

# Integrate user perspectives into your R2O pipeline to improve impact

CIROH DevCon  
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# Acknowledgement

Photo by  
[Ashton Morris](#)  
on [Unsplash](#)



# Agenda

**5 min** – Welcome / introductions

**20 min** – Small group discussion & share out  
Discussion (10 min)  
Share out (10 min)

**40 min** – Presentation

- Why it matters & benefits
- Tools for your User Integration Toolbox

**25 min** – Small group reflections

Reflect on a key audience that you want to engage

- Develop 3-5 questions you could answer with audience insights that could accelerate R2O.
- Are there any new approaches you will try?



# Learning Outcomes

**Understand key audience insights from previous and ongoing CIROH social science projects** to improve your research to operations pipeline.

**Learn about a range of audience research methods**, which you can implement yourself, and how to seek collaboration.



**Your Turn!**

## **Small Group Discussion 1**

- Who are key audiences that you engage with?
- What approaches have worked for you?



Sharing



# Why it Matters!

## Valid

- Reveal hidden operational pitfalls and user needs
- Groundtruth outputs and explain findings
- Iterative and responsive approach

## Relevant

- Identify and solve problems in relevant context
- User centered design - lived experience is an important design consideration
- Diversity as critical to innovation
- Participants feel heard, connections created

## Actionable

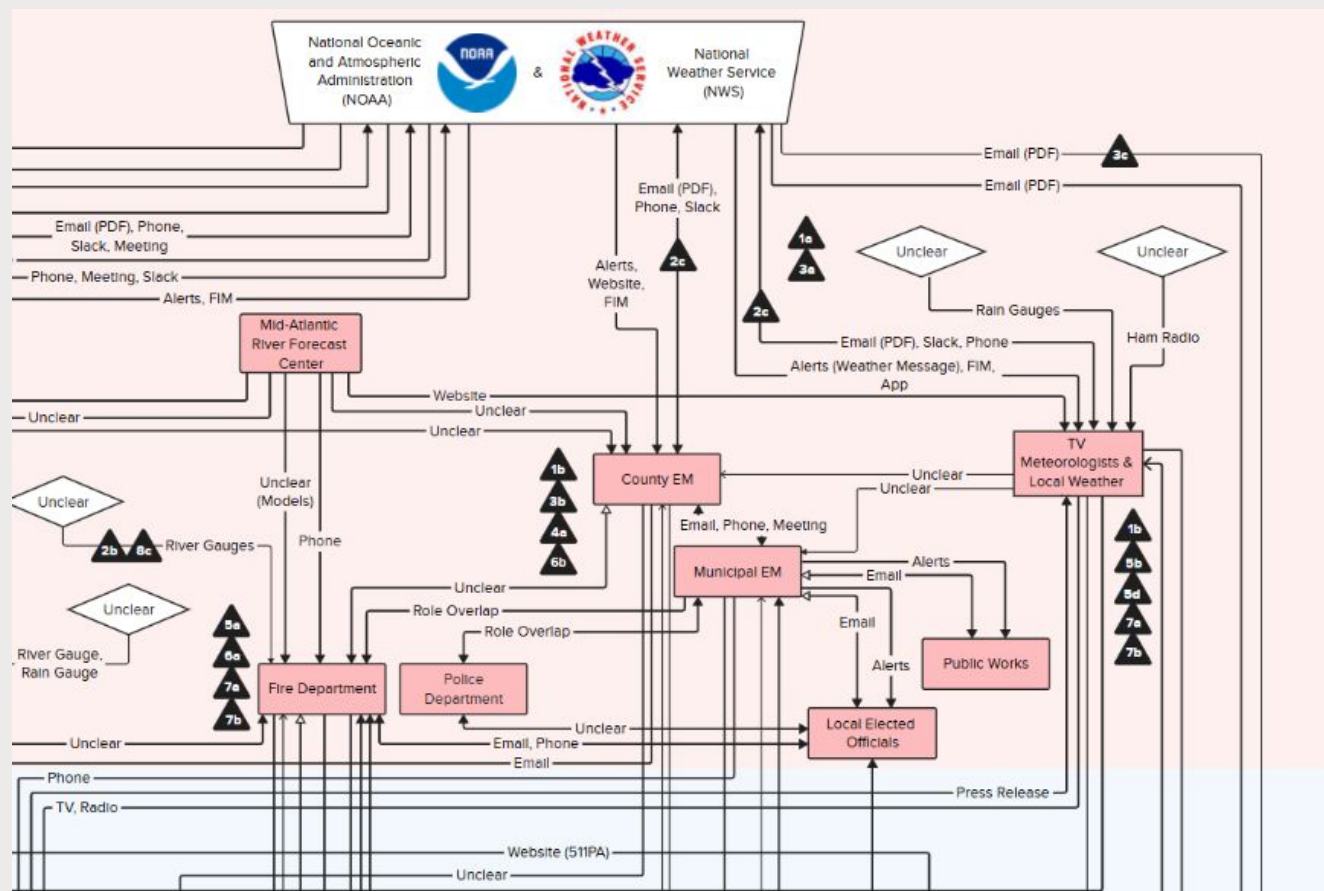
- Accelerate the R2O pathway
- Functional tools that can immediately solve articulated problems
- Build long term sustainability with user engagement (pull vs. push)

