

# Candidate Recommendation

Authors: Chingwen Cheng, Steve Goodbred, Carla Guenther, Noor Johnson, Tischa A. Muñoz-Erickson

## ORIGINAL BIG IDEA

25: Hubs are knowledge-action networks or systems (where the knowledge production and engagement is embedded as a system through co-production) with the goal of understanding the system its embedded in (the social-ecological-technological system, the components and flows that have interacted to produce vulnerability to hazards, and co-develop solutions and future visions of what resilient and sustainable communities should look like through participatory scenario building and modeling, etc.). The specific research question would be **driven by an essential social and economic concern of the community** (however its defined, but preferably with an emphasis on **addressing the needs of the most vulnerable and marginalized communities**), but the hub is also addressing fundamental questions of transformation of coastal areas as social-technological systems (what are leverage points, path dependencies, etc.). Solutions co-developed should bring social value and help these communities thrive. The multiple Hubs are connected as a network through a virtual platform but also through physical exchanges so there is cross-site learning about coastal systems. The Hub will co-develop tools, data, scenarios, visions, and solutions that build anticipatory capacity for these communities so that they can continue thinking, reflecting, and adapting to a dynamic about the future.

## What is your specific\* recommendation?

(\* Don't be abstract, general, or try to do too much in your recommendations. Try to be specific, actionable, stand alone)

Hub structure: who/where/what?

Process

Types of research questions

- To tackle the scale of the question (temporal and scale issues) bring together the entire research community and training new generation of students to integration - virtual network as a think tank to learn and train students that would be more natural at integrating physical and social skills.

Design model of the Hub

- Action piece is critical - as designer we work with decision-makers and actually see implementation and make an impact, but how do we measure that impact on the community and how that transform the community (metrics of success)
- Order of operations - foundational scientific question and came back to the community, decision-making tools (that aren't so heavily embedded in locations as a Hub)
- Create hubs beyond physical location-based. Elements from local knowledge could be learned from as notes of broader hubs. Different roles between normal times and emergency times. How to make the community more resilient. Resilient-based hub bringing science. Layer-network of hubs connected to learn across geographic locations. Multiple scale interlinked. Create place-based question but can be applied

across. Solution-driving, forward-looking, dialogistic, allow both local and larger scale to transform. For co-production piece needs to be localized.

- Scale and scope of the Hub: Local, regional, or multi-level
  - Regional level with several local projects that are connected
  - Hub becomes the network of smaller hubs/meetings/case studies/
- Accelerate what is already happening but space to new things to grow (Accelerator and Incubator)
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- To address global and national coastal issues - Hub that really establishes a research framework and community basis, that enabled anyone able to invest with the community (Ex. groups organized around modeling - global and local - come together as a center of focus anyone working on particular issues) e.g., virtual network, urban living laboratory
- Co-production of framing research questions in the processes
- Potential agencies or organizations to partner to fund experiments (pilot projects)
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#### Engagement Process: Phases of Co-Production

- Who:
- Phase 1 (1st year): **Engagement, planning and visioning.** Engagement of the relevant practitioners and community groups given the specific research question and theme of the Hub to identify needs, issues, problems, and visions for the Hubs. Identifying solutions and strategies that could be turned into scientific experiments. Defining the governance structure and principles of collaboration for the Hub. Building learning and knowledge production community. Co-production of plan. What hazards/risks do communities want to focus on? What experts (local, scientific, political) do we need to involve?
- Phase2: **Design, Experimenting, Visualizing** (in partnership with other agencies that can fund project implementation (Non-governmental: Rockefeller Foundation, The Nature Conservancy; Sea Grant, NOAA, etc.))
- Phase3: **Evaluation and Learning**
- Learning from the process - design and implementation of building the Hub (adaptive management, community of practice, learning evaluation), built environmental design process, research design process,
- Social-ecological outcomes
- **Knowledge Synthesis and Action**
- to see whether the process is sustainable
- To see how the research outcomes change the next iteration of community development toward more sustainable and resilient state (continue to the next cycle of process of development, implementation, monitoring and evaluation)
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#### **Grand challenge(s) that hub is responding to:**

How have social, ecological, economic and infrastructure (physical and management) systems constructed risks and manage risks interacting to produce or mitigate coastal vulnerabilities and enhance adaptive capacity?

**Potential research questions that the Hub could address:** (needs to cover the multiple scale)

- SETs framework for Coastal resilience
- What can we learn from the hub design process and implementation about building inclusive research communities that are driven by/responsive to community concerns?

Examples of Research Questions:

- How can the dynamic interactions between humans and environment in the coastal zone be better understood to decrease negative outcomes and maximize resilience?
- How do we understand the different processes of off-shore/coastal development that produce risks incorporated ecological-social processes? How would different communities be impacted by those risks? How would ecosystems be impacted by those outcomes?
- How to better generate, assess & synthesize data from multiple scales, collect better data to be more relevant for downscaled decision-making?
- How does culture play a role in vulnerability assessment and climate actions?
- Can we learn from international cases and apply to the US context?
- Power struggle over land use decisions

**Research framework:** Coupling of the human-natural systems is a grand challenge for the science community. Non-linear feedbacks and stochastic events and responses are part of this coupling and are also where our models, ideas, and understanding of coastal systems quickly fall apart. An "intellectual hub" that facilitated the interaction of social and physical scientists and their research would stand to cultivate new, innovative coastal science and also provide the cross-training for graduate students to be integrative, transdisciplinary researchers.

Why is it valuable?

Who does it impact? How? How will the world be better? Who are the stakeholders and who will you partner with to make it stronger?

Coastal communities. Early engagement with communities in framing research questions in what their data or modeling needs are can drive targeted research questions while also generating capacity to collect finer scale data toward supporting better (or any) localized decision making.

The Hub will not only address grand challenges through co-production, but it will also develop new tools, models, and methods that better address the dynamic and stochastic nature of these problems through a reflexive, social learning process between researchers, practitioners, and community members.

## What's the reasoning or supporting evidence behind it?

Evidence based, fact based, Takes into context current research (hasn't already been tried and failed). How will you validate success? How is it grounded in existing scholarship? Why do this now, above all the other things we could do?

Evidence-based solutions

Shortfalls of conventional, static vulnerability assessments - not getting

Examples:

How vulnerable/prepared for coastal hazards is my community?

How can we support residents who are vulnerable to flooding/storms to access knowledge, resources and support needed?

How do residents share/access information during a coastal emergency? How can we strengthen community-level information systems?