The 15th Biennial Conference of
Asian Consumer and Family Economics Association

Digital Financial Literacy for Older Adults in Climate-Vulnerable Areas: A Literature Review

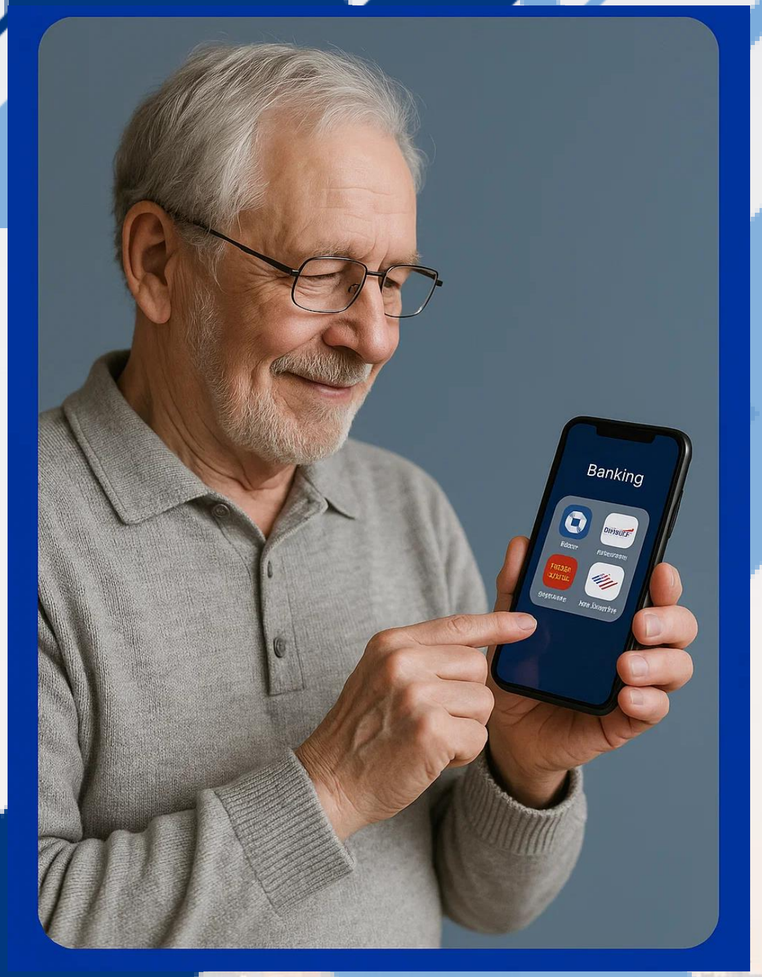
Duong Thi Thanh Tan
Lecturer, Vietnam National University of Forestry
PhD Candidate, University of Banking HCMC & University of Bolton

Abtract

Older adults in climate-vulnerable areas face compounded risks due to environmental shocks and limited digital financial access. This paper reviews current literature to explore how digital financial literacy (DFL) can enhance their financial resilience. It introduces a novel Digital Financial Resilience Model, integrating the Extended Technology Acceptance Model, Sustainable Livelihoods Framework, and digital adaptability theory. Unlike prior models, it captures the interplay between technology adoption, vulnerability contexts, and adaptive capacities. Two case illustrations - Bến Tre (Vietnam) and Kenya demonstrate how mobile tools and support systems improve resilience. The findings highlight the need for age-sensitive, climate-aware digital finance solutions and inform inclusive policy design.

Research Background and Rationale

- Population ageing, climate change, and digitalization are converging to create complex challenges, especially in low- and middle-income regions.
- By 2050, one in six people globally will be aged 65 or older (UN, 2023), many of whom will live in climate-vulnerable areas.
- Older adults often face age-related physical and cognitive limitations that reduce their capacity to adapt to climate shocks.
- Digital financial services offer tools for enhancing financial resilience, but older adults are frequently excluded due to low digital financial literacy.
- The COVID-19 pandemic widened the digital divide, revealing systemic gaps in financial access for the elderly.
- Most existing studies focus on general populations or urban settings, ignoring the compounding vulnerabilities of older adults in climate-exposed areas.



