

# The Study of Boundary Organizations: Lessons for Research and Practice

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# Acknowledgements

OST staff input

Many different researchers





# Outline

Background on OST

- 2 examples

Boundary Organizations: definitions and concepts

Research findings and reflections from the OST perspective

Conclusions



# The California Ocean Science Trust





# What is OST?

A small non-profit established by state law.

Engaging a broad range of ocean and coastal issues.

Large network of partners in government, academia, non-profit sector.

Process experts focused on science integration.

Also...

- A home for ideas about science policy, and
- a test-bed for their application.

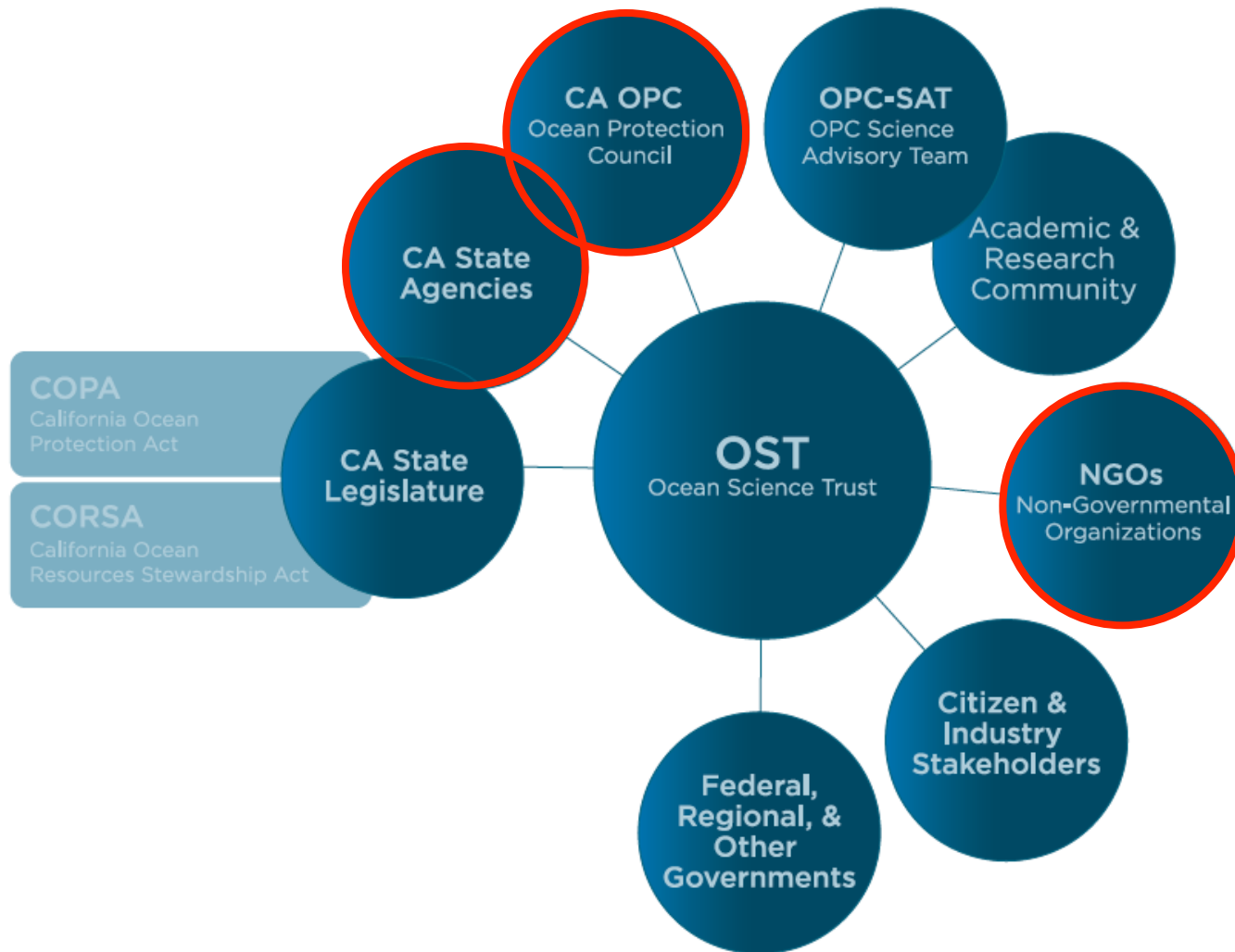
# Where did we come from?

The Coastal Ocean Resources Stewardship Act of 2000 (AB2387)

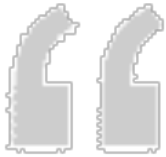
- Overcome obstacles to effective collaboration among scientists and the state.
- Ensure effective use of state resources for ocean science.
- Advance science that meets needs.



# OST's Position in the Landscape



# Mission



To advance a **constructive role** for science in decision-making by promoting collaboration and mutual understanding among scientists, citizens, managers, and policymakers working toward sustained, healthy, and productive coastal and ocean ecosystems





# OST Core Principles

Lift All Boats

Credibility

Honest Broker

Accountability

Professional Investment



# What do we *do*? “Science Integration”

## Issues

- MPA Monitoring
- Aquatic Invasive Species
- Ocean Acidification
- Coastal Inundation
- Climate Change and Fisheries
- Volunteer Science
- Ocean Observing
- Sea-Level Rise
- Climate Adaptation
- Aquaculture
- Harmful Algal Blooms
- Sediment Management
- Desalination

## Tool Box

- Peer Review
- Management Review
- Expert Judgment
- Science Needs Assessment
- Data and Tools
- Synthesis
- Coordinate Science Advice
- Meeting Facilitation
- Information Management Systems
- Process and Strategy



