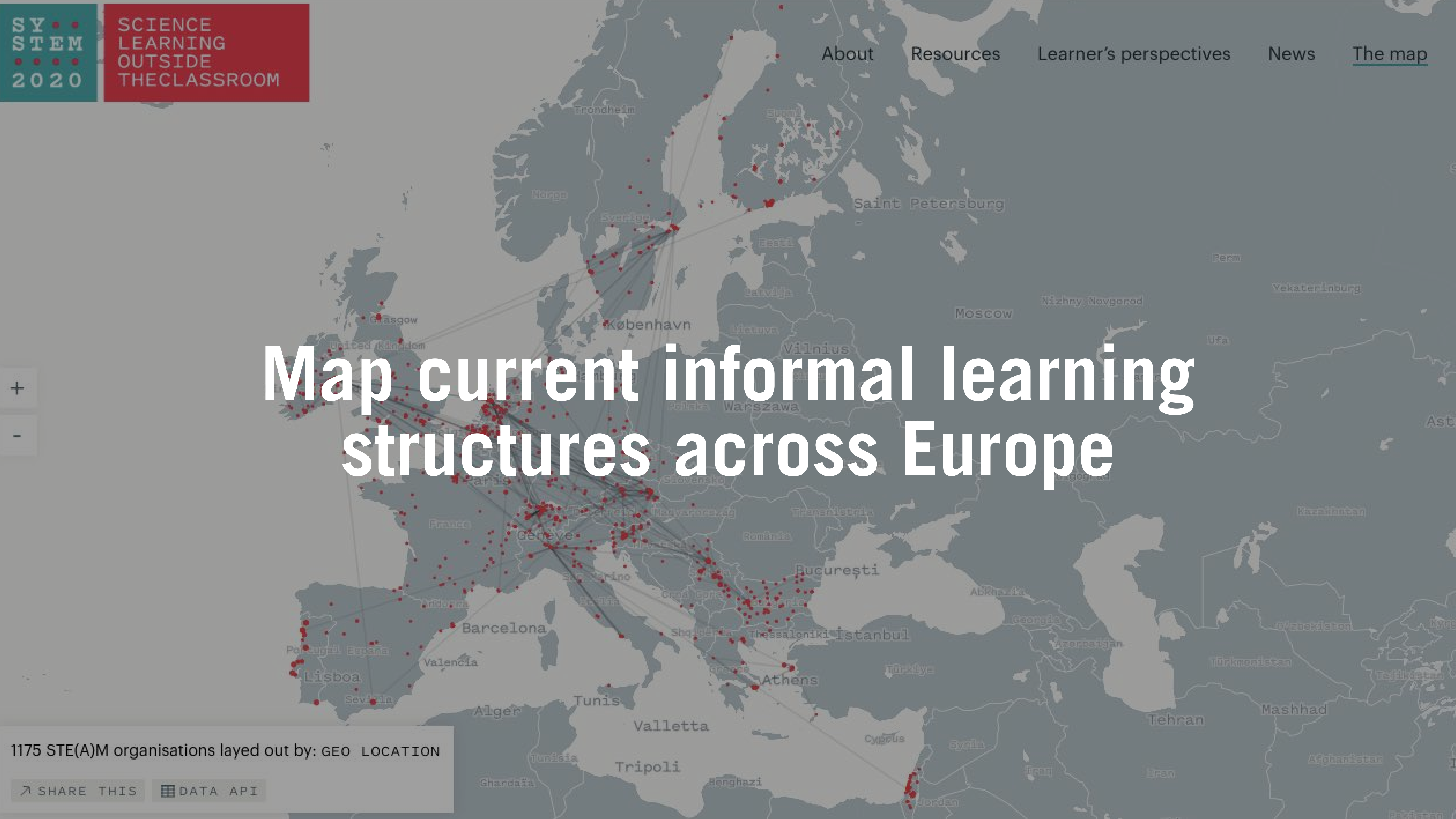
Design a framework for inclusive informal science education

PLANNING & IDEATING

- Make it accessible
- Make it engaging
- Embrace diversity

LONG-TERM ENGAGEMENT

- Build pathways
- Support identity building

FACILITATING

- Be inclusive
- Build a community
- Inspire & motivate

GROWING & IMPROVING

- Promote learner autonomy
- Evaluate your practice

PLANNING & IDEATING

- Make it accessible
- Make it engaging
- Embrace diversity

Make it Accessible
Build on what people know
Make scientific content tangible
Show relevance of science
Make science playful