Research Gap

- Limited integration of digital finance, ageing, and climate vulnerability in current research.
- This study seeks to bridge that gap with a comprehensive literature review and conceptual model.

Research Objectives

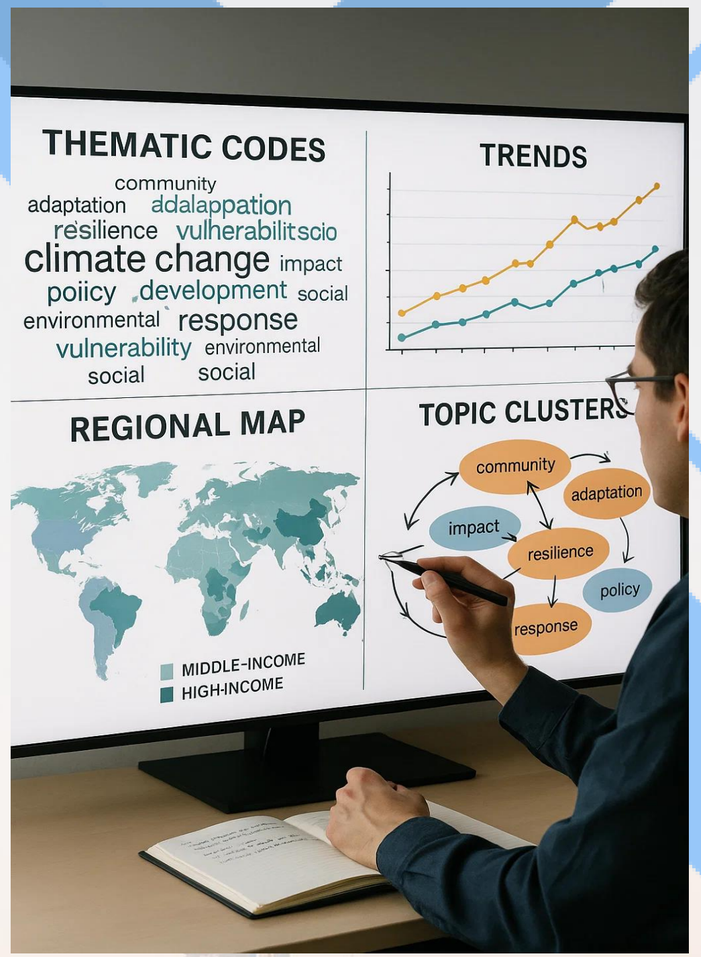
- Identify barriers to digital financial literacy and access among older adults in climate-vulnerable areas.
- Examine the role of digital finance in improving financial resilience to climate shocks.
- Explore inclusive interventions (e.g., training, technology, policy) that promote digital inclusion.
- Highlight gaps in existing research and propose future empirical directions.
- Develop an integrated framework to understand the interaction between technology adoption, vulnerability, and adaptability.

Methodology – Data and Selection

- **Approach:** Narrative Literature Review
- **Timeframe:** Studies from 2012 to 2025
- **Databases:** Scopus, Web of Science, JSTOR, Google Scholar, ScienceDirect, EconLit
- **Search strategy:** Boolean strings combining three clusters — "digital finance", "older adults", and "climate vulnerability"
- **Inclusion Criteria:**
  - Academic sources or policy reports
  - English or Vietnamese
  - Covers at least two of the three themes
- **Exclusion Criteria:**
  - Non-academic materials
  - Studies focused on only one theme
  - Full texts unavailable

Methodology – Analytical Strategy

- **Thematic Analysis:** Following Braun & Clarke (2006) Steps: familiarization, coding, theme identification, synthesis
- **Content Analysis:** Tracked keyword trends, geographic focus, research gaps
- **Scope of Review:**
  - Use and barriers to digital finance
  - Aging and climate risk intersection
  - Inclusive fintech strategies and policy implications
- **Geographic Coverage:** High-income, middle-income, and climate-vulnerable regions



Key Concepts – Digital Financial Literacy (DFL)

- DFL = financial knowledge + digital competence
- Core components:
  - Awareness of digital tools
  - Operational & security skills
  - Consumer rights understanding
- Key Barriers: Cognitive decline, technological anxiety, low trust, and inaccessible interfaces.
- Gaps: Few programs are tailored for older adults, especially in rural or climate-exposed areas.