# Operational Modes

## Strategic

Look ahead

Build on our strengths

Develop new skills

Landscape mentality

## Opportunistic

Make connections

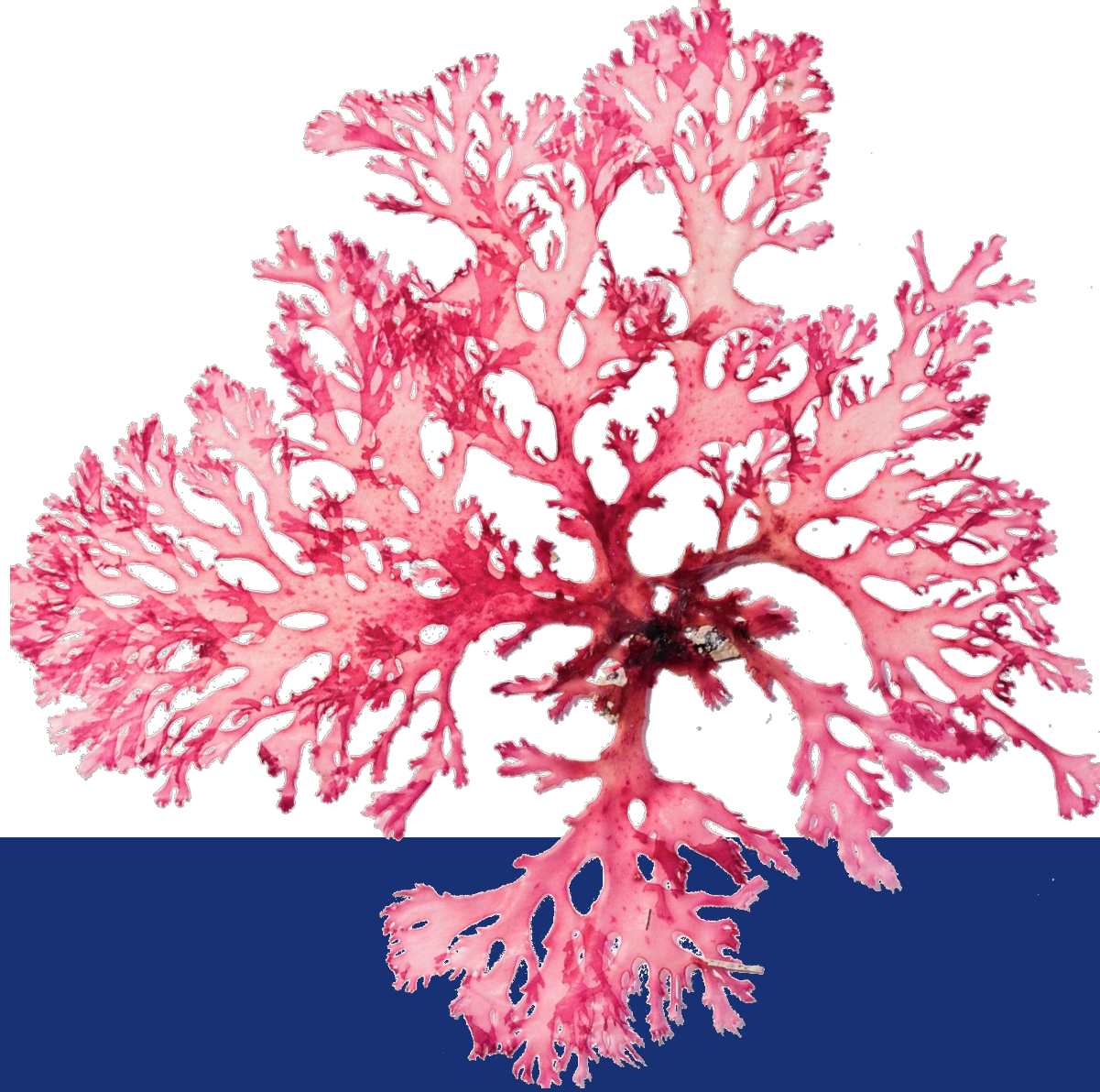
Be ready when new issues arise

Capitalize on, and grow our network



# OST in Practice

## 2 Examples



To be adaptively managed as a network.



# The MPA Monitoring Enterprise

Public-Private Partnership.

Implement cost-effective, long-term monitoring for adaptive management.

Deliver timely, useful, and trusted information to managers.

Leverage broad array of knowledge and capacity.

Develop trust, participation, and mutual understanding across communities.



# The MPA Monitoring Enterprise

## Beyond Monitoring:

### MPA network as a research tool

- Ecosystem understanding
- Climate change
- Measuring ocean health

### New models for citizen engagement in science and management

- OceanSpaces.org
- Citizen Science Initiative



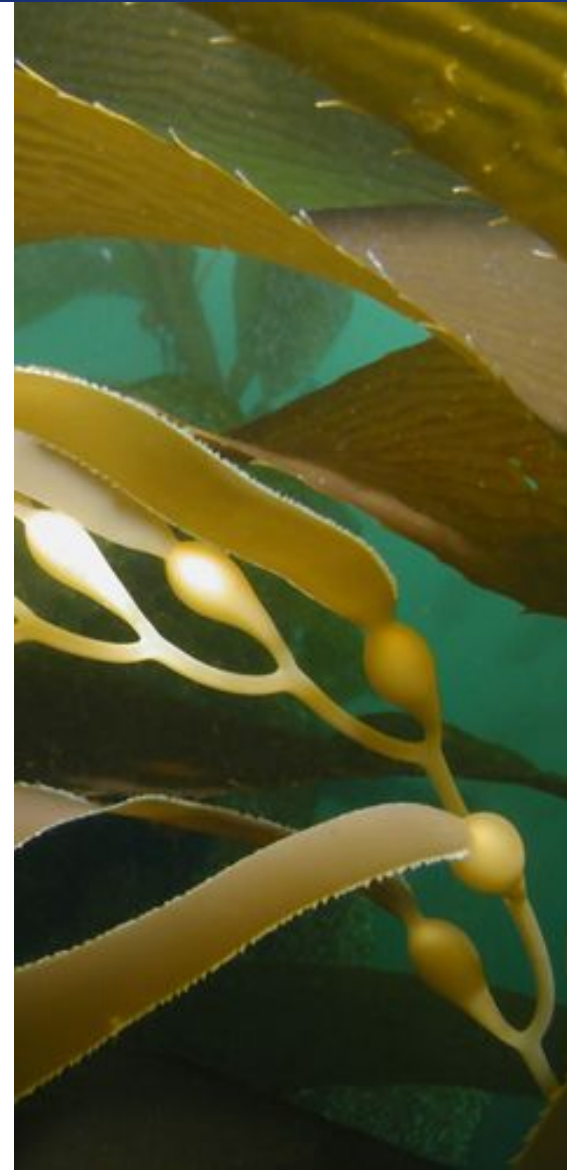
# Marine Aquatic Invasive Species Vectors

Manage multiple research teams.

Conduct a 'policy options' inventory and assessment.

Conduct an expert judgment risk assessment process.

