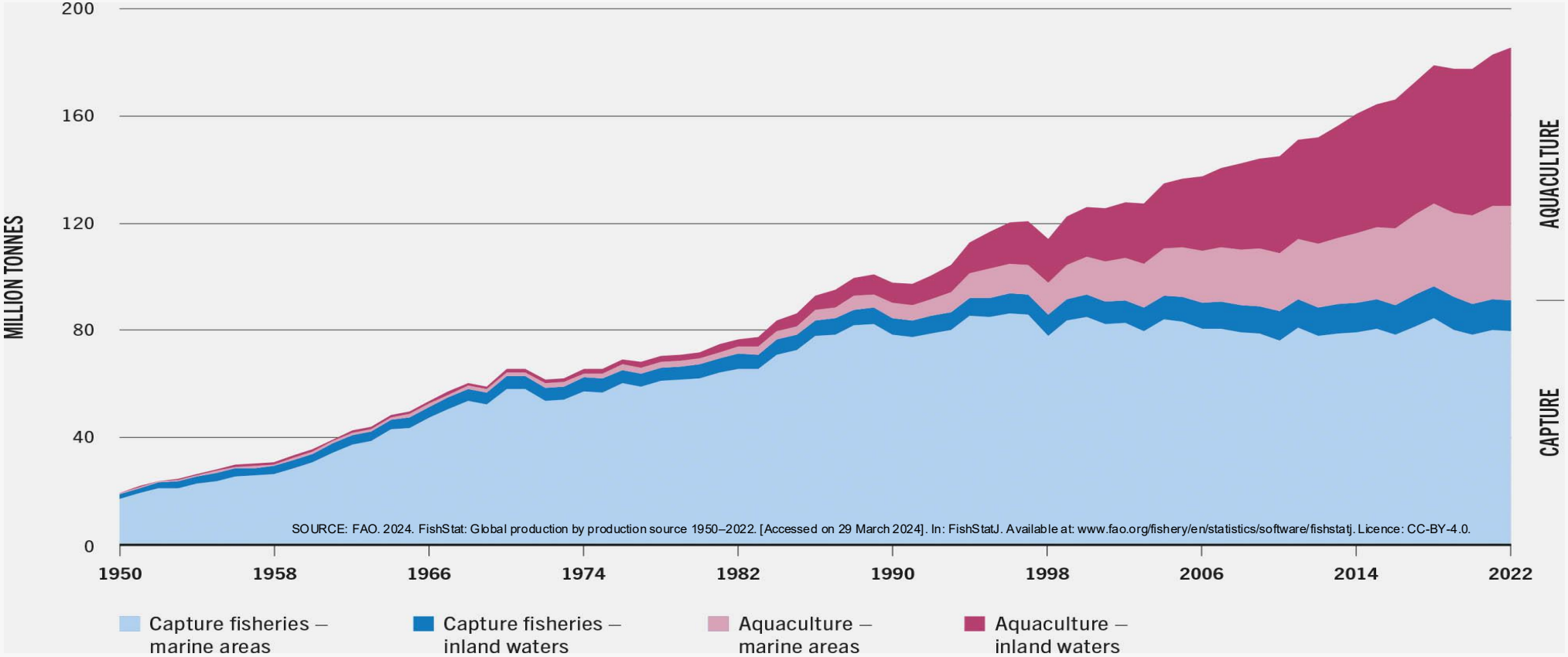
Bridging Academic Gap

and Emerging Technologies in Taiwan's Sustainable Fisheries: Insights from Bibliometric and Qualitative Analyses

Kuo-Wei Yen[1],Chia-Hsiang Chen[1],Yung-ChiehChiu[1],Han-Yang Lin[1],Wei-ChuanChiang[2]

1. *Marine Fisheries Division, Research Institute, MOA, Keelung City, Taiwan*
2. *Eastern Fishery Research Center, Fisheries Research Institute, MOA, Taitung County, Taiwan*

The Global Challenge for Our Oceans



Demand & Supply Imbalance

- Global seafood demand is rising.
- Wild fish catches have been stagnant for 30 years.

A Critical Turning Point

- Farmed fish production now exceeds wild catches.
- Highlights immense pressure on marine resources.

