

# Sustainable Shipping on Lake Constance

H. Homburger, S. Wirtensohn,  
C. Stopp, M. Diehl, J. Reuter

## Introduction

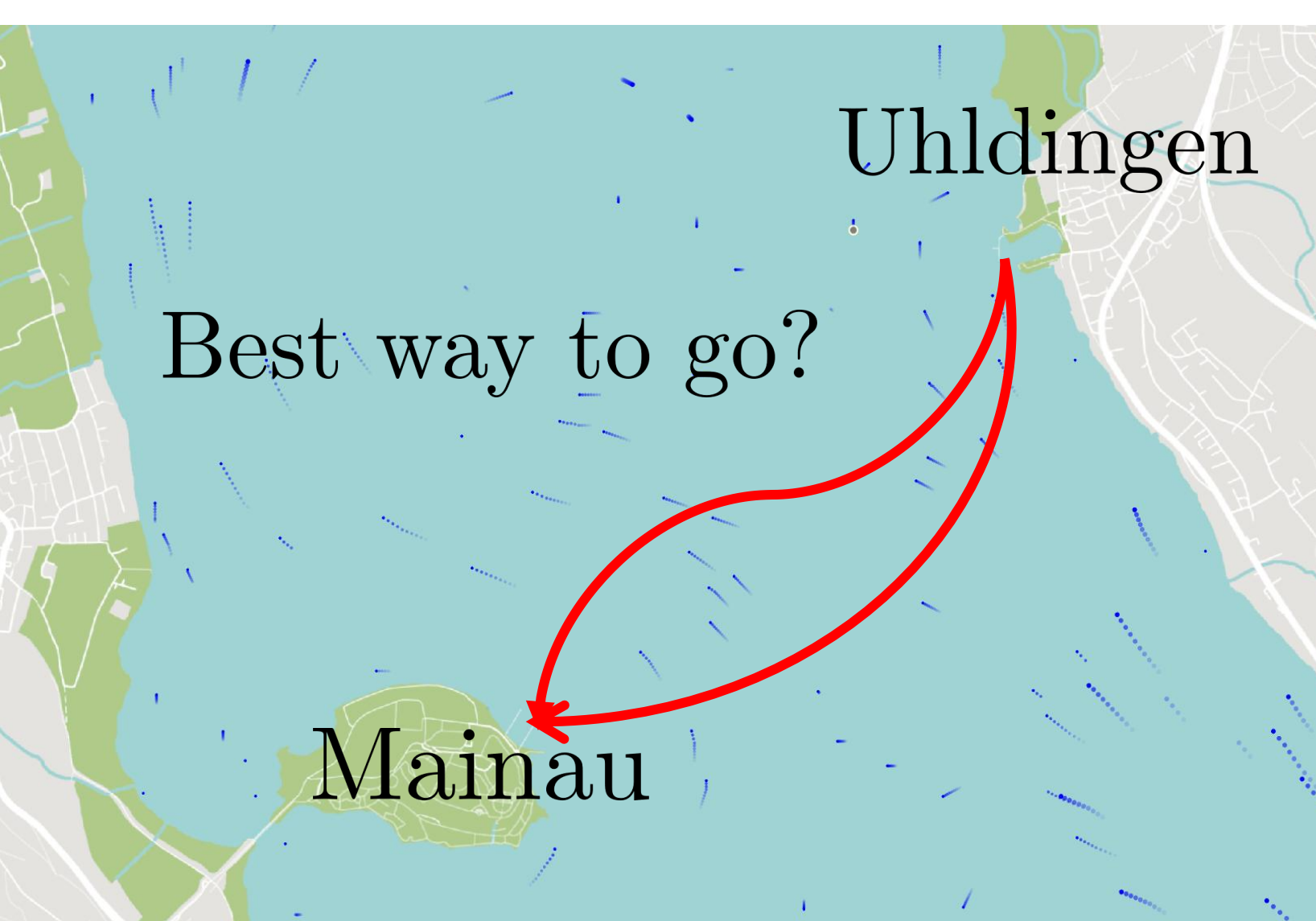