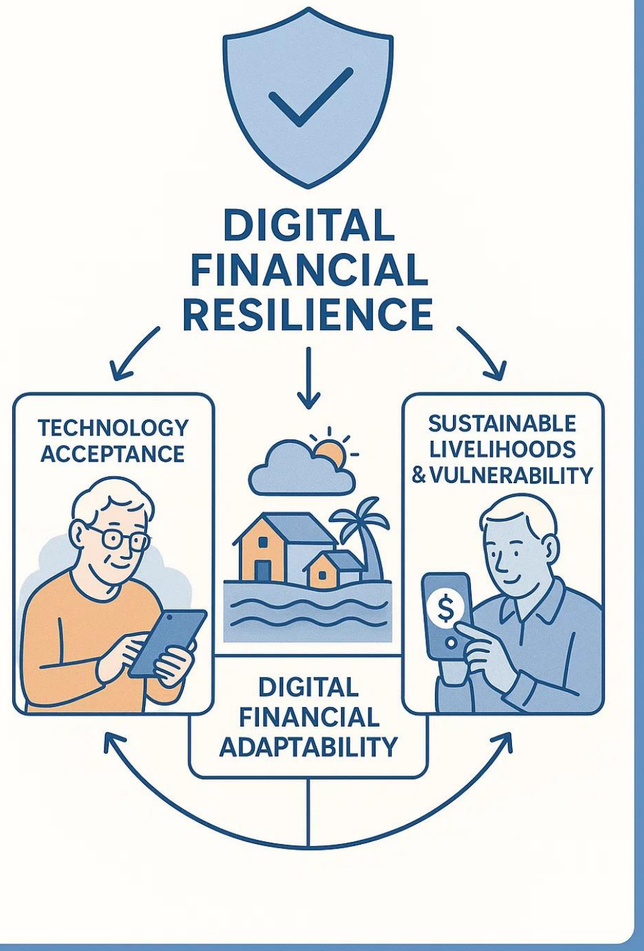
Key Concepts – Climate Vulnerability & Financial Risk

- Climate risks (floods, droughts, salt intrusion) disproportionately affect older adults.
- Effects: damaged assets, health costs, disrupted income.
- Financial systems often overlook this demographic in adaptation funding or insurance.
- Older adults face both direct (asset loss) and indirect (inflation, food prices) consequences.
- Adaptive potential of digital finance remains underutilized due to access gaps.

Key Concepts – Aging and Financial Management

- Older adults tend to have fixed incomes, higher healthcare costs, and lower risk tolerance.
- Financial behavior is shaped by cognitive decline but also emotional maturity and life experience.
- Many rely on informal networks (family) for decision-making.
- Limited inclusion in digital finance innovations due to design and education barriers.
- Existing financial education rarely targets older populations.

Conceptual Framework Overview



Digital Financial Resilience Model

- **Purpose:** To conceptualize how older adults can build financial resilience through digital tools in climate-vulnerable contexts.
- **Built from:**
  1. Extended Technology Acceptance Model (TAM)
  2. Integrated analytical framework for financial vulnerability: the Sustainable Livelihoods Framework (SLF) and the Vulnerability and Adaptive Capacity Theory (VACT).
  3. Digital Financial Adaptability Model