# Project Example

Valid

**Project:** Optimizing Flood Warning Information Sharing for Local Stakeholders

**PI:** Jill Brown, Anne Jefferson, Liz Doran



Reveal operational pitfalls and user needs

# Project Example

Valid

**Project:** St. Paul Benefits Analysis  
**PI:** George Van Houtven



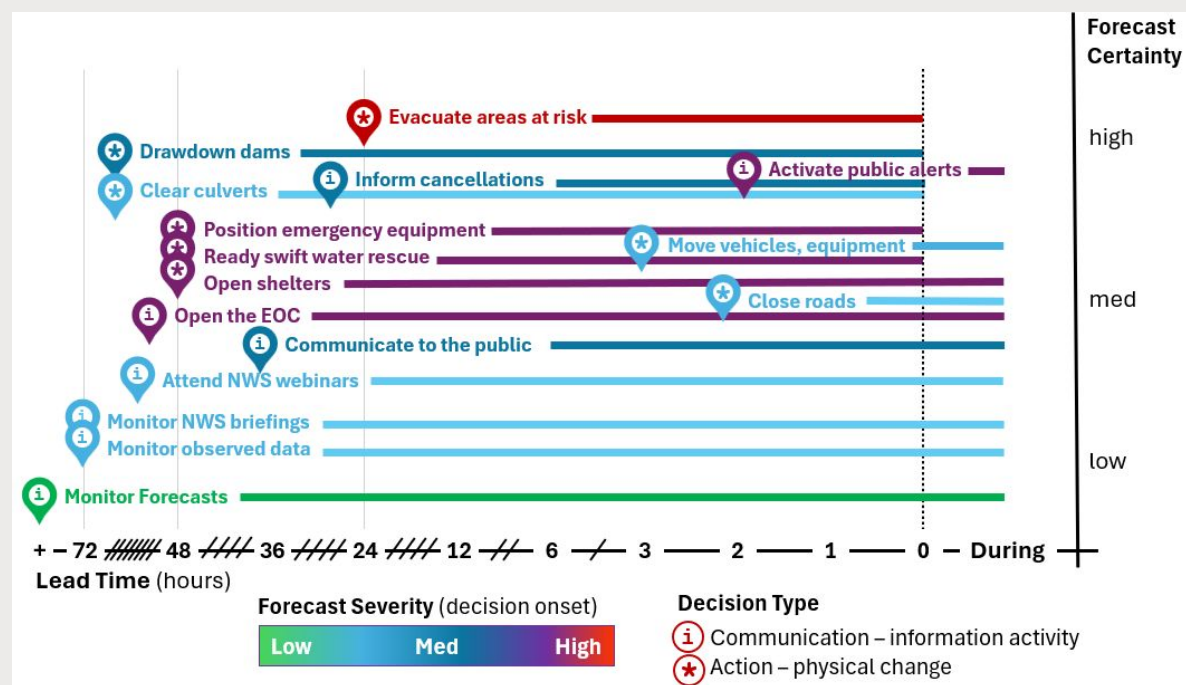
- ✓ Groundtruth outputs and explain findings
- ✓ Iterative and responsive approach