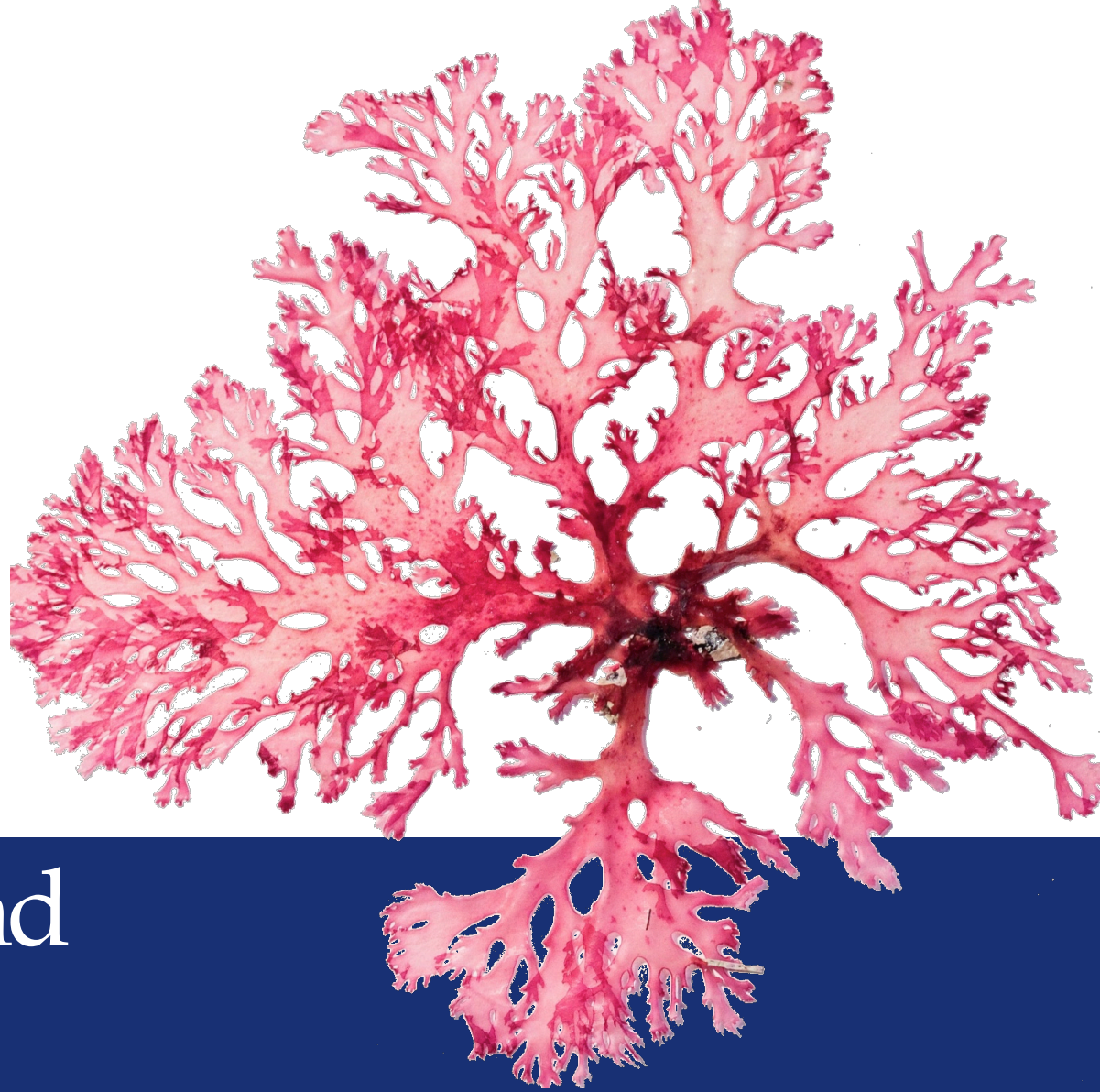
Engage state and federal agencies to assess relevance, need, and opportunities to inform key processes.





Boundary  
Organizations

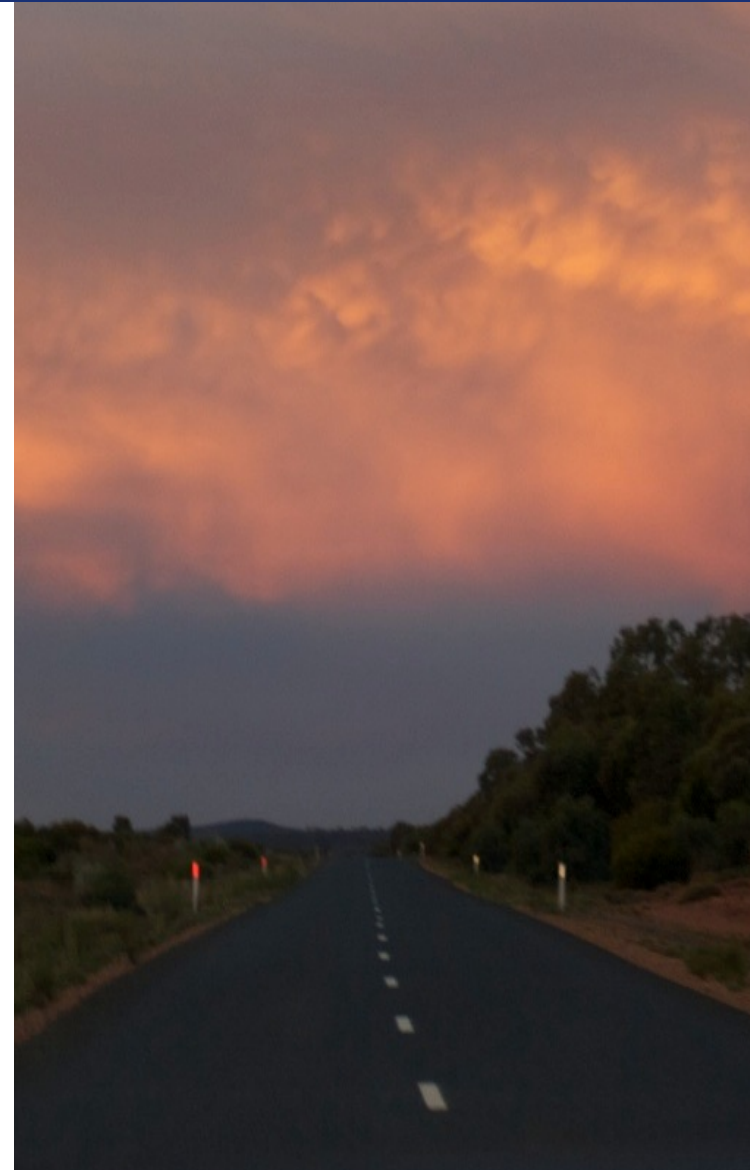
Definitions and  
Concepts



# What is the “boundary”?

A distinction between social worlds.

