

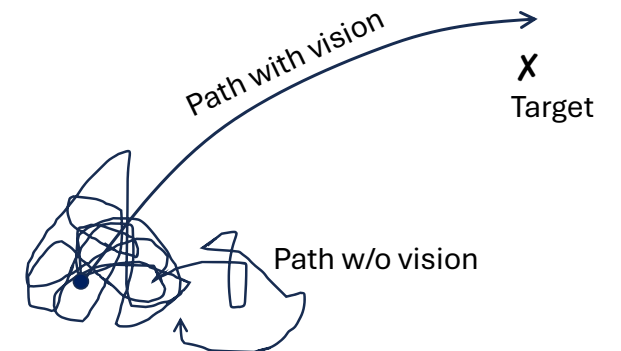
Refining the vision of Okazaki Group

Atsushi Okazaki

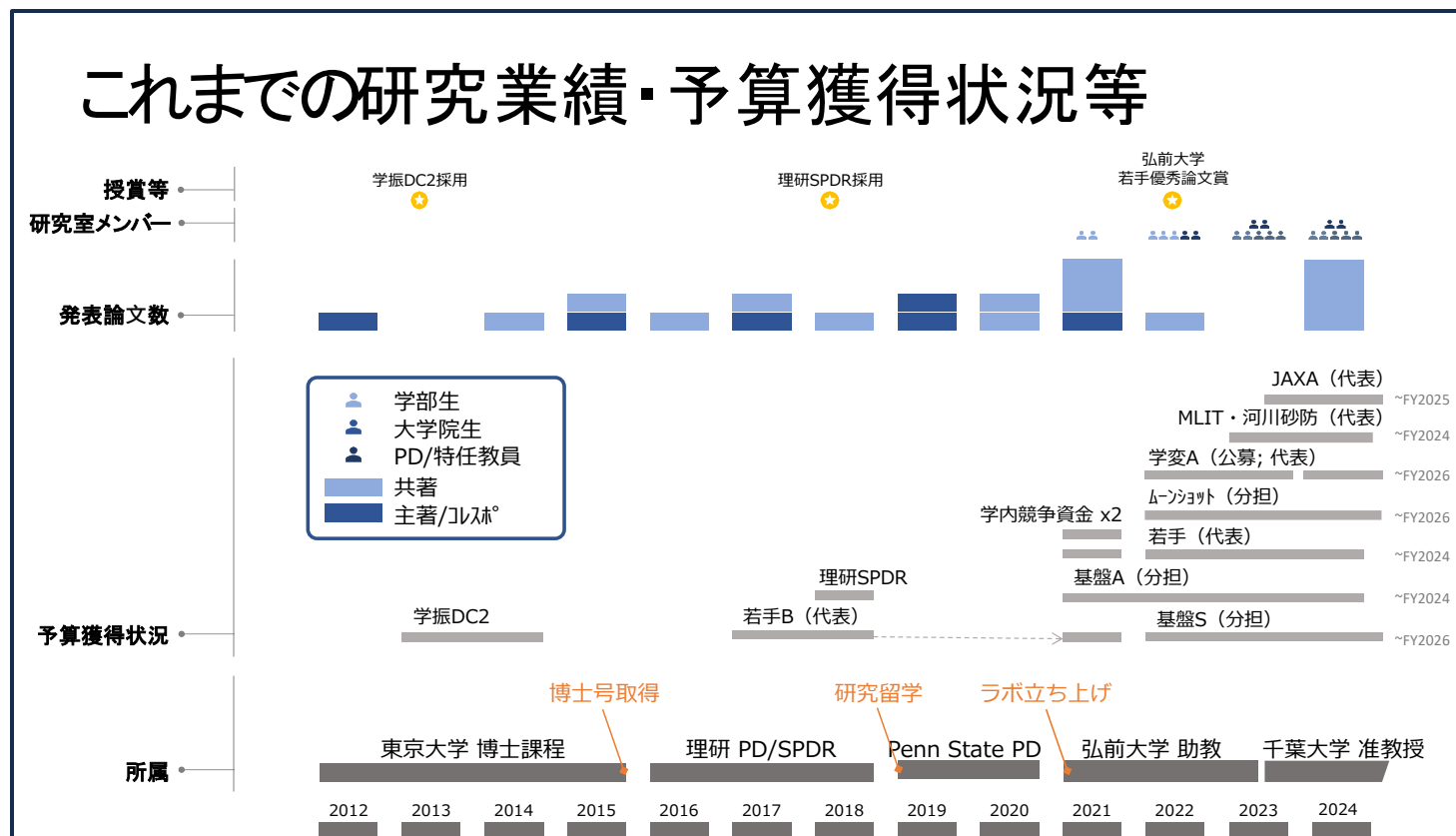
atsushi.okazaki@chiba-u.jp

Vision /'vɪʒn/

the ability to think about or plan the future with imagination or wisdom.



Reflect on my past activities...