# Project Example

Relevant

**Project:** Pathways for Improving Flash Flood Forecasting

**PI:** Katie van Werkhoven



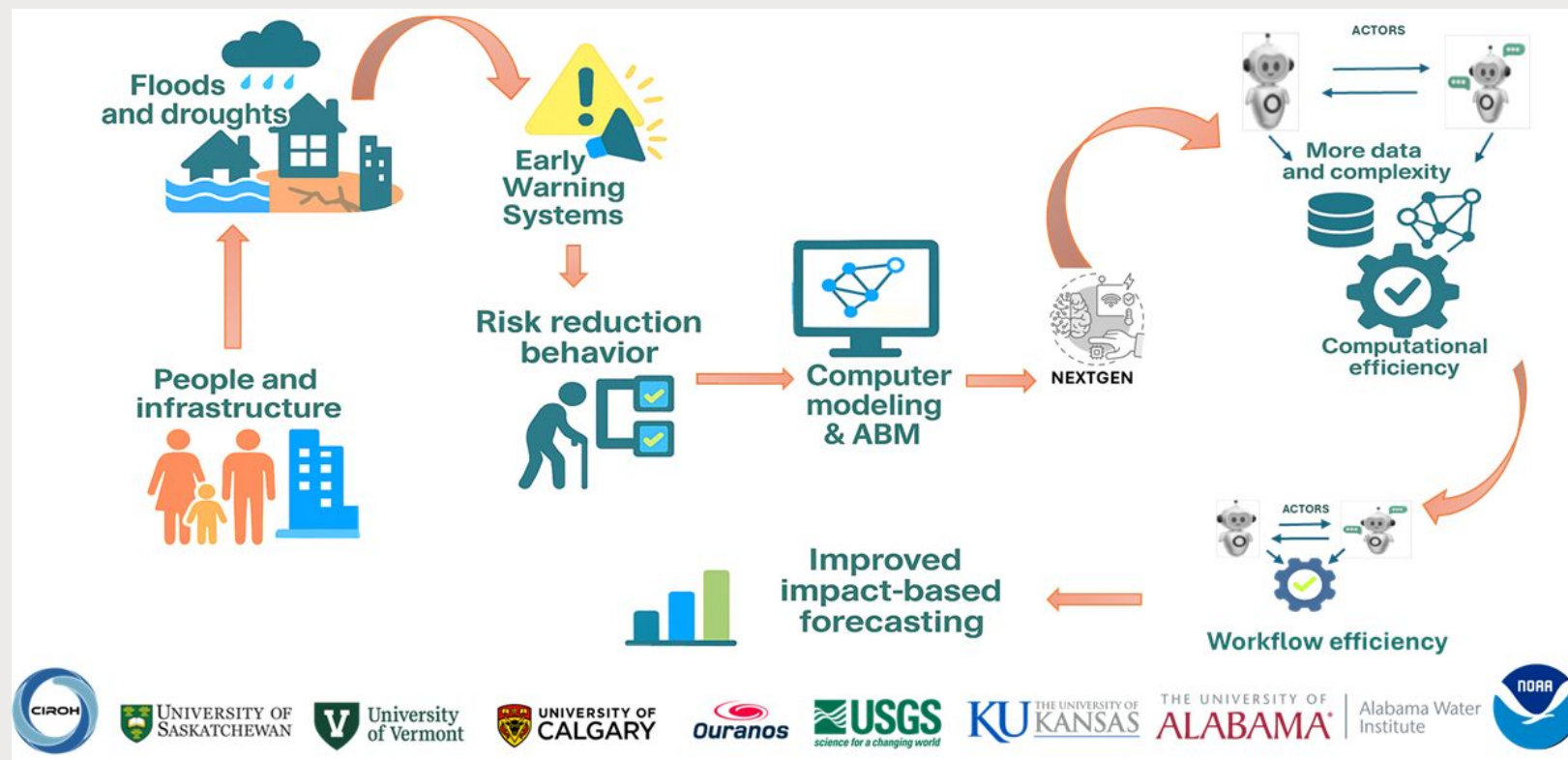
- ✓ Identify and solve problems in relevant context
- ✓ Utilize user-centered design
- ✓ Ground innovation in diversity
- ✓ Create connection with participants

# Project Example

Relevant

**Project:** Coupled Human-Water Systems Think Tank

**PI:** Corinne Schuster-Wallace & Asim Zia



- ✓ Identify and solve problems in relevant context
- ✓ Utilize user-centered design
- ✓ Ground innovation in diversity
- ✓ Create connection with participants