Embrace Diversity
Show how diverse scientists are
Make room for diverse interests and activities
Bridge disciplines and cross borders

Make it Engaging
Trigger positive emotions
Build on personal interests
Encourage open-ended exploration

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FACILITATING

- Be inclusive
- Build a community
- Inspire & motivate

Be Inclusive
Develop culturally responsive practices
Foster meaningful participation
Adapt to participants' needs

Inspire & Motivate
Trigger learners' active involvement
Guide learning instead of teaching
Foster learners' self-confidence

Build a Community
Encourage sharing & collaboration
Support flexible role-taking
Use the space as the third teacher

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LONG-TERM ENGAGEMENT

- Build pathways
- Support identity building

Build Pathways
Create continuity between the activites
Provide multiple entry points
Build bridges between different learning environments

Support Identity Building
Connect learners to multiple communities
Recognise learners' achievements
Raise awareness of possible futures

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- Make it accessible
- Make it engaging
- Embrace diversity

LONG-TERM ENGAGEMENT
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FACILITATING
- Be inclusive
- Build a community
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GROWING & IMPROVING
- Promote learner autonomy
- Evaluate your practice

GROWING & IMPROVING

- Promote learner autonomy
- Evaluate your practice

Promote Learner Autonomy
Foster transversal competencies
Support learners' self-assessment
Encourage risk taking

Evaluate Your Practice
Set goals
Monitor progress
Reflect on your practice

ACTIVITY
Align yourself with one of four groups:

PLANNING & IDEATING (Autumn)

FACILITATING (Mairéad)

LONG-TERM ENGAGEMENT (Joanna)

GROWING & IMPROVING (Shaun)

ACTIVITY

Your group is tasked with designing an activity for a target audience.
You must tick the boxes for each of the Design Principles for your group
Eg: Autumn's group must design an activity which:

- is accessible
- is engaging
- embraces diversity

….and you must be able to explain how and why it will achieve each goals, or the barriers and obstacles to reaching them*

If you reach all the goals for your group, think about the other three categories of Design Principles

*Think about approach rather than depth of content. Forget about practicalities like budget!