The number of

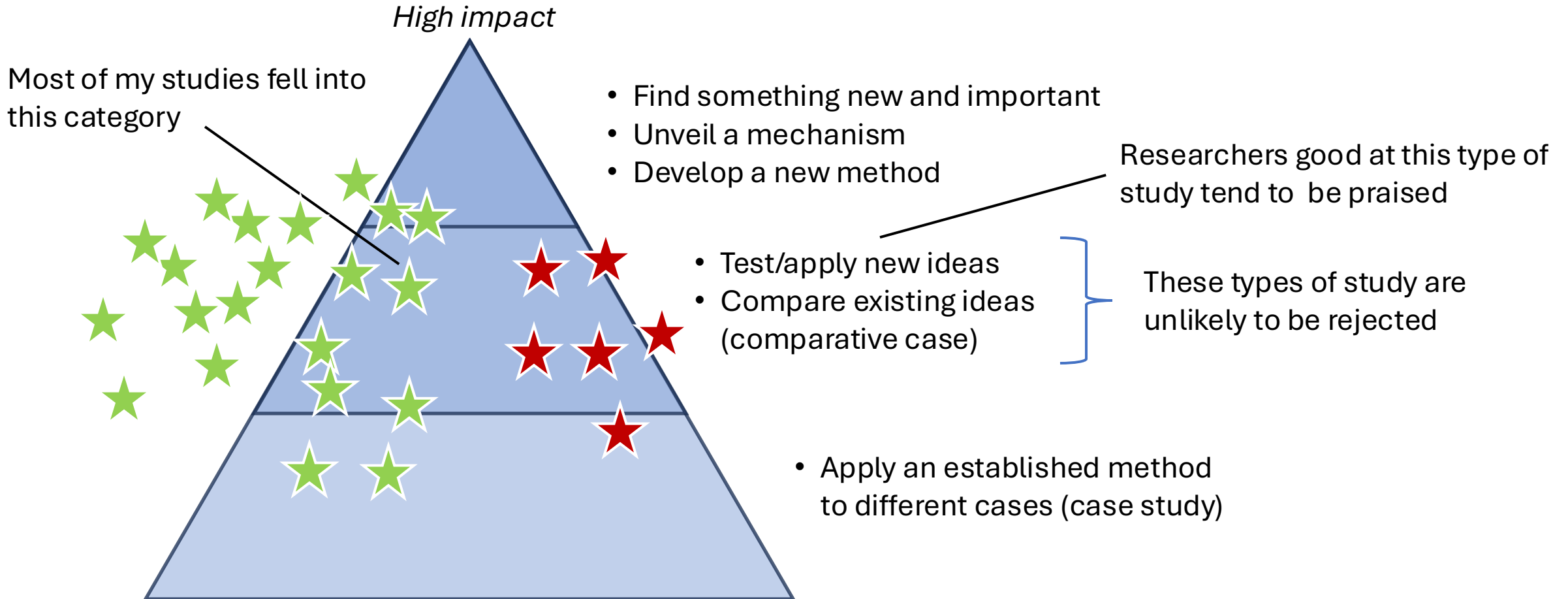
- Members
- Publications
- Projects

all increases



Am I (Are we) tackling important issues??