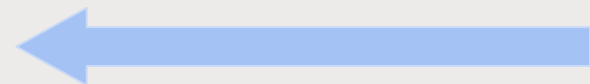




# Project Example

**Project:** Advancing Operational Flood Forecast Practice Through Usability Testing of NOAA's Flood Inundation Maps

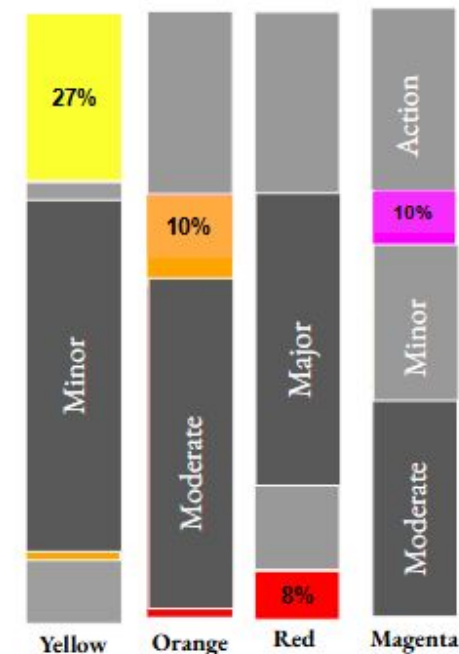
**PI:** Melissa Kenney, Sajani Kande



Actionable

Most people *incorrectly* associated colors and flood stages

Colors	Original Category	Perceived Category
Yellow	Action	Minor (55%)
Orange	Minor	Moderate (46%)
Red	Moderate	<u>Major (55%)</u>
Magenta	Major	Moderate (33%) / Minor (28%) / Action (27%)



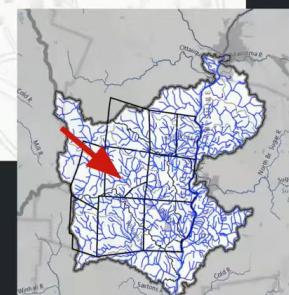
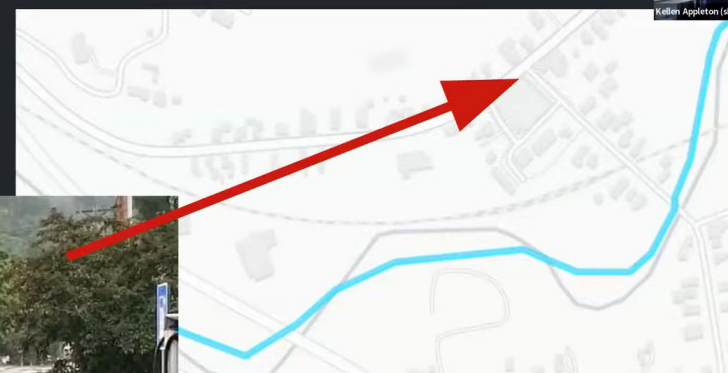
- ✓ Accelerate the R2O pathway
- ✓ Functional tools that can immediately solve articulated problems

# Project Example

Actionable

**Project:** FloodSavvy  
**PI:** Kristin Raub

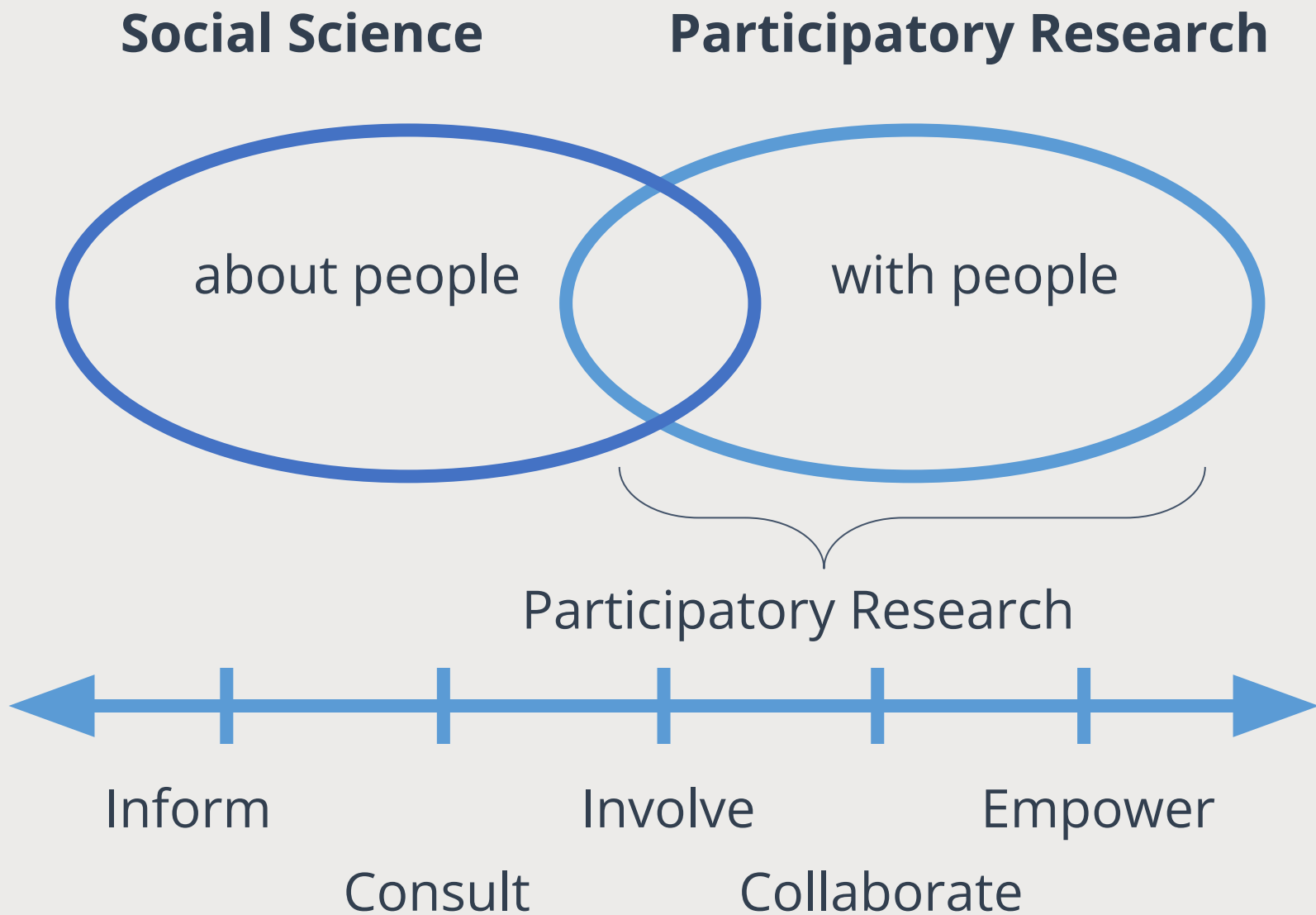
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Cavendish,  
Vermont