WEEKLY AFTER SCHOOL CLUB

SUMMER CAMP

LOCAL LIBRARY

MOBILE TRUCK VISITING SCHOOLS

PERMANENT PUBLIC SCIENCE CENTRE / MUSEUM / GALLERY

ONE-OFF INTERVENTIONS AT LARGE FESTIVALS / PUBLIC EVENTS

Space for 8-12 year olds

Artificial Intelligence for 15-18 year olds
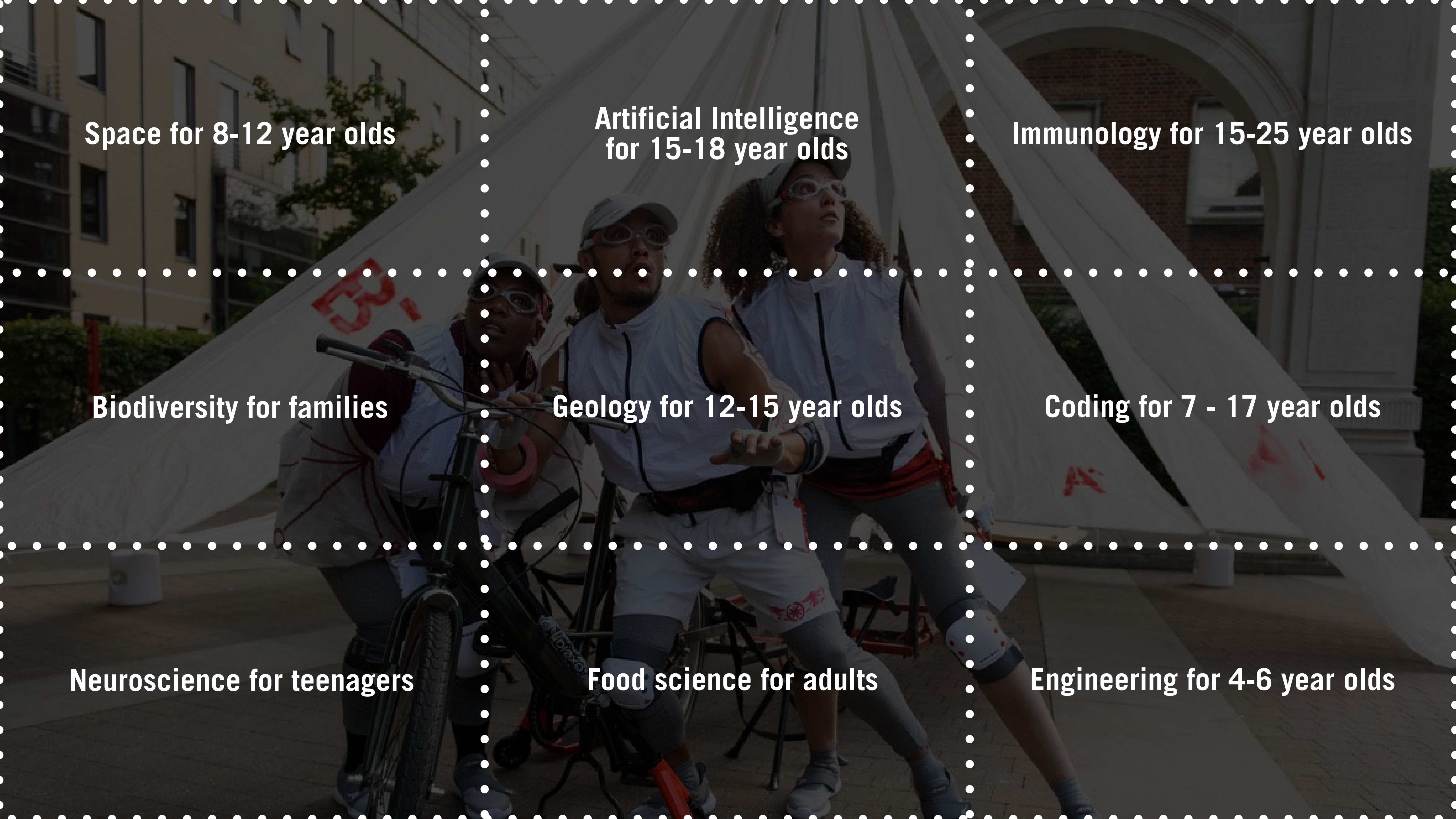
Immunology for 15-25 year olds

Biodiversity for families

Geology for 12-15 year olds

Coding for 7 - 17 year olds

Neuroscience for teenagers

Food science for adults

Engineering for 4-6 year olds

ACTIVITY
Align yourself with one of four groups:

PLANNING & IDEATING (Autumn)

FACILITATING (Mairéad)

LONG-TERM ENGAGEMENT (Joanna)

GROWING & IMPROVING (Shaun)

Setting & Target Audience:

Challenge:

Goal #2 & how to meet it:

Proposed activity:

Goal #1 & how to meet it:

Goal #3 & how to meet it:

Setting & Target Audience:

Science Centre / Museum / Gallery

Artificial Intelligence for 15-18 year olds

Challenge:

Facilitating

Goal #2 & how to meet it:

Build a community:

Encourage sharing & collaboration by structuring group projects where participants must try out different roles, eg coder, engineer, design, marketing

Proposed activity:

Series of Saturday afternoon workshops on AI, machine learning, robotics and ethical issues

Goal #1 & how to meet it:

Be inclusive:

Build a culturally responsive practice by including a robotics workshop with a story-telling element based on folk tales from participants ethnic backgrounds....
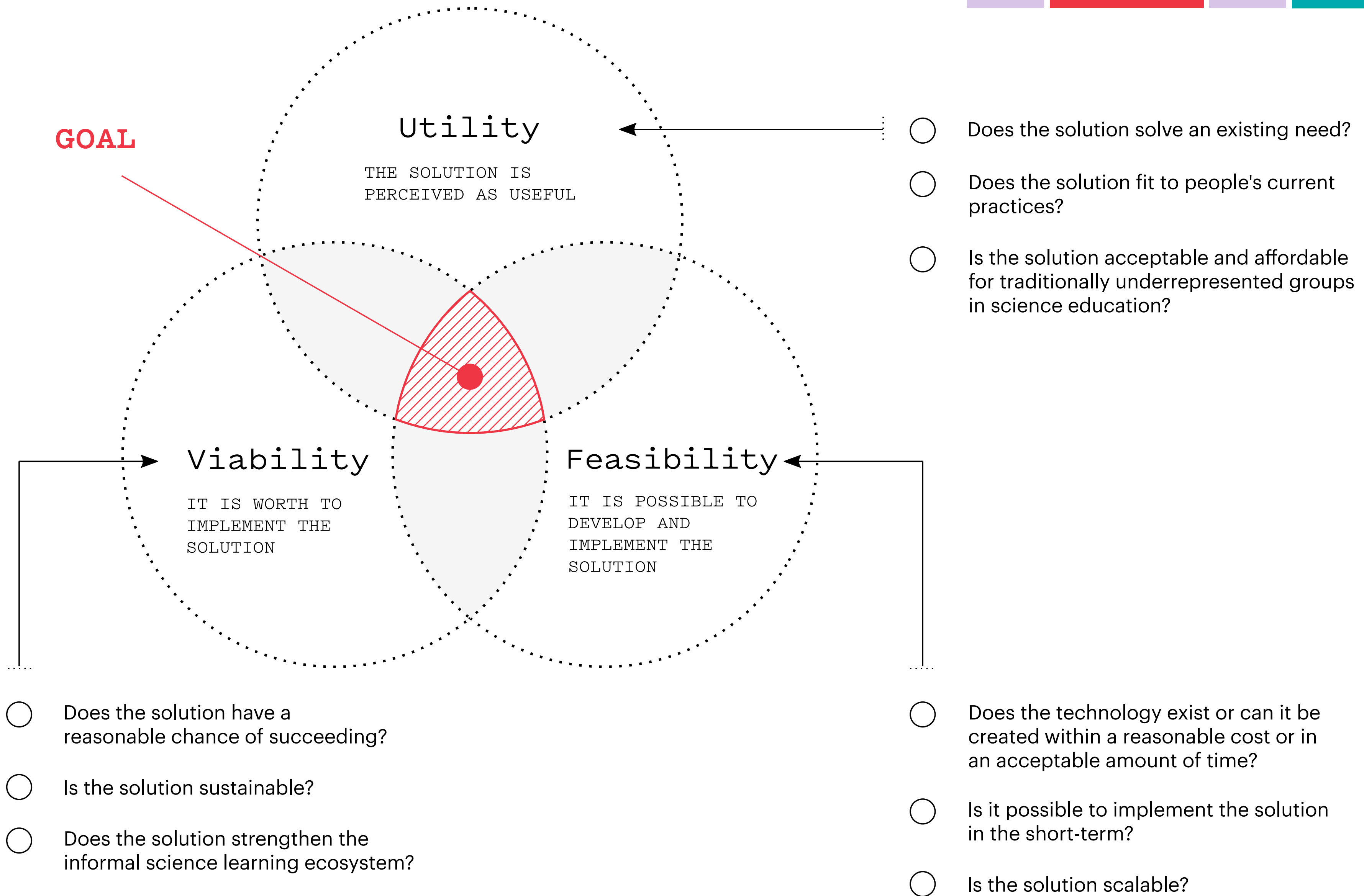
Goal #3 & how to meet it:

Inspire & Motivate:

Train facilitators in roles in which they will guide instead of teach - asking questions, being a critical friend, supporter of learning, demonstrator....

SHARE BACK & DISCUSSION

Assessing the design solutions

Utility

THE SOLUTION IS
PERCEIVED AS USEFUL

GOAL

Viability

IT IS WORTH TO
IMPLEMENT THE
SOLUTION

Feasibility

IT IS POSSIBLE TO
DEVELOP AND
IMPLEMENT THE
SOLUTION

○ Does the solution solve an existing need?

○ Does the solution fit to people's current practices?

○ Is the solution acceptable and affordable for traditionally underrepresented groups in science education?

○ Does the solution have a reasonable chance of succeeding?

○ Is the solution sustainable?

○ Does the solution strengthen the informal science learning ecosystem?

○ Does the technology exist or can it be created within a reasonable cost or in an acceptable amount of time?

○ Is it possible to implement the solution in the short-term?

○ Is the solution scalable?