Classification of manuscripts

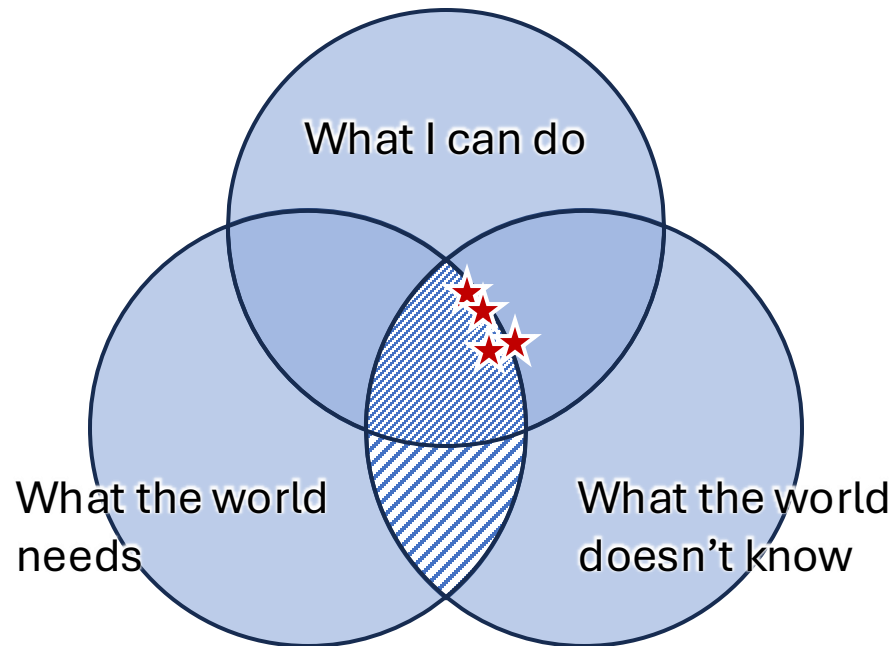


I'm not working on important issues!! 😞

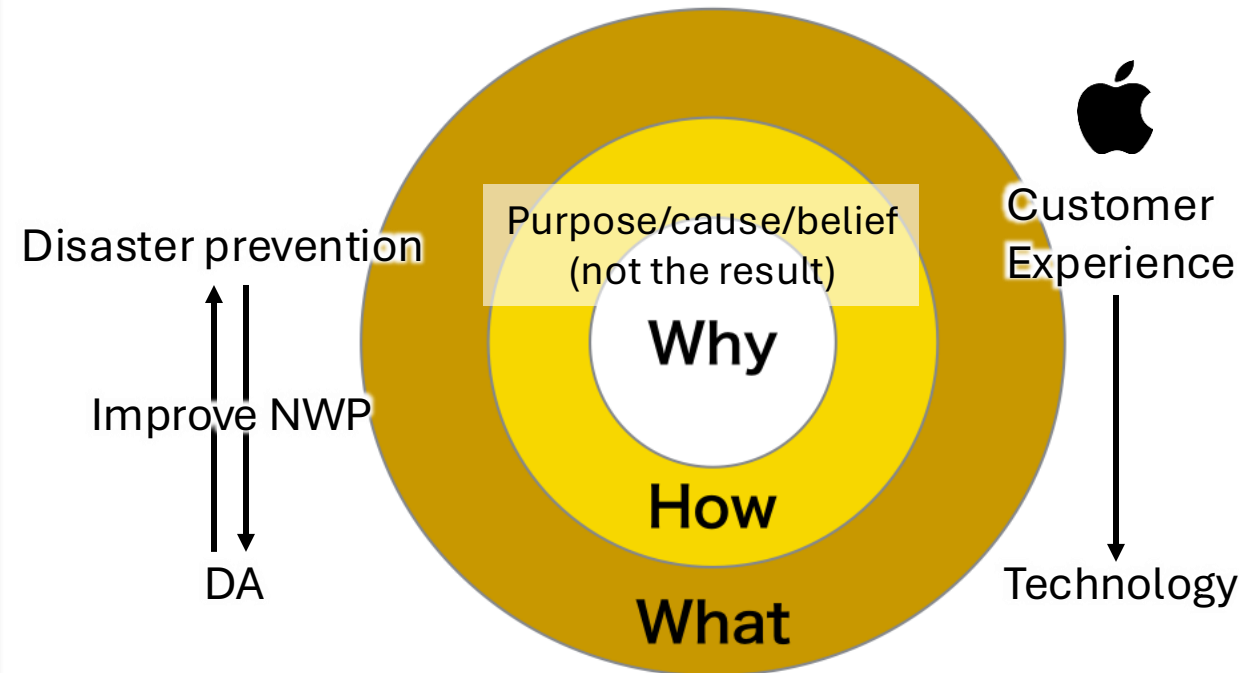


The way I used think

- Start with "What I can do"
→ find the needs
- Sometimes fail to find key needs



- "Start with why" (Simon Sinek)



Refine the goals; Why

To define “why”, we need to clarify the values that we want to pursue

Values to pursue

- Piece
- Prosperity
- Well-being
- Sustainability

Undesirable things

- War
- Hunger
- Poverty
- Diseases

Issues in the world; How

To realize the values/avoid the undesirables, we need to understand issues

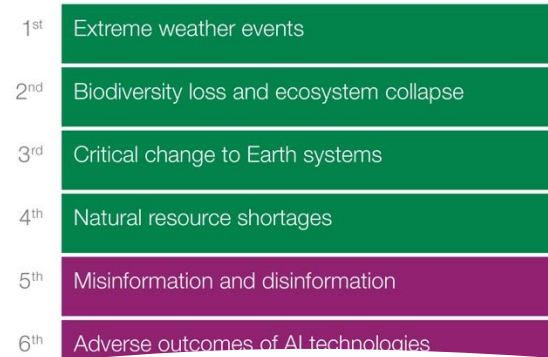


Global Risks and the interconnections

Short term (2 years)



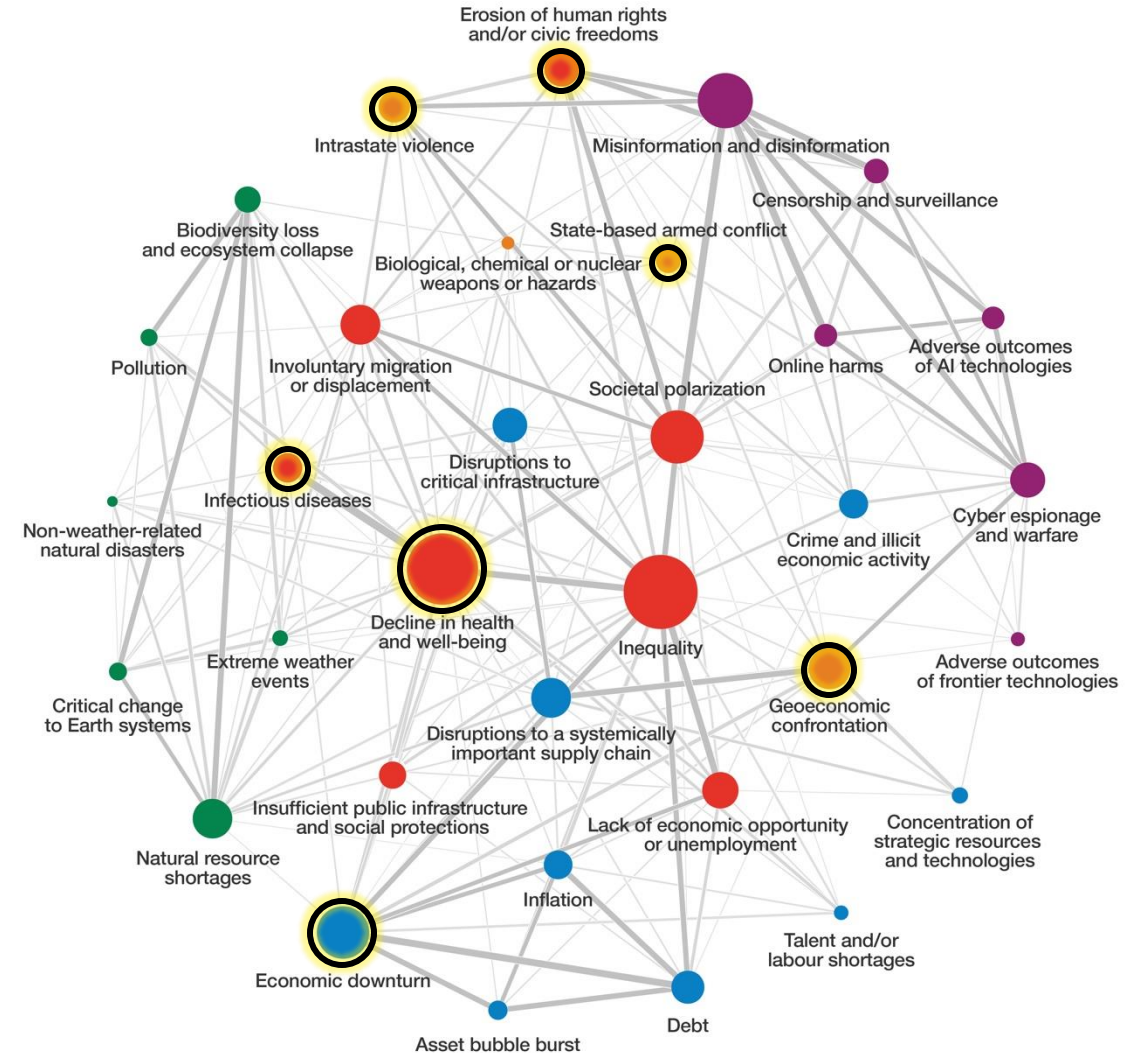
Long term (10 years)



✓ Climate-related risks are the most threatening among others

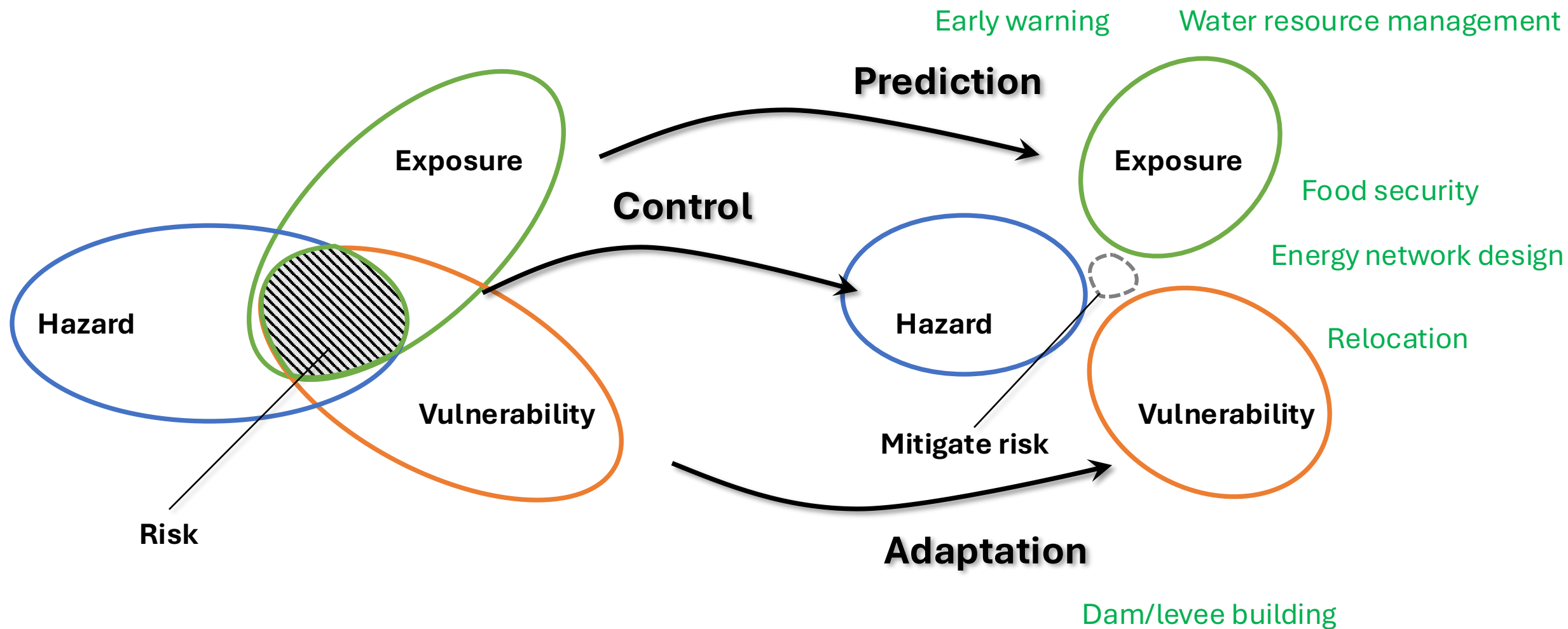
Risk categories: Economic (blue), Environmental (green), Geopolitical (orange), Societal (red), Technological (purple)

Source: World Economic Forum, Global Risks Perception Survey 2024-2025

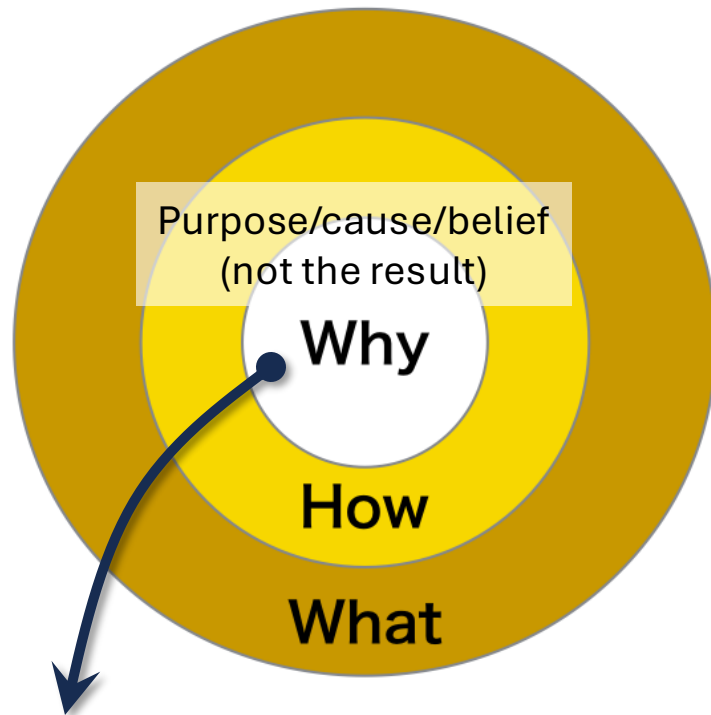


Plans; What

What can we do for the climate-related risks?



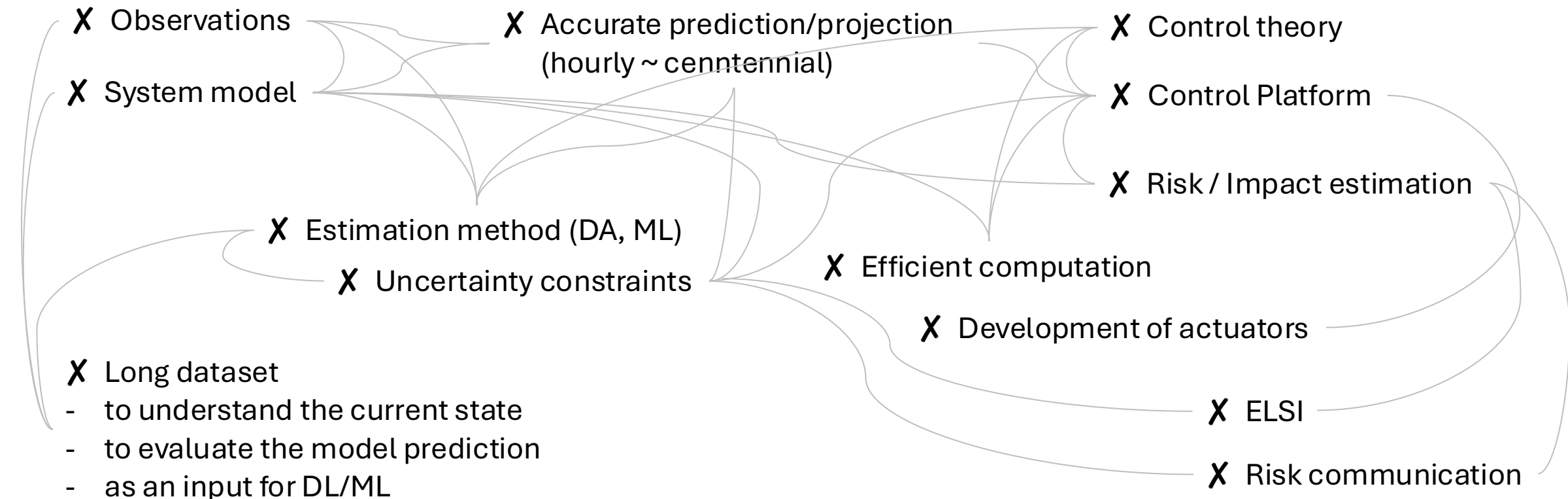
Our revised vision



- **WHY:** We want to realize sustainable development, where the world is free from the threats of hunger and poverty
- **HOW:** Mitigate the negative impact of climate change
- **WHAT:** Enhance various ranges of predictions for disaster-resilient society and develop damage-based control framework

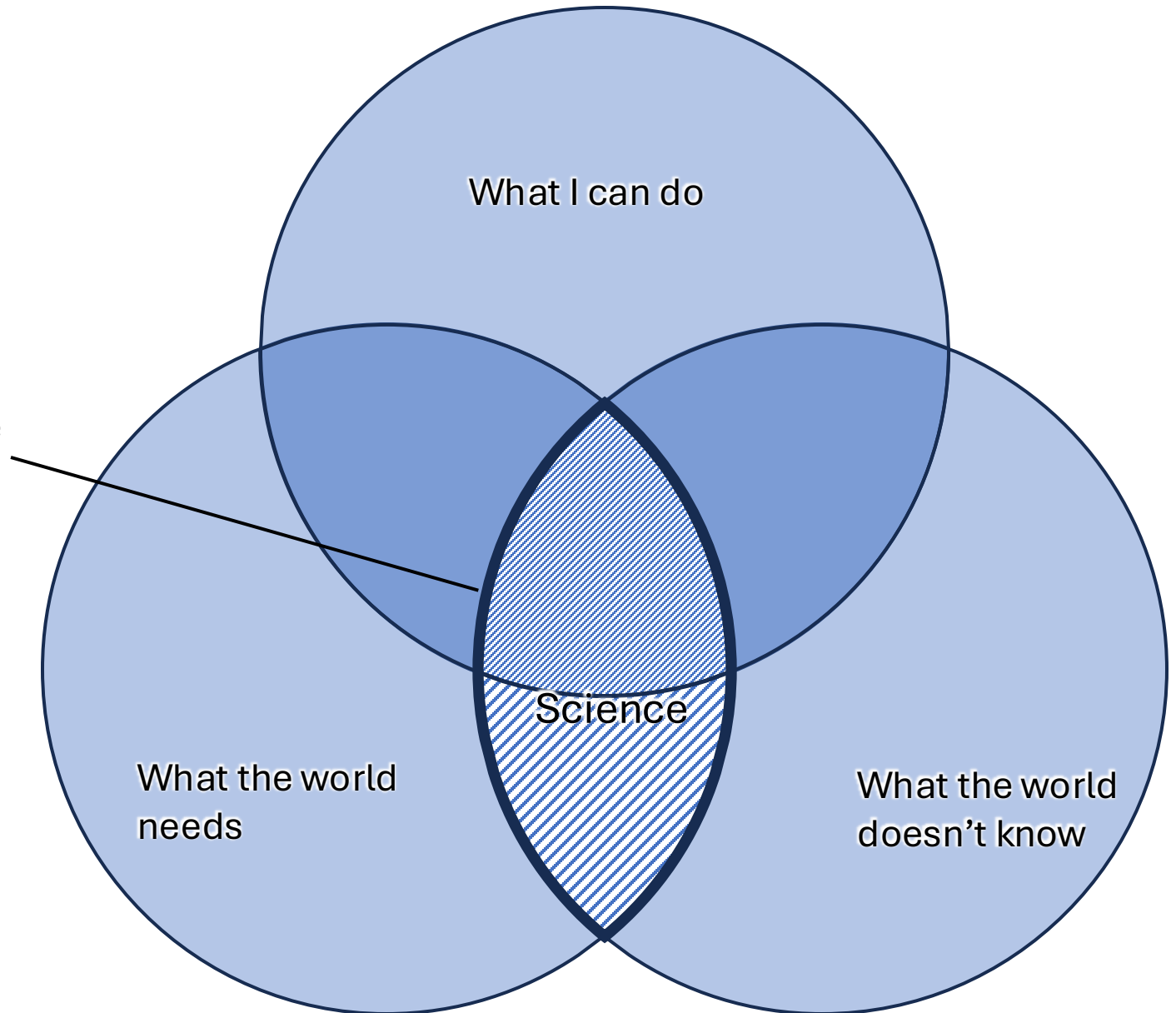
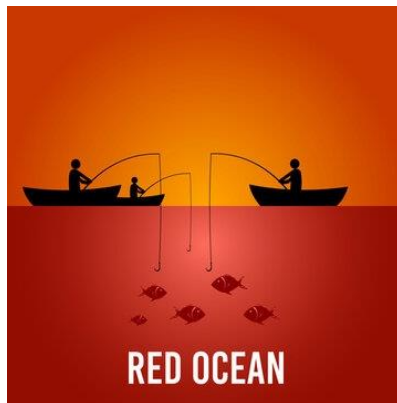
What's necessary to realize the vision?