- ✓ Accelerate the R2O pathway
- ✓ Functional tools that can immediately solve articulated problems
- ✓ Build long term sustainability with user engagement (pull vs. push)



# The Solution: Community- Based Participatory Research





# The Solution: Community- Based Participatory Research

**Purpose:** Engages community in all elements of research: research question development, study design, data collection and analysis, and dissemination of results.

**Benefits:** Accelerate the R2O / R2X pipeline

**Principles:** Partnerships, participation & reciprocity

## **Guiding Questions:**

- Who is in your community?
- Do you have adequate representation? (e.g., roles, geography)
- How can you provide value back to your community?
- What resources exist and are required? (e.g., human, technical)?



# Research Ethics

**All human-based research must be ethical**

**Prior to data collection** (required)

- Human-subject research
- Medical research
- Animal research
- Relevant ethics certifications

**Purpose:** Study design; protects participants, especially marginalized and vulnerable groups

**Ensures core values and integrity** through research process:

- Recruitment is not coercive
- People understand what they commit to
- People can remove themselves from research
- Privacy and confidentiality are upheld

Ethics process as a bureaucracy?



# Interviews

**Definition:** One-on-one conversation guided by a series of questions

- Structured: Open ended questions in a fixed script
- Semi-structured: open-ended questions and prompts

**Benefits:**

- Gather information from sectors and roles that hold critical information / context
- Solicit information on the broader context that has shaped responses to other data collection tools

**Considerations:**

- Expert or local knowledge
- Sampling (snowball, targeted)
- Structure
- Timing / availability



# Focus Groups

**Definition:** Facilitated discussion with a small group of people

**Benefits:**

- Captures interpersonal dynamics
- Before core data collection
  - Inform project planning
  - Inform in-depth research tools
  - Test data collection tools
- After core data collection
  - Ensure no new themes emerge
  - Probe earlier findings in more depth
  - Elicit solutions based on previous data

**Considerations:**

- Access / timing
- People management / power dynamics
- Confidentiality



# Surveys

**Definition:** Questions that are answered by a subset of a community to better understand the community as a whole

**Benefits:**

- Collect (limited) data from a large number of people

**Considerations**

- Design
  - Closed vs open ended questions
  - Leading or social responses
- Language
- Testing & training
- Duration
- Access (online, paper, verbal)



# AI: The Social Science Solution for Non-Social Scientists?

## Use cases:

- Drafting moderator guides
- Transcription
- Thematic Analysis

## Strengths:

- Accessibility
- Saves time, and money

## Challenges:

- Research ethics
  - Scraping data
  - Moral compass
- It gets things wrong, and without expertise, you may not catch it
- Equity



# Your Turn!

## Small Group Discussion 2

- Develop 3-5 questions you could use to obtain audience insights that could accelerate R2O / R2X.
- Identify which method(s) would work best.
- Are there any new approaches you will try in future projects?



Sharing

# Thank you!!

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