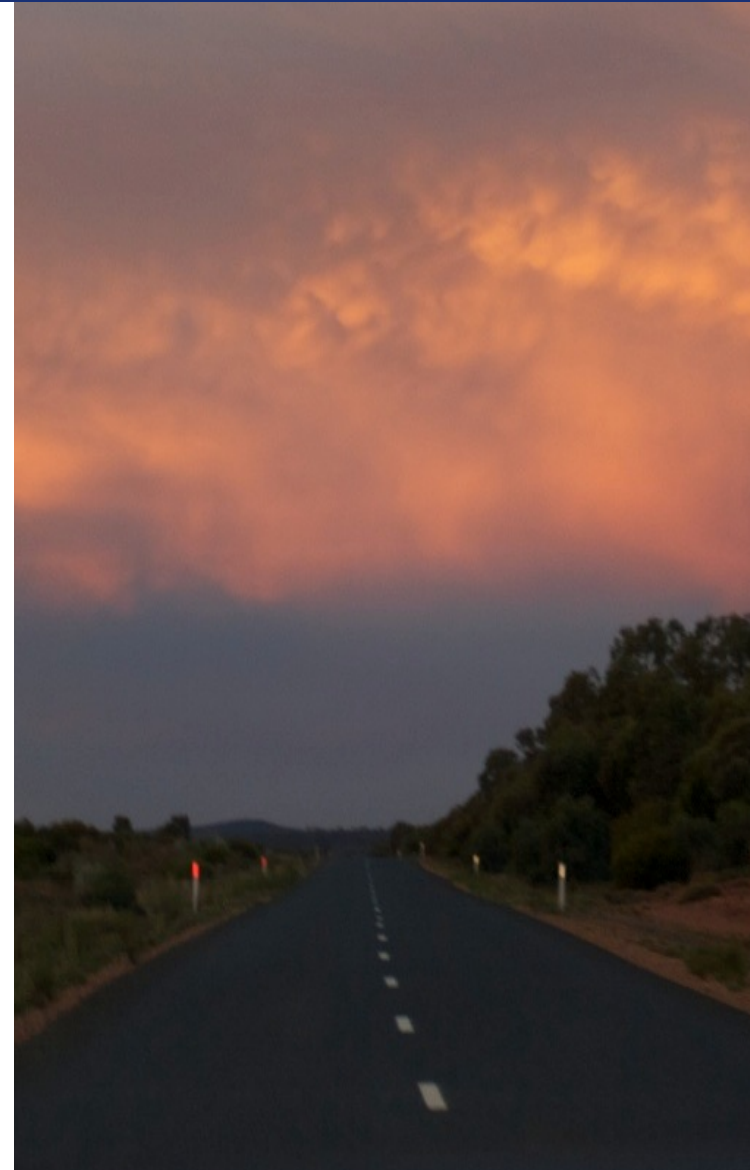
Between “science” and “non-science”.



# What is the “boundary”?

Differences across such boundaries include:

- Language
- Culture
- Goals
- Epistemology



# Who Studies the “Boundary?”

Science and Technology Policy  
Studies (STPS)

History of Science

Science and Technology Studies  
(STS)

Sociology of Science

Innovation Studies

Philosophy of Science

Evaluation Research





# Consequences of blurred boundaries

Politicization of science

Scientization of politics

## Examples

Evolution

GMO's

Conservation

Climate change

Reproductive rights

Public funding for science

Seismology



# What can “stabilize” the boundary?

## Boundary Objects

- Used in two different worlds, for two different purposes, but retain their identity.

## Standardized Packages

- Like boundary objects, they satisfy multiple aims, but
- Lead to change in practice on either side of the boundary.

# What can “stabilize” the boundary?

## Boundary Organizations

- Provide opportunities and incentives to create boundary objects and standardized packages.
- Perform a third “mediating role” in addition to participation from each social world.
- Construct and maintain “dual accountability”.
- Play a role that is difficult for either side to play.

# Two prominent strains of research

## Descriptive

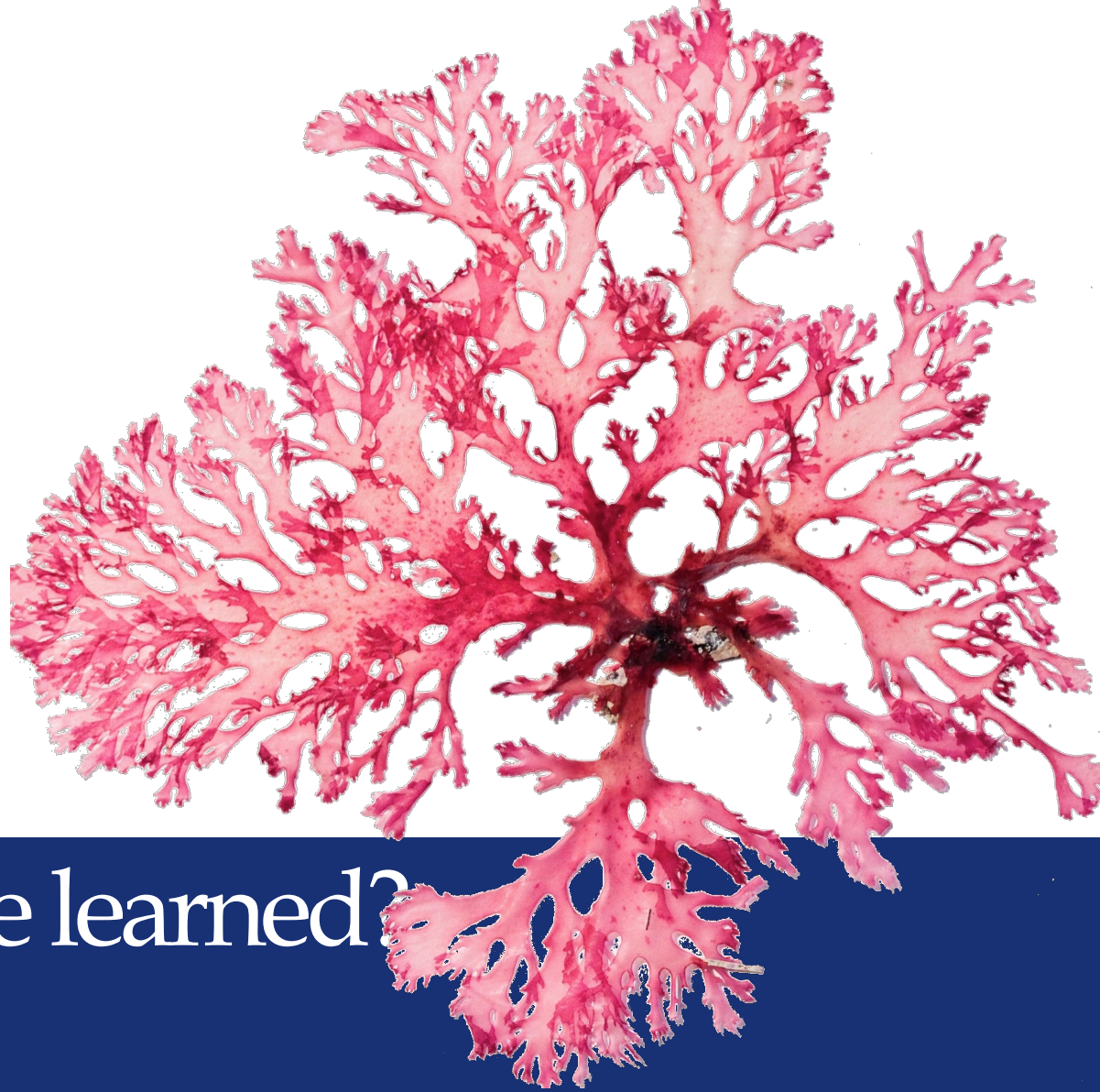
- What happens at the boundary?
- Lifting the veil.
- Problematizing assumptions, categories, traditional authority, etc.