The Path Forward

- Goal: A sustainable "Blue Economy".
- Technology is a critical tool to achieve this.

Lightning Over China and Taiwan (NASA, International Space Station, 07/27/2014)

Taiwan's Role & Our Research Question

Taiwan's Significant Role

- A major global fishing nation.
- Faces the same pressures as other nations.
- High potential from strong tech sector & fishing industry.

Is Taiwan's Ecosystem Ready?

Questioning readiness for a technology-driven, sustainable future.

The impact of a declining birthrate.

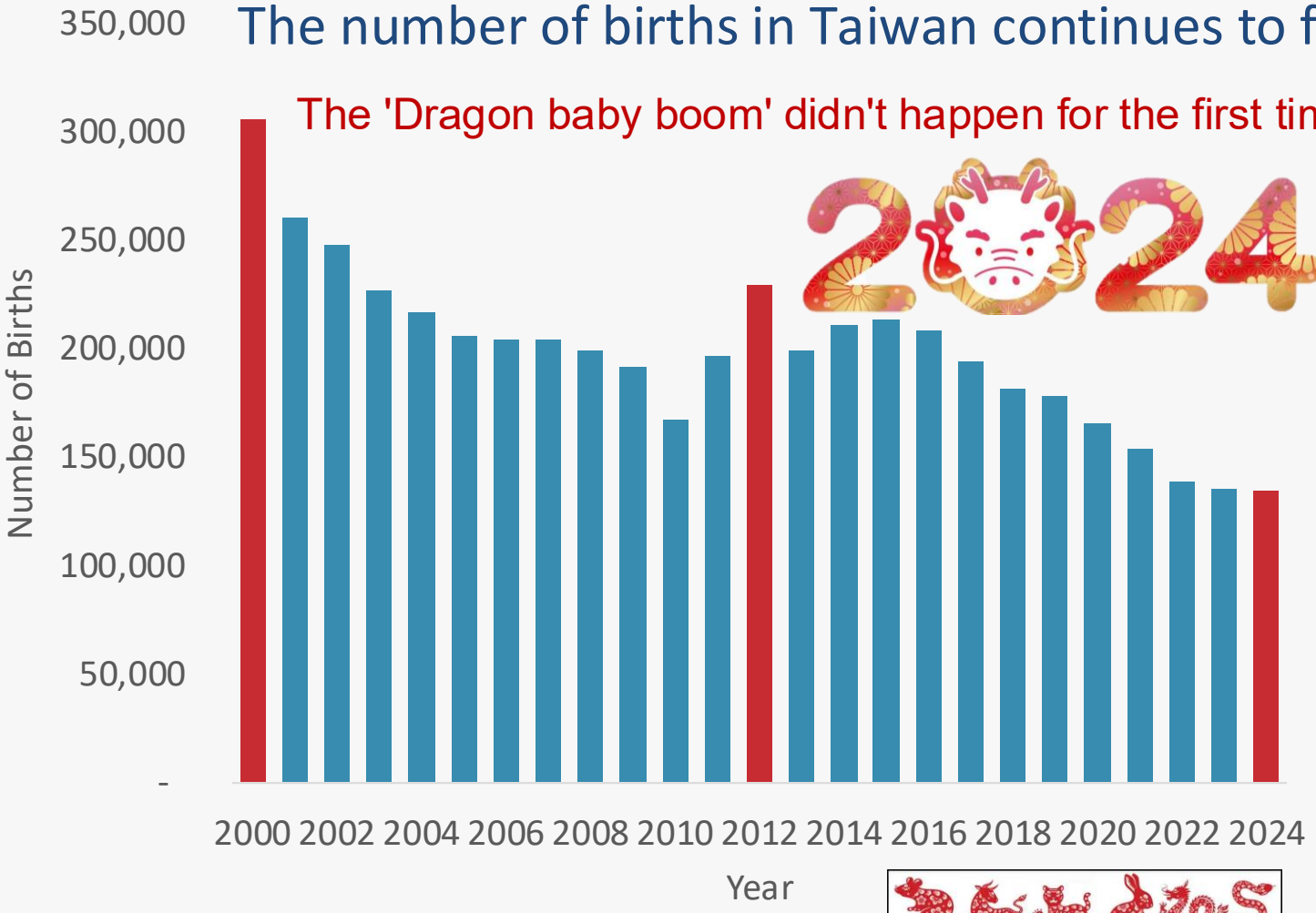
Our Research Question

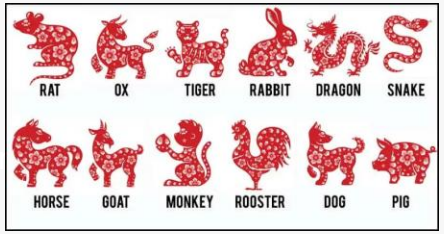
What are the gaps between technological potential and practical reality in Taiwan's fisheries?