Process understanding ● ● ● Prediction ● ● ● Control / Adaptation

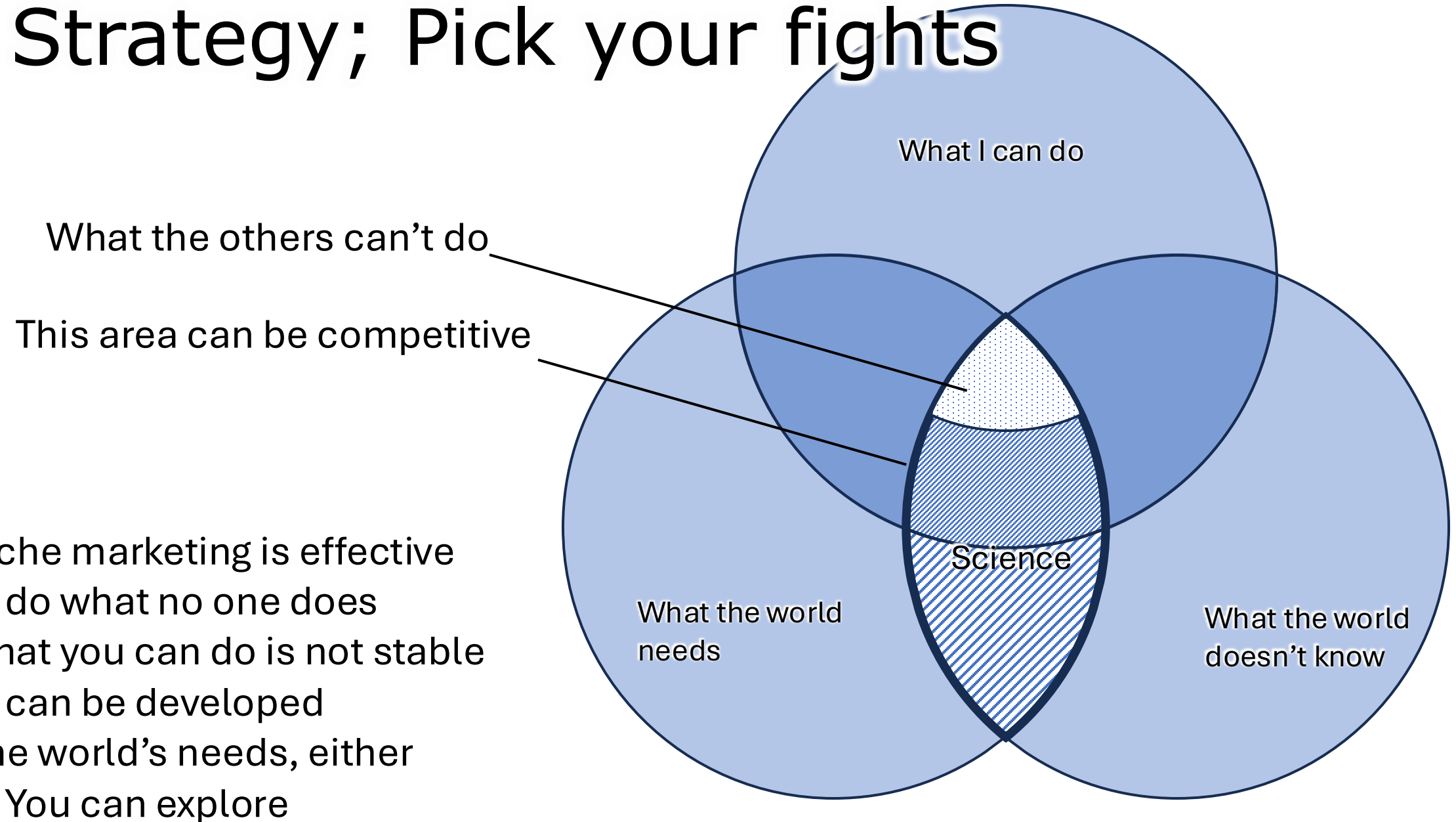


Strategy?

This area can be competitive

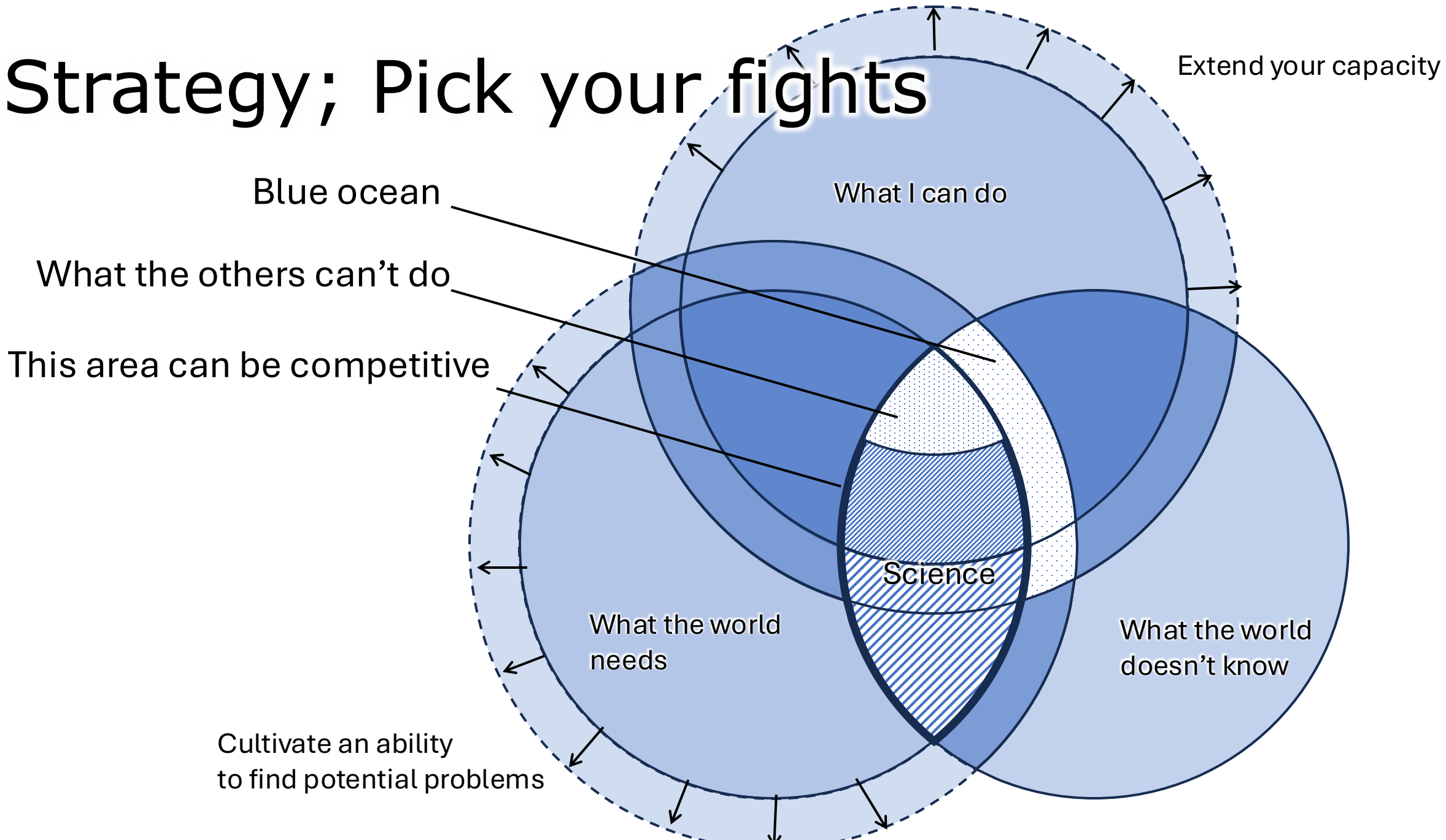


Strategy; Pick your fights



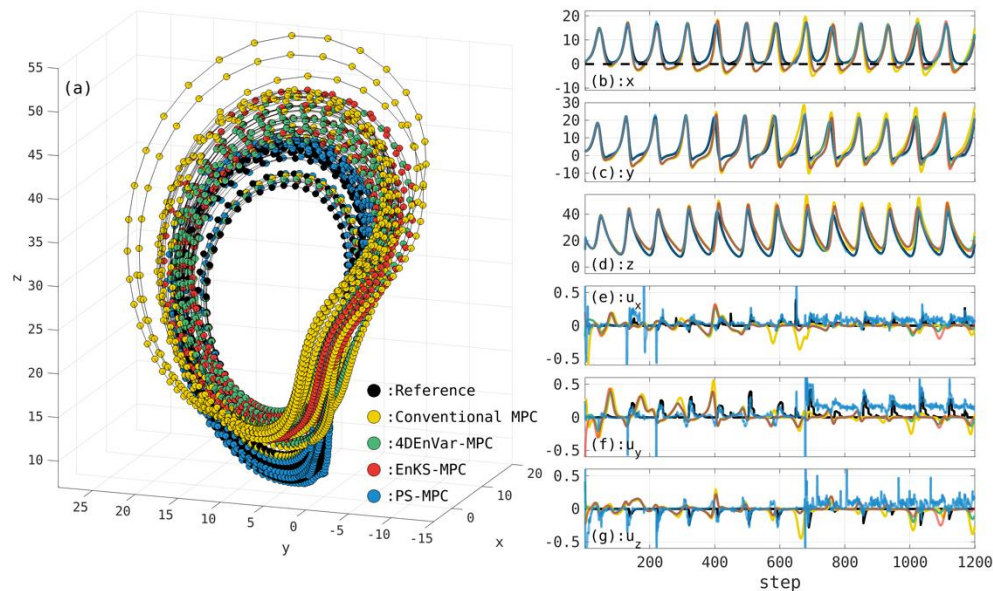
- ✓ Niche marketing is effective
 - do what no one does
- ✓ What you can do is not stable
 - can be developed
- ✓ The world's needs, either
 - You can explore

Strategy; Pick your fights

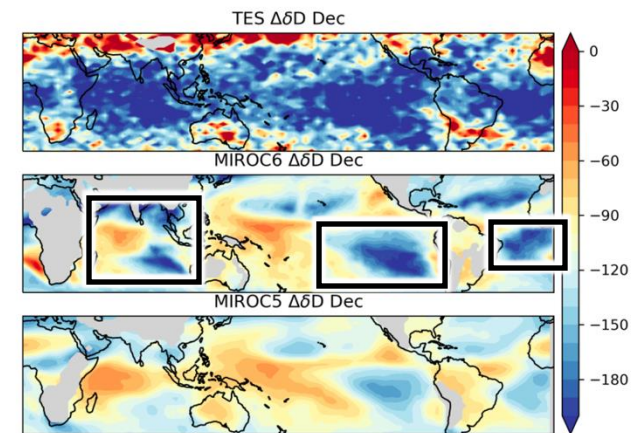
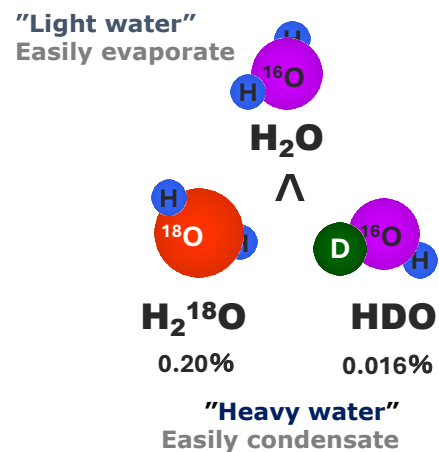


Our strengths

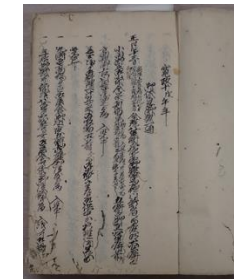
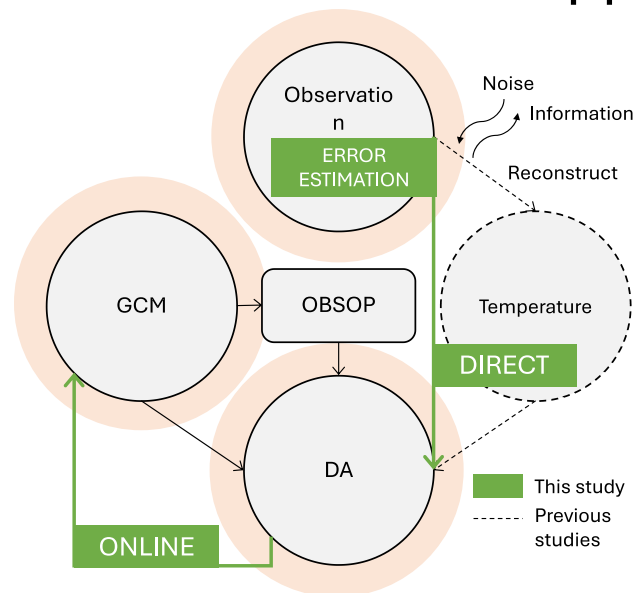
✓ Weather control



✓ Stable Isotope Modeling



✓ Data Assimilation Applications



- +
-
- Plans for impactful research both on science and society



Opportunities



Process understanding • • • Prediction • • • Control / Adaptation

In-cloud Isotope Hydrology

X Accurate prediction/projection
(hourly/decadal/centennial)

Flood Control 2.0

X Control theory

X Control Platform

X Risk / Impact estimation

X Estimation method (DA, ML)

X **DA as EC**
X Uncertainty constraints

X Efficient computation

X Development of actuators

X Long dataset

- to understand the system state
- to evaluate the model
- as an input

X FLO

NOW IS THE TIME

LET'S DO HIGH-IMPACT SCIENCE TOGETHER

Thank you!

Atsushi Okazaki

atsushi.okazaki@chiba-u.jp