Framework – Core Domains

1. Adoption Enablers (from TAM):

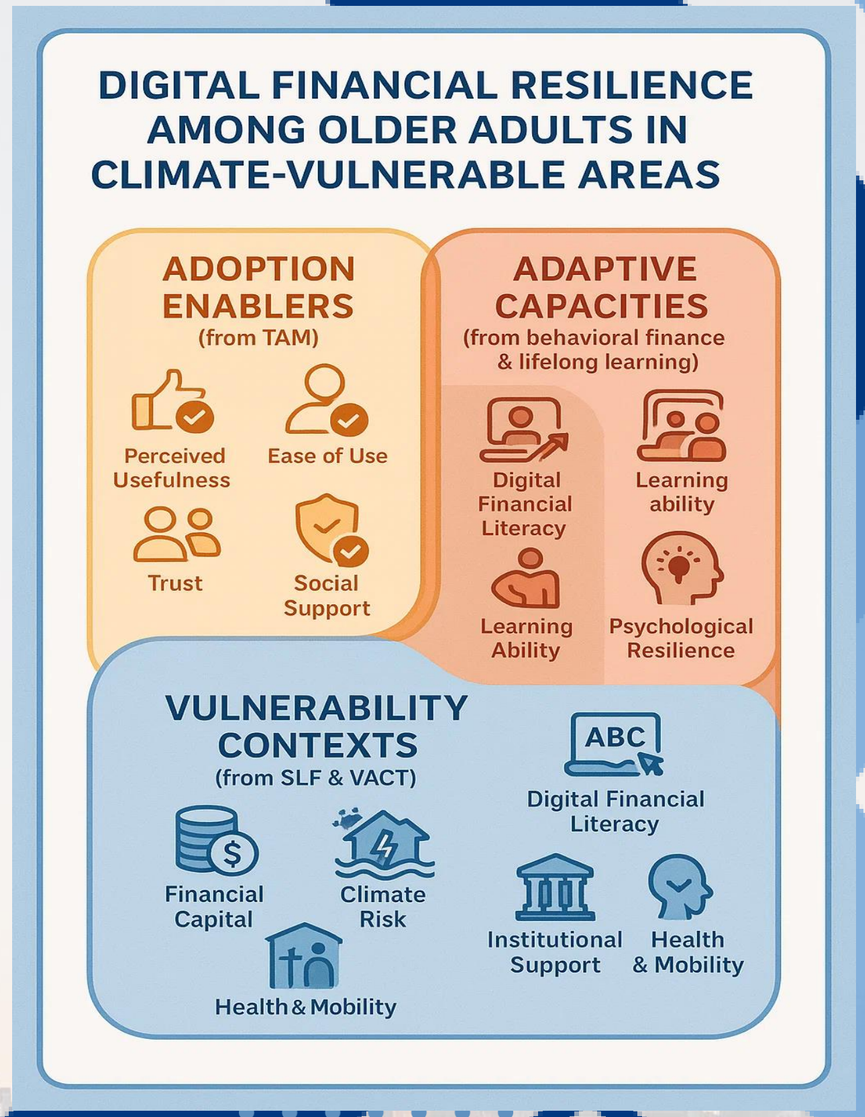
- Perceived usefulness (esp. under climate risk)
- Ease of use, trust, social support, infrastructure

2. Vulnerability Contexts (from SLF & VACT):

- Financial capital, climate exposure, institutional support, mobility/health

3. Adaptive Capacities (from lifelong learning & behavioral finance):

- Digital financial literacy
- Technological self-efficacy
- Psychological openness
- Support systems
- Accessibility & infrastructure