## Normative agenda

- How can science help solve problems?
- What makes information useful?
- How can/should institutions change to be more effective?



# Boundary Organizations



What have we learned?

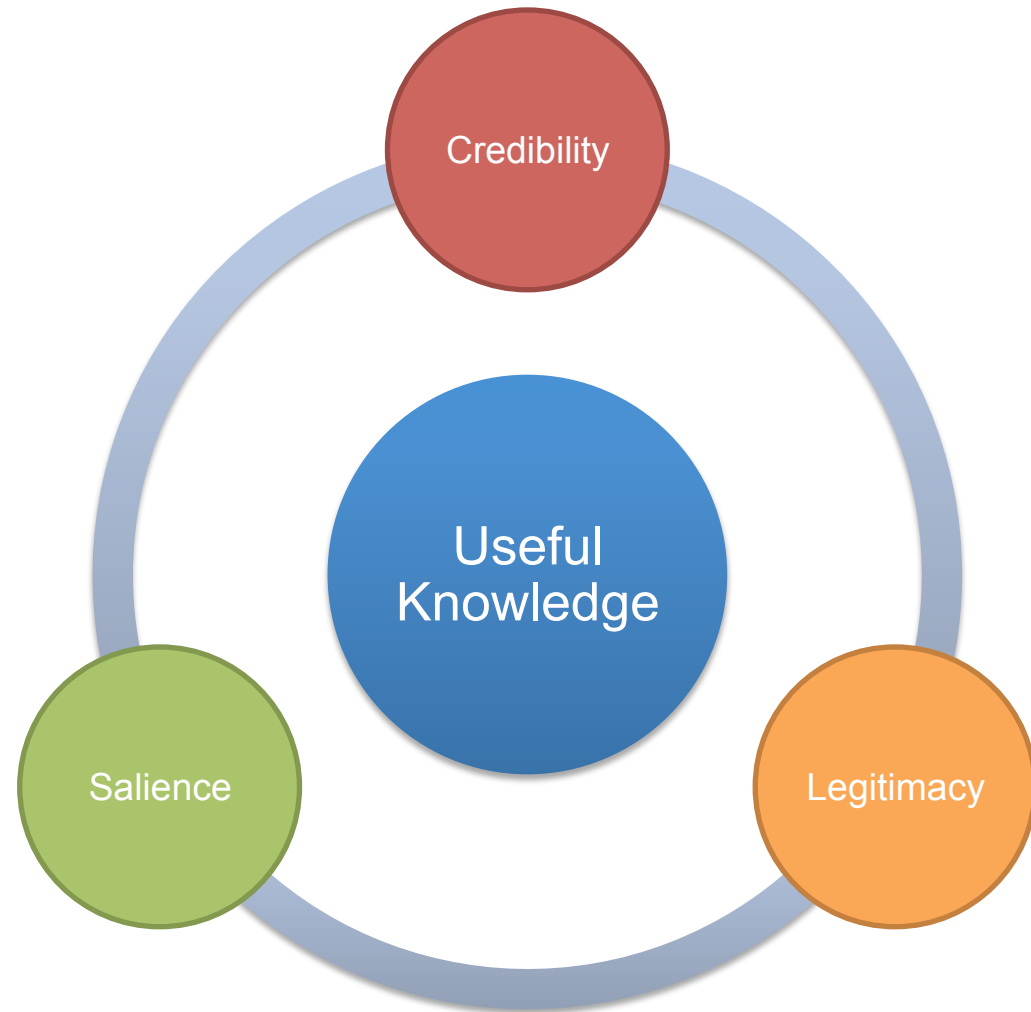
# Boundary Organization Functions

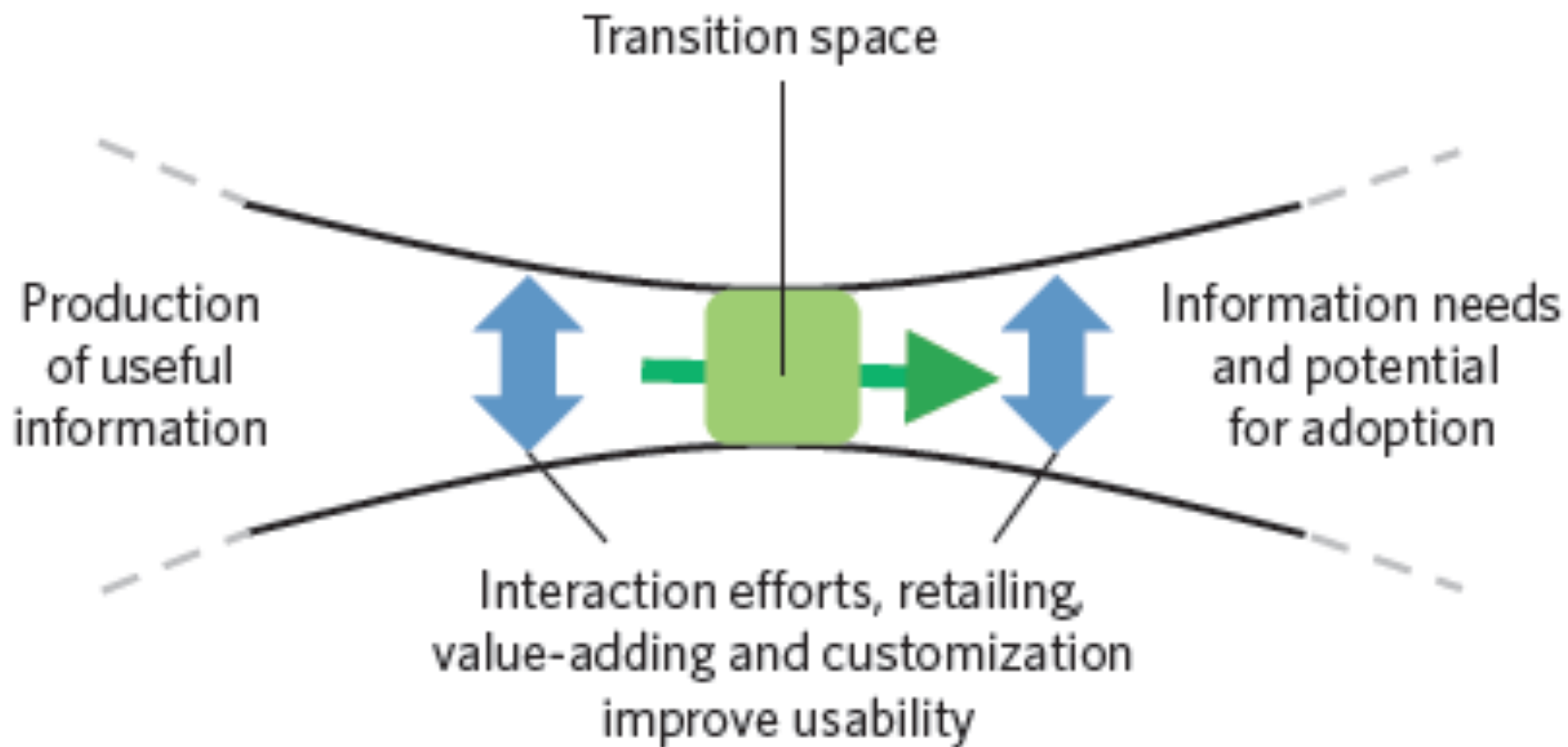
- Translation
- Communication