Taiwan's Role & Our Research Question

The number of births in Taiwan continues to fall.

The 'Dragon baby boom' didn't happen for the first time.





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Our Approach: A Dual-Lens Analysis

A robust two-part research method to gain a comprehensive understanding.

Lens 1: The "What"

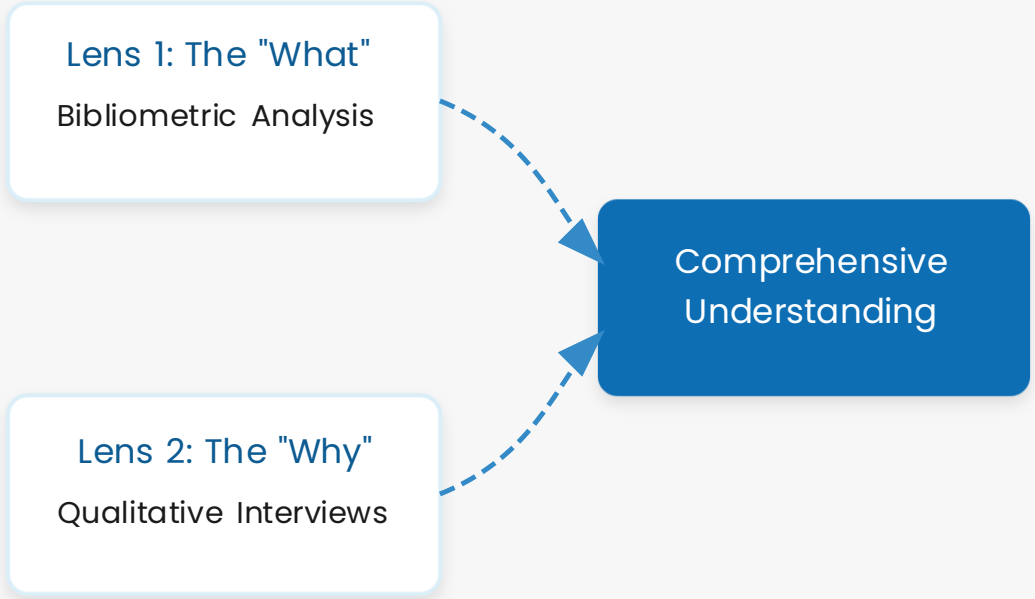
Bibliometric Analysis

- Analyzed 951 academic papers from Web of Science (2015-2024).
- Mapped global and Taiwanese research landscapes.
- Identified key trends in fisheries technology.

Lens 2: The "Why"

Qualitative Interviews

- Conducted in-depth interviews with 17 key stakeholders.
- Interviewees included researchers, industry, startups, and government.