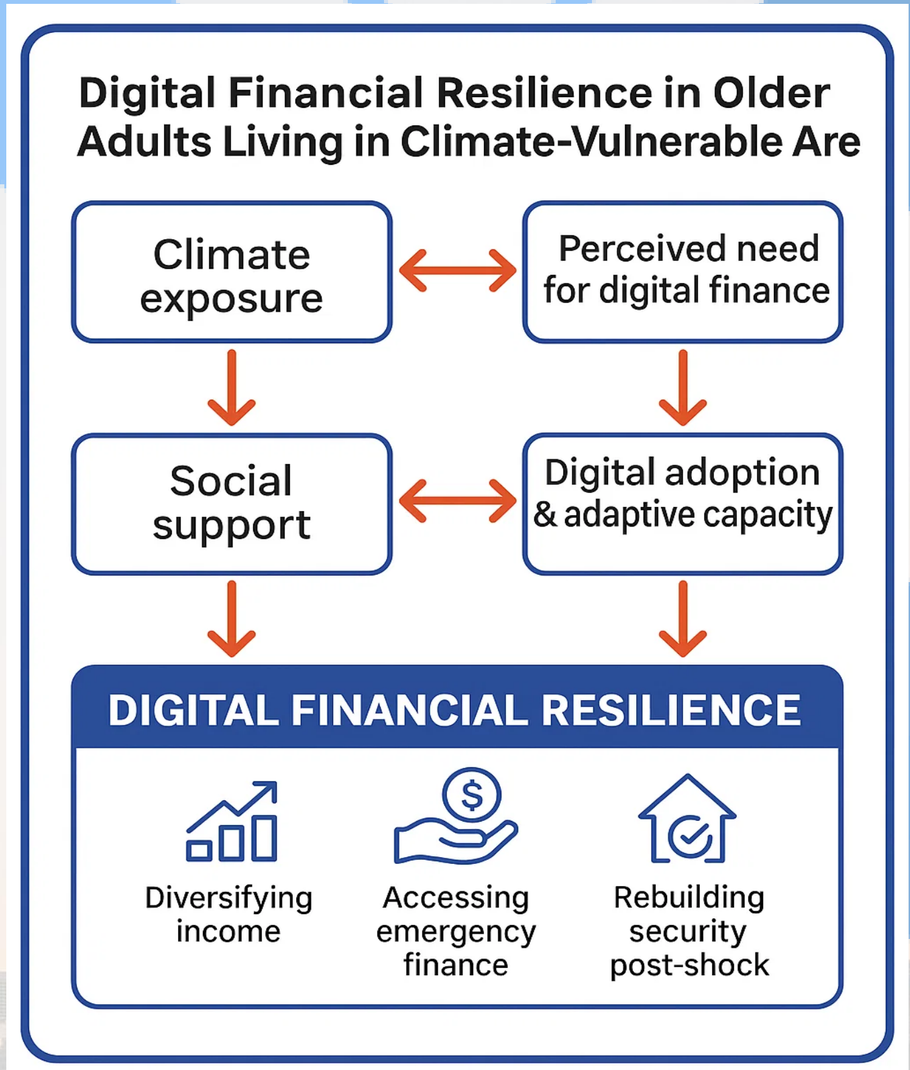
Framework – Interactions and Outcome

Interactions are bidirectional:

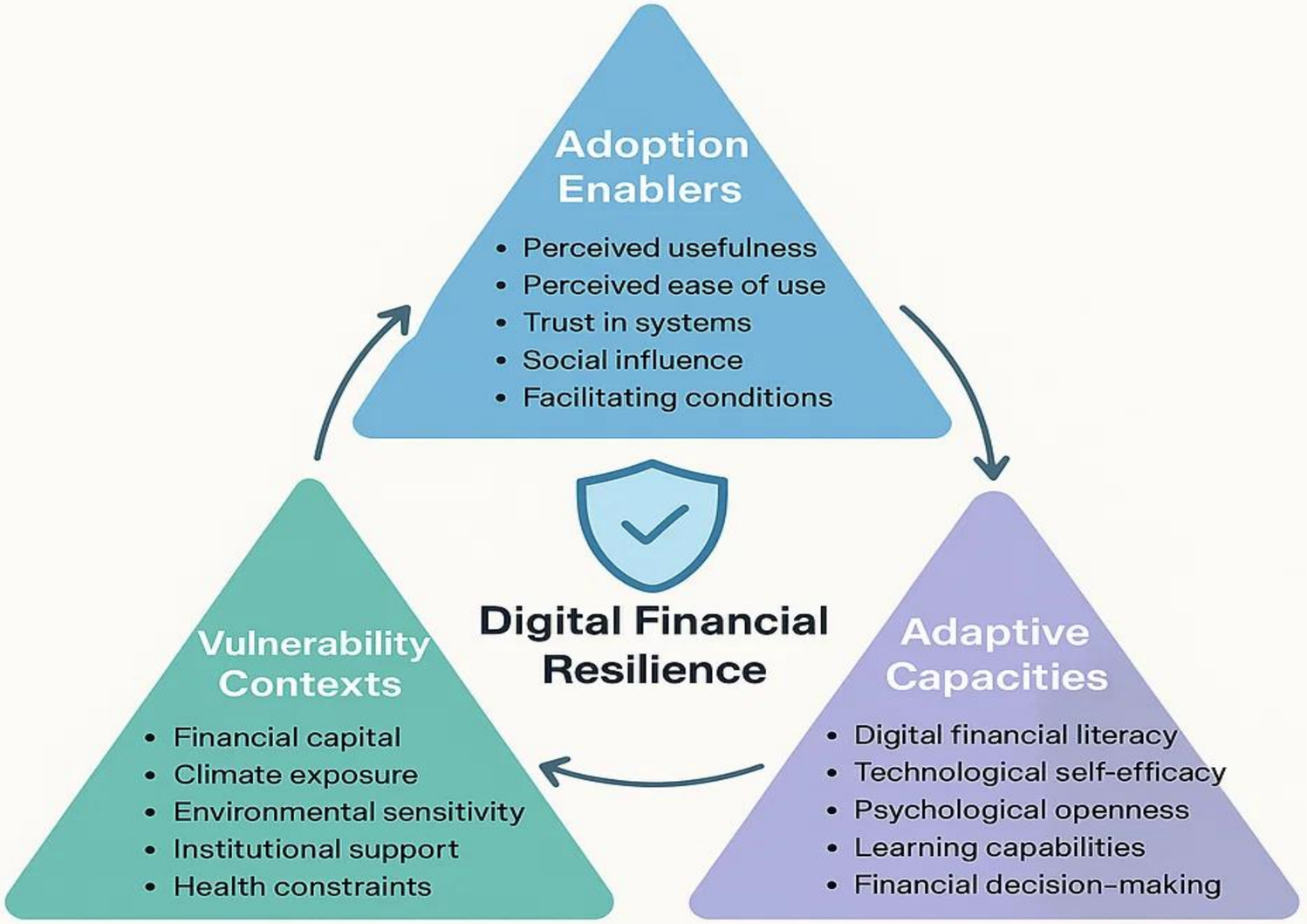
- E.g., climate exposure → increases perceived need for digital finance
- Social support → boosts both digital adoption and adaptive capacity

