

Understanding Challenges in Community Adoption of Parametric Insurance in High-Risk Regions

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The Problem: Many Americans do not have insurance or savings to protect themselves from a disaster, which are growing more frequent and costly as traditional resources are decreasing.^{1,2}

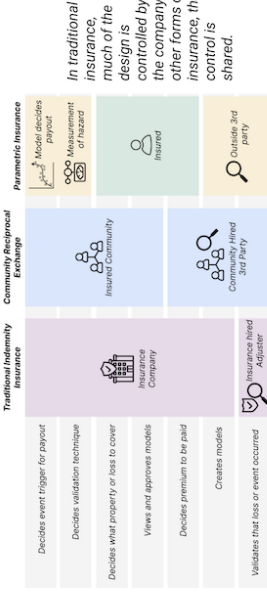
The Opportunity: New solutions such as parametric insurance, enabled by improved data and tracking, have been used globally. **But why haven't they been used to protect households in the U.S.?**

Our Goal: Identify barriers and levers to recovery funding resources in high risk U.S. areas and co-design a community-based parametric insurance product.

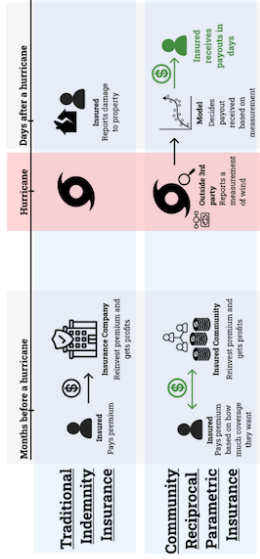
Why this matters: Millions lack recovery funding as climate risks grow. Our solutions to recover need to adapt and protect those most vulnerable to build resilience.

Background

- High-risk coastal areas like Sarasota, FL face growing strain from more frequent hazards, strict insurance and grant requirements, and the withdrawal of traditional insurers, increasing this already large gap of disaster recovery funds²
- Parametric insurance provides fast, transparent payouts triggered by measurable disaster events (e.g., wind speed or flood depth), rather than the slow validation of damage from traditional insurance^{3, 4, 5, 6, 7}
- Reciprocal insurance exchanges allow communities to pool risk and co-create their own coverage. These offer affordability, speed, and local control but they're rarely developed with or by the end users themselves.^{4,5}
- These solutions show promise but little is known about why they remain unknown to the public and how to successfully implement these solutions for households.^{3, 4, 8}



Traditional Insurance vs. A New Solution



Traditional indemnity insurance involves long delays and offers limited control to the insured community. Our proposed solution enables faster payouts and greater user agency, though it requires more active engagement from participants.

Methods

These types of solutions require new design ownership of insurance components from new stakeholder groups. We leverage participatory design research from Human Computer Interaction (HCI), focusing on community-based collaborative design (co-design).^{8,9}

Phase I We first map the landscape of post-disaster funding in Sarasota, Florida, first identifying all stakeholder groups and **surfacing the "Missing Middle" as our target users:** those with some savings for protection, but limited access to traditional recovery resources. This is done through focus groups and interviews.^{8,9}

Through qualitative coding, we analyze themes in the "Missing Middle's" needs, constraints, and financial behaviors to sample a population for our second phase.

Phase II We will workshop and co-design potential solutions directly with members of the "Missing Middle", using expert-informed constraints to ensure the designs are grounded in real-world feasibility and responsive to user needs.

By centering this group in the design process, we aim to improve adoption with the intended user group and practical future application.

Early Findings

Common struggles with community-led reciprocal parametric insurance include: lack of understanding, trust in communication and measurements, policy restrictions and basis risk.

"Missing Middle" of community members without insurance or federal funding is growing but have vastly diverging needs.

Outputs

- A current assessment of Sarasota's disaster-finance ecosystem after hurricanes, ensuring that a novel solution will be appropriately designed
- A viability assessment of community-based parametric solution in closing the protection gap for the "missing middle" in disaster finance
- A validated set of co-created design requirements, with influence from the "Missing Middle" and experts, such as triggers, governance structure, payout schedule, premium model, communication, and educational support.

Future Plans

This study addresses the growing disaster protection gap by developing a framework for the design of community-based parametric reciprocal insurance. Our findings will support pilot testing of this product and offer a roadmap, evaluation framework, and scalable method for other high-risk regions in the U.S. seeking to close the protection gap through user-centered resilience solutions.

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Acknowledgements

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Learn more at:
<https://disasterdata.engin.umich.edu/projects/examining-community-needs-for-parametric-insurance>
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