Key Finding 1: A Tale of Two Tech Landscapes

A Major Paradox in Taiwan's Research Focus

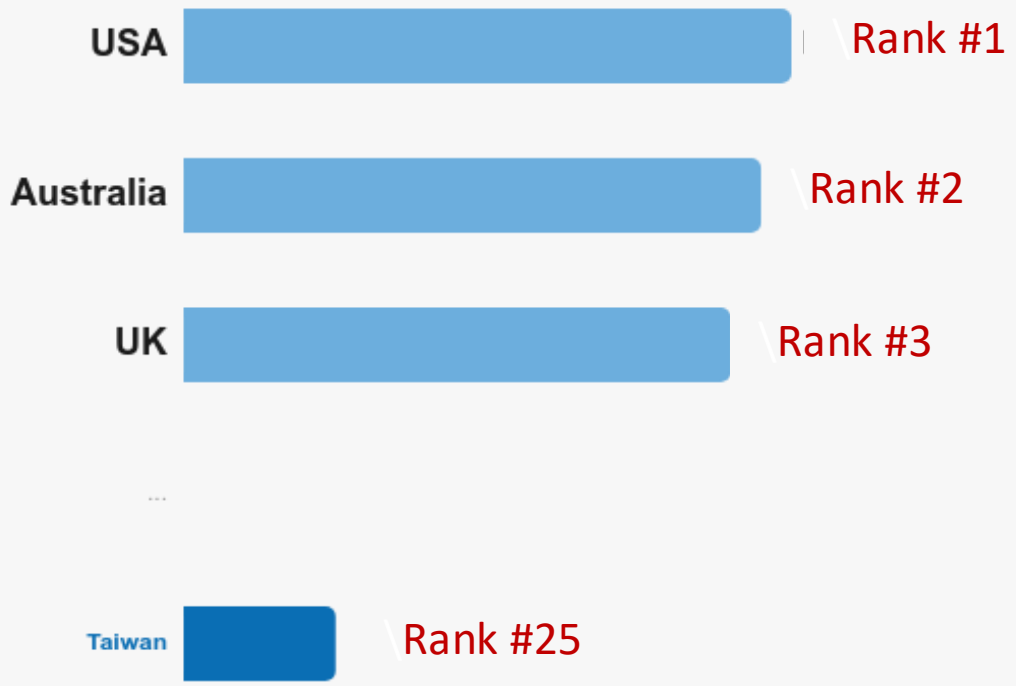
Data analysis reveals a significant disparity in fisheries technology research.

Global Leaders in Fisheries Technology Research

The USA, Australia, and the UK dominate global research output, setting the pace for innovation and impact.

Taiwan's Global Position

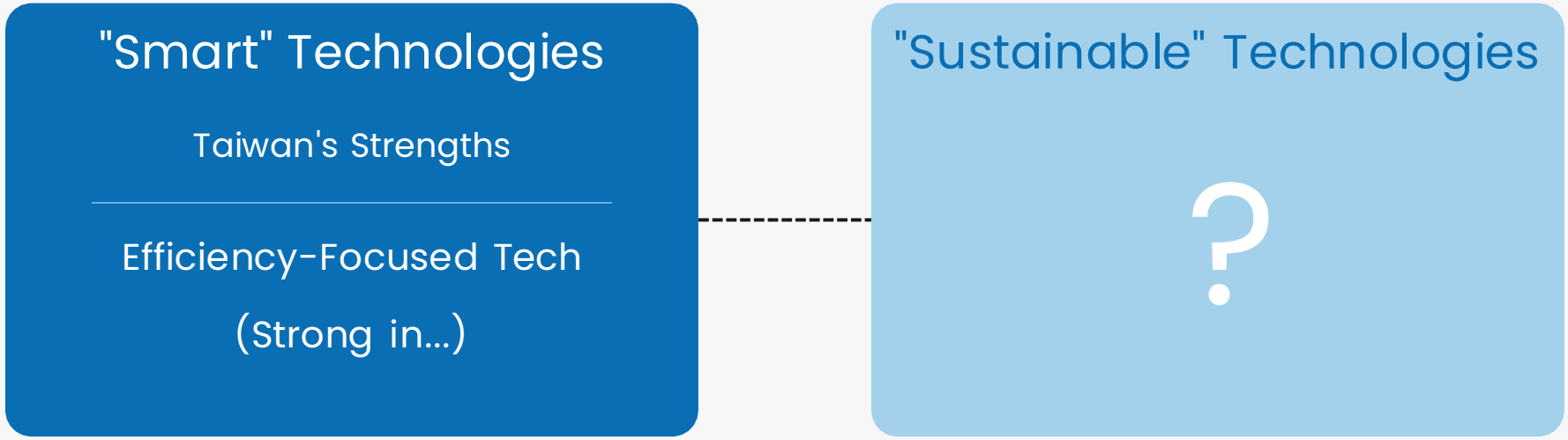
Ranking 25th globally, Taiwan shows a significant academic gap in overall research output and impact compared to the leading nations.