Outcome: Digital Financial Resilience – The ability of older adults to:

- Diversify income sources
- Access emergency finance
- Rebuild security post-shock



Digital Financial Resilience Model for Climate-Vulnerable Older Adults



Case Study – Vietnam (Hypothetical)

- **Context:** Coastal farming area affected by saline intrusion.
- **Profile:** Mrs. Hoa, 67, salt farmer, no pension, seasonal income
- **Intervention:**
  - Simple mobile wallet with voice support.
  - Community training & trusted local facilitators.
  - Access to emergency loans.
- **Outcome:**
  - Increased savings and remittance use.
  - Reduced informal debt reliance.
  - Improved preparedness for seasonal disruptions.

Case Study – Kenya (Real Case)

- **Context:** Drought-prone farming areas.
- **Profile:** Mrs. Domina & five children, live in a dingy house, have very little to eat.
- **Intervention:**
  - VisionFund + fintech partner.
  - Mobile loans triggered by drought alerts.
- **Outcome:**
  - Immediate access to emergency finance.
  - Purchased water tanks.
  - Protected crops and stabilized income.
- **Shows how timely digital finance boosts climate adaptation.**

Comparative Analysis – Vietnam vs. Kenya

Both case studies illustrate how digital finance, when aligned with local needs, improves financial resilience among older adults in climate-vulnerable areas.

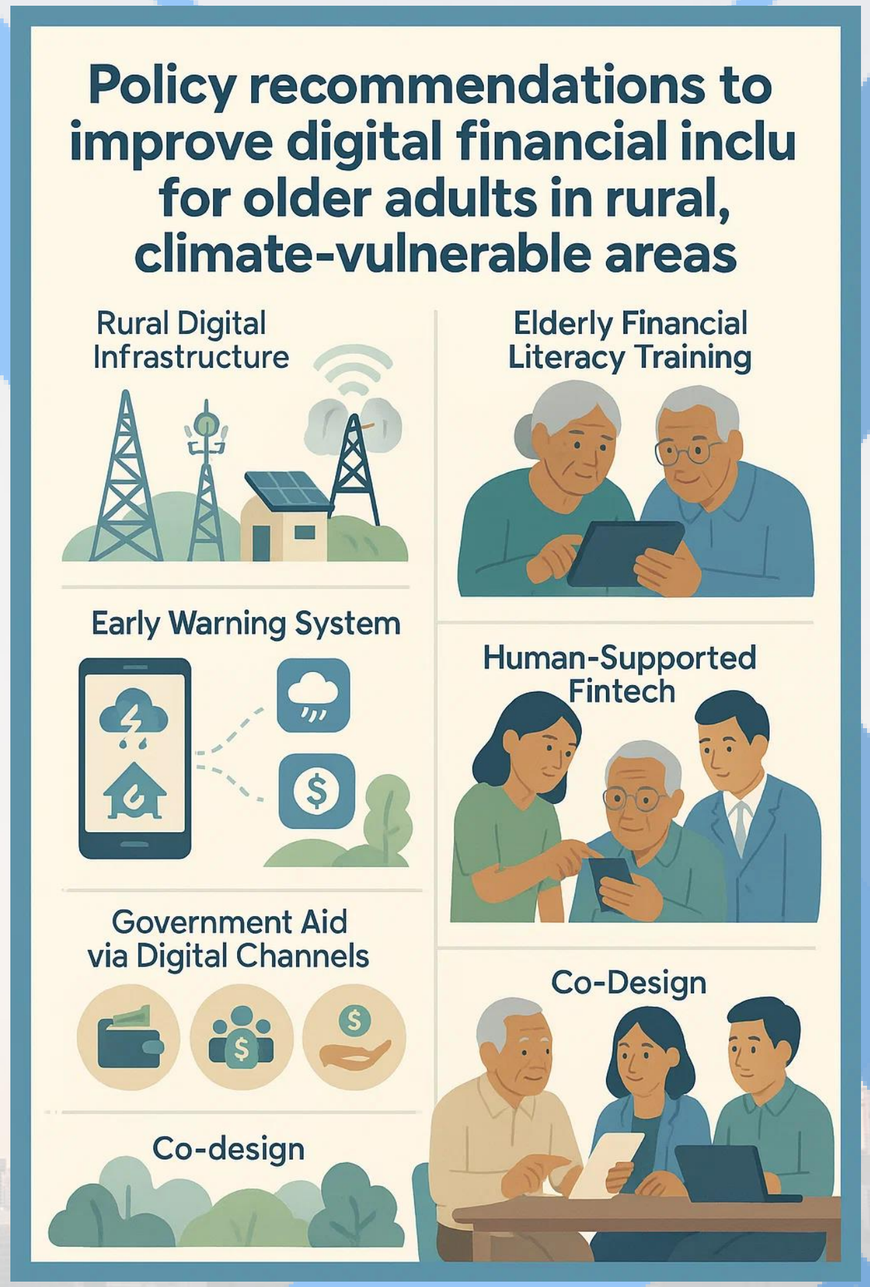
Category	Vietnam (Ben Tre)	Kenya
Climate Risk	Saline intrusion, short salt farming cycle	Drought, rainfall variability
Target Group	Older adults in agriculture	Smallholder farmers (incl. older adults)
Digital Tools	Mobile wallet, microloans, voice-based support	Emergency loans via mobile triggered by alerts
Adoption Enablers	Community trust, local training, simple interface	Trusted fintech, quick access, minimal paperwork
Outcomes	Improved savings & risk preparedness	Prevented crop failure, secured income
Challenges	Low baseline digital literacy	Infrastructure gaps in remote regions

Key Insight: **Despite different contexts, both cases confirm the validity and flexibility of the proposed framework.**

→ Mobile-based, age sensitive digital tools can enhance adaptive capacity when paired with local support systems.

Policy Implications

- Expand rural digital and mobile infrastructure.
- Develop age-sensitive digital financial literacy programs.
- Link early warning systems with mobile fintech platforms.
- Promote human-supported, low-barrier fintech designs.
- Use digital channels to distribute pensions, subsidies, emergency aid.
- Encourage co-design of solutions with older adults.



Conclusion

- Older adults in climate-vulnerable regions face compounded digital and financial exclusion.
- Digital financial literacy is crucial for improving resilience.
- The proposed framework offers a holistic lens on digital finance, aging, and climate risk.
- Case studies validate the framework's real-world relevance.
- Future research should include:
  - Field validation
  - Participatory design
  - Longitudinal impact assessments

THANK YOU!