- Mediation
- Co-Production
- Institutionalize dual accountability
- Attend to multiple dimensions of knowledge production



# Usability

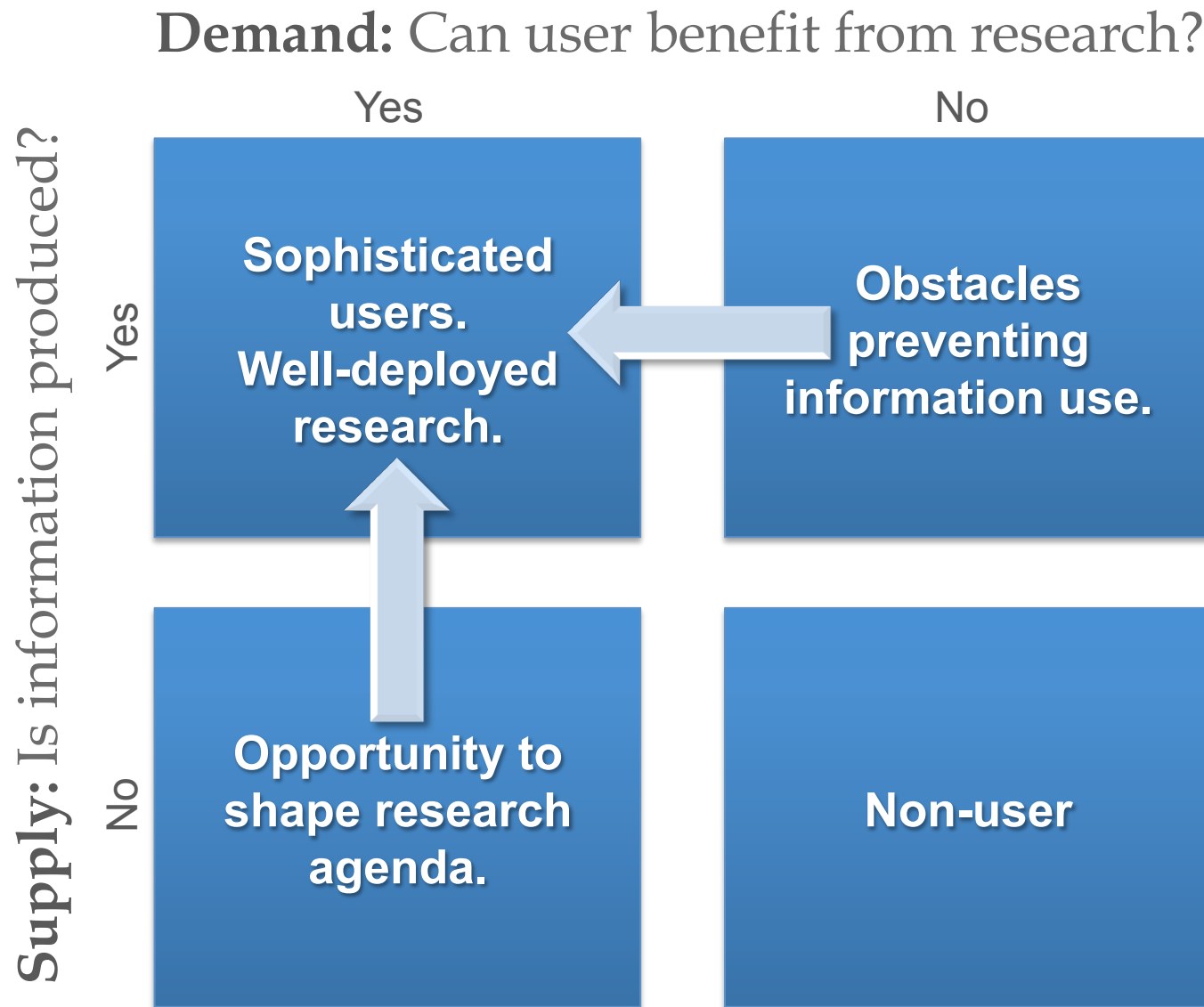
- Perception of information “fit”
- Interplay of new knowledge with knowledge already in use by users
- Level and quality of interaction between producers and users. Trust



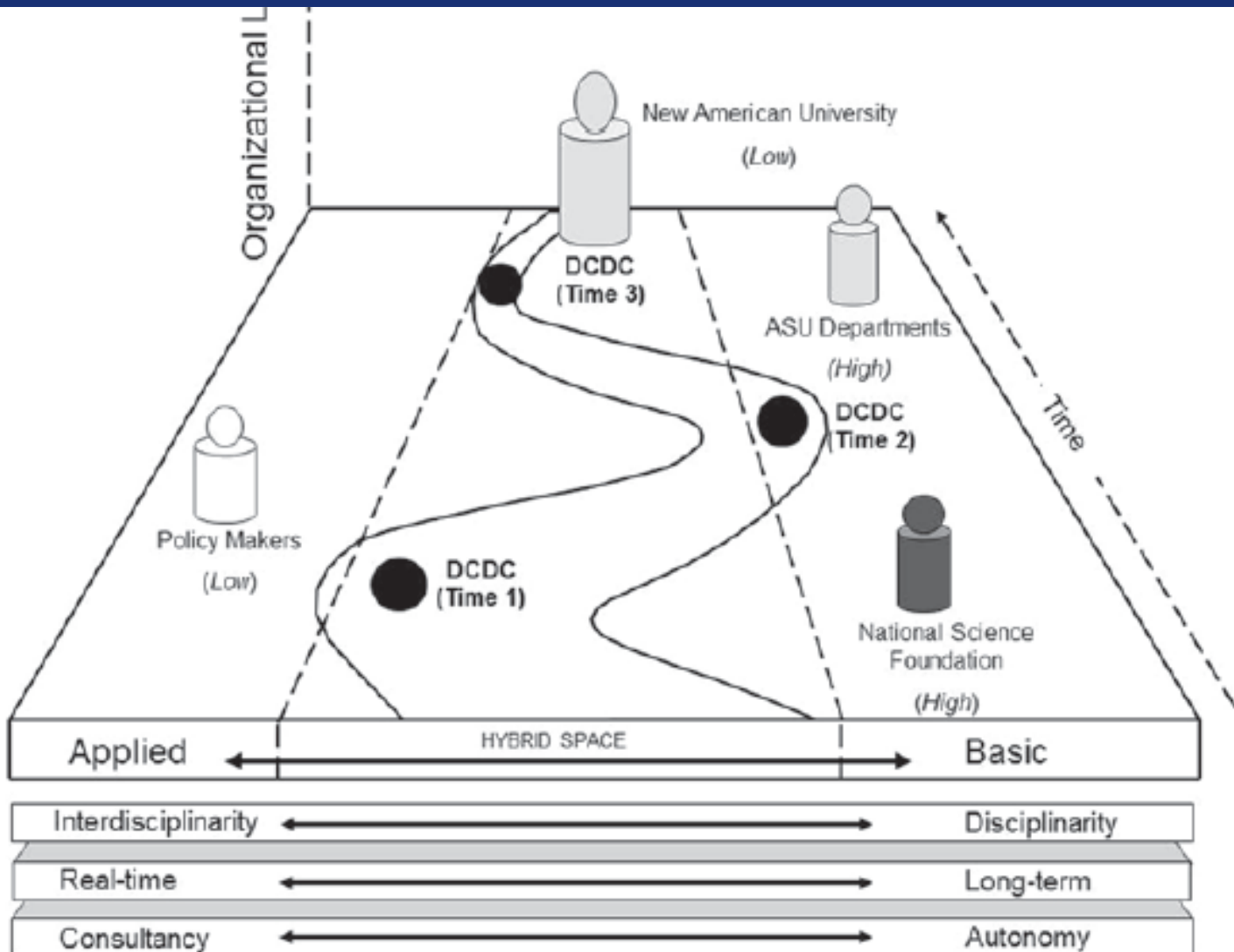




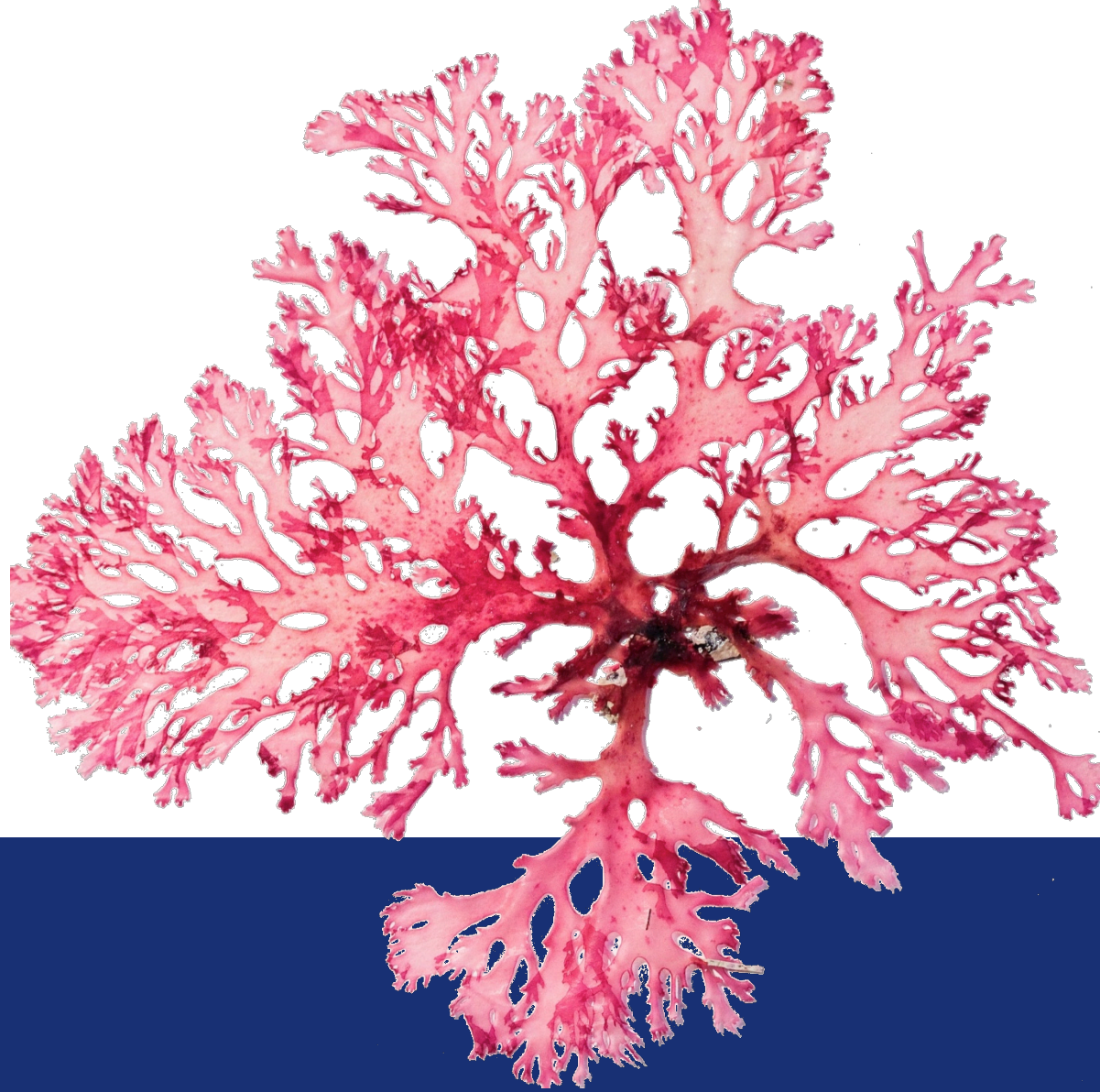
# Science-Policy “Landscape” mentality



# Multiple Accountabilities



# Conclusions



# Research on Boundary Organizations

We have increasingly robust heuristics - *touchstones*

- Co-production; participatory approach
- Dual (Multiple?) accountability
- Multiple dimensions of knowledge

But we need more synthesis.

Is there a coherent research agenda?

As research ramps up, does our focus begin to narrow?

More attention to the role of funding/funders.



# Putting Research Into Practice

## Touchstones:

- Guide and clarify our thinking.
- Solidarity with other organizations?

Is boundary organization research getting more or less useful to boundary organizations?

How is boundary organization research being used?

# Challenges we could use some help on

## The value of boundary organizations.

- Making the case.
- Demonstrating vs. *defining* our value.

## Evaluating boundary organizations.

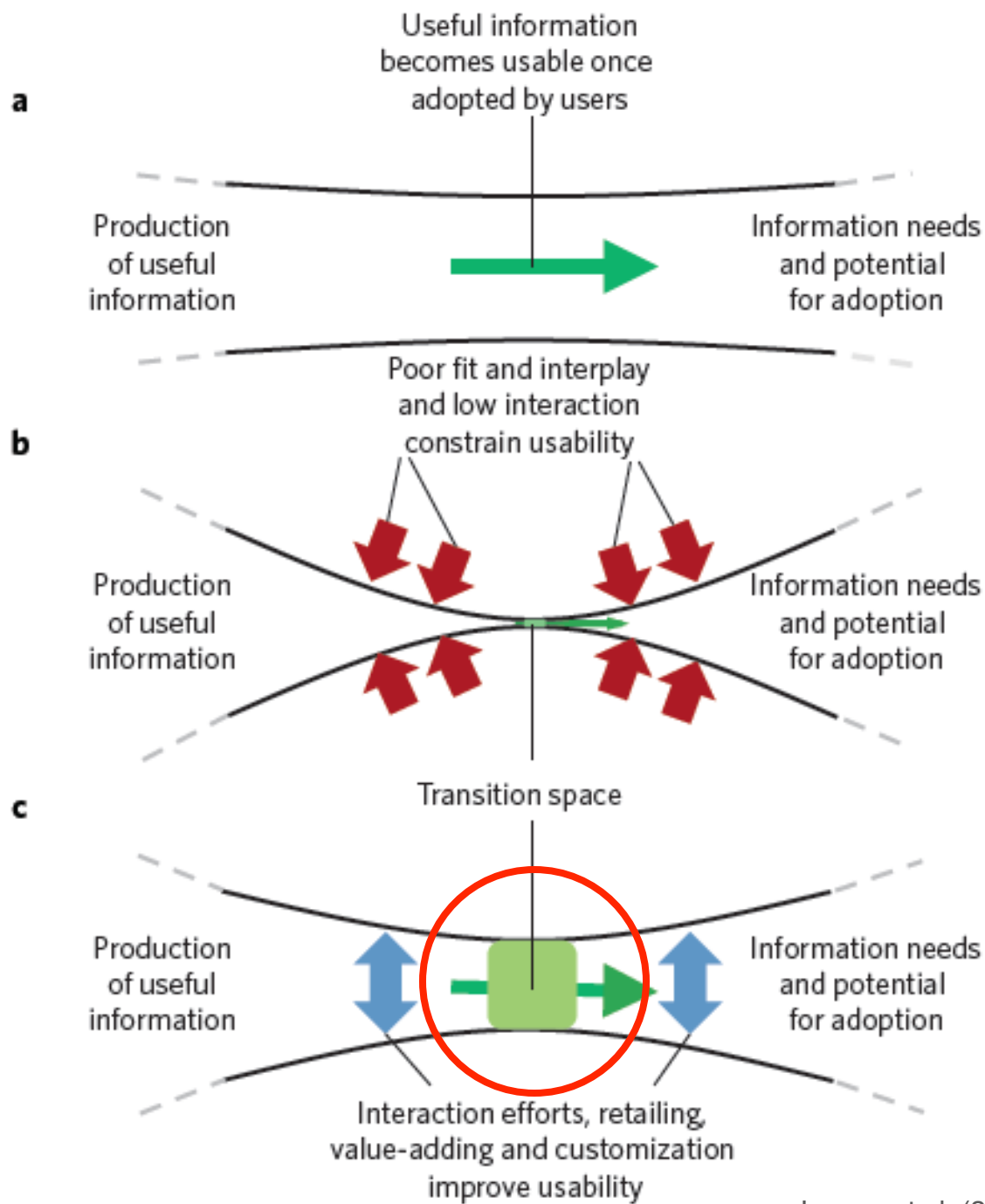
- How do we report on things like translation, institutionalizing accountability?
- Can we assess these functions at different levels?

# Thanks!

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**Table 1 | Summary of opportunities and barriers that affect usability derived from the literature.**

	Barriers identified in the literature		Opportunities identified in the literature	
Fit	Not accurate and reliable Not credible Not salient	Not timely Not useful; not usable Excessive uncertainty	Accurate and reliable Credible Salient	Timely Useful; usable
Interplay	Professional background Previous negative experience Value routine, established practices, local knowledge Low or no perceived risk Difficulty incorporating information	Insufficient technical capacity (for example lack of models) Culture of risk aversion Insufficient human or financial capacity Legal or similar Lack of discretion	Previous positive experience Threat of public outcry; public pressure Perception of climate vulnerability Sufficient human or technical capacity More flexible decision framework	Technocratic insulation Water scarcity In-house expertise Triggering event/crisis (drought, El Niño and so on) Organizational incentives Value research; information seeking
Interaction	Not legitimate One-way communication	Infrequent interaction End-user relationship	Legitimate Two-way communication Iterative	Trust Long-term relationship Co-production