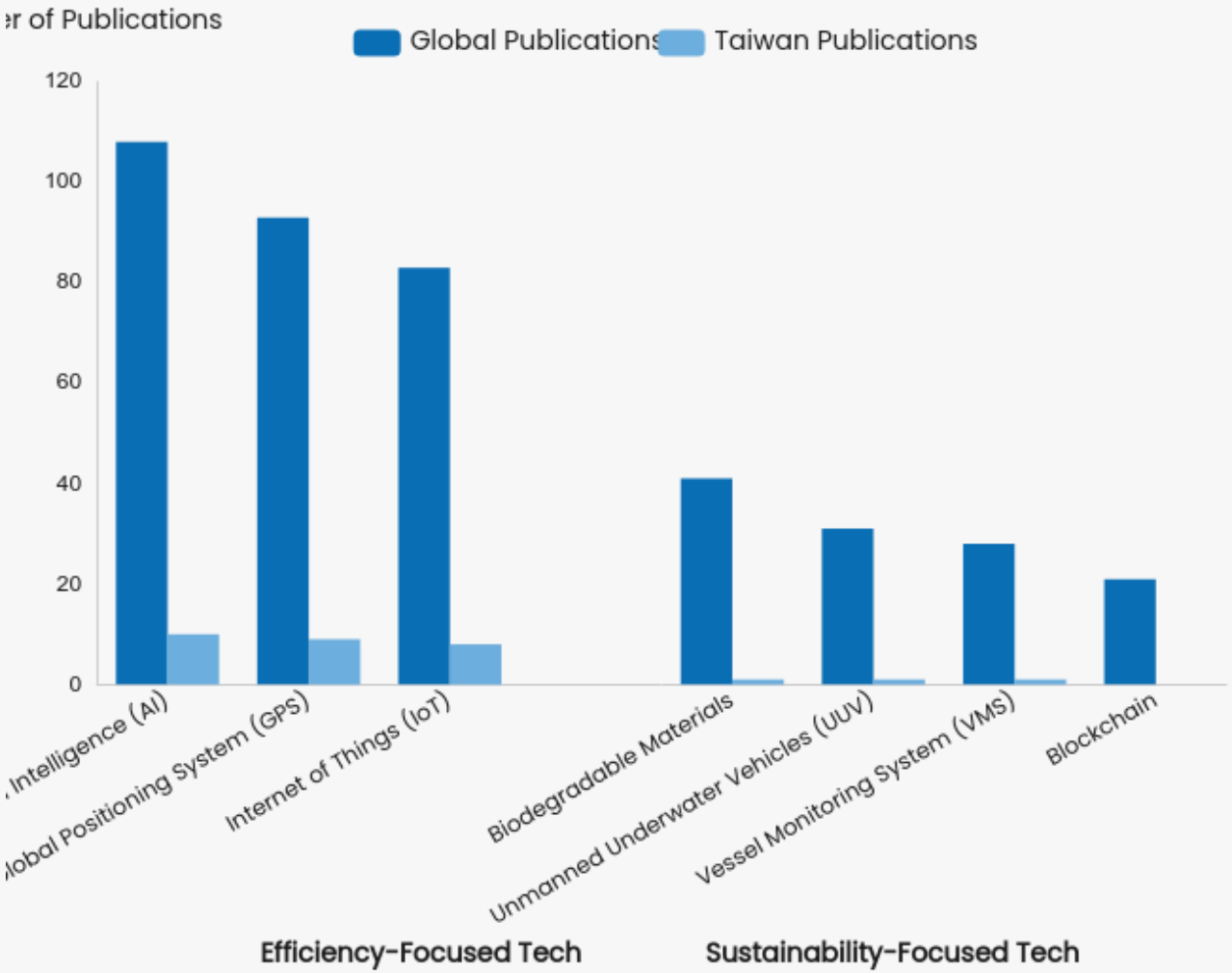
Finding 1 (cont.): The "Smart" vs. "Sustainable" Technology Gap

Clear Divide in Technology Development

A paradox exists



Finding 1 (cont.): Visualizing the Research Gap



Research Focus Comparison: Taiwan vs. Global Community

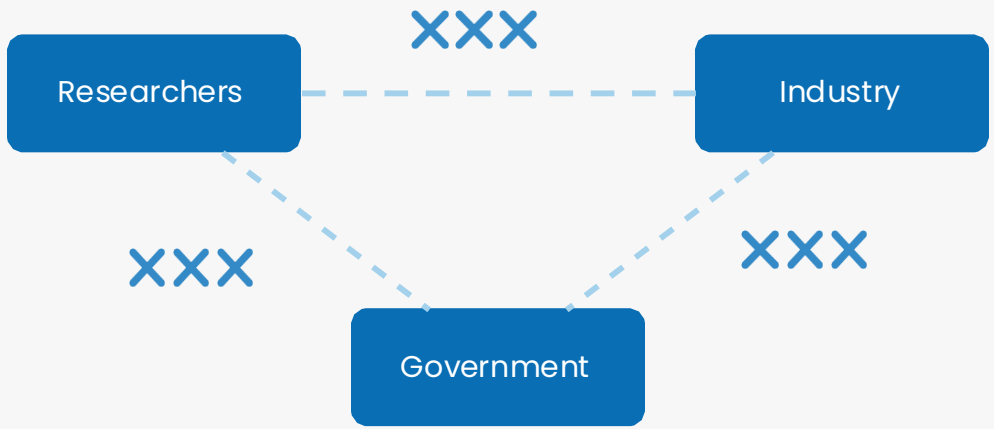
Key Observations:

- Significant disparity in sustainability-focused tech publications.
- Taiwan's research output for critical sustainable technologies like biodegradable materials and blockchain is almost zero.
- This represents a major blind spot in Taiwan's innovation efforts.

Key Finding 2: Why Does This Gap Exist?

The Technology Gap is Not a Technical Problem.

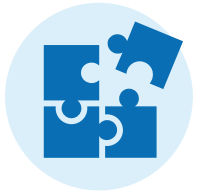
Our interviews revealed that the gap is fundamentally a human and systems problem.



Deep Disconnects

- Three critical disconnects exist among researchers, industry, and government.
- These hinder effective innovation and adoption of sustainable technologies.

Finding 2 (cont.): The Three Systemic Gaps



1. The Knowledge Gap

- Researchers develop advanced technology often ill-suited for harsh fishing environments.
- Fishers, especially older generations, have low awareness of new technologies and rely on informal networks.

2. The Trust Deficit

- Tech companies are hesitant to invest in fisheries due to perceived high risk, small scale, and unclear demands.
- Fishers are skeptical of expensive, unproven technologies with uncertain ROI.

3. The Institutional Failure

- Critical lack of government support for pilot testing sites creates a "valley of death" for promising research.
- Funding is often short-term and project-based, preventing long-term data collection and robust system building.

The Path Forward: A Four-Pillar Strategy

A holistic strategy to bridge gaps, aligning with national objectives to foster a connected future for Taiwan's fisheries.

Smart

Intelligent & Data-Driven

Sustainable

Eco-Friendly & Long-Term

Resilient

Adaptive & Robust

Safe

Secure & Reliable

The Four Pillars for a Connected Future

SMART

Build Implementation Platforms

- Create real-world testing sites for co-development and validation of technology.
- Reduces risk and connects research directly to industry needs.

SUSTAINABLE

Focus on Green Technologies

- Prioritize R&D and policy support for technologies like biodegradable materials.
- Aligns innovation with global environmental standards.

RESILIENT

Create Co-Learning Platforms

- Establish formal platforms for dialogue among young fishers, tech experts, and academics.
- Builds shared knowledge and fosters trust.

SAFE

Promote a Trust-Based System

- Utilize AI monitoring and blockchain for transparent and traceable seafood systems.
- Connects sustainability to market value and consumer confidence.

Conclusion: From Research to Reality

Our Core Message: Bridge the Human Gap First

Success is hindered by disconnections between people, not technological limitations.

To bridge the technology gap in Taiwan's fisheries, it is essential to foster collaboration between research, industry, and policy sectors.

Our Next Step: A Strategic Focus for Action

Next Phase Focus: Biodegradable Fishing Gear

Developing and promoting biodegradable fishing gear as a tangible, high-impact goal.

Real-World Test for the Four-Pillar Strategy

- This project forces necessary collaboration currently missing.
- Addresses a critical sustainability gap in marine pollution.
- Aims to build a new, collaborative model for innovation, not just a new product.

Thank you for your attention.

I would be happy to answer any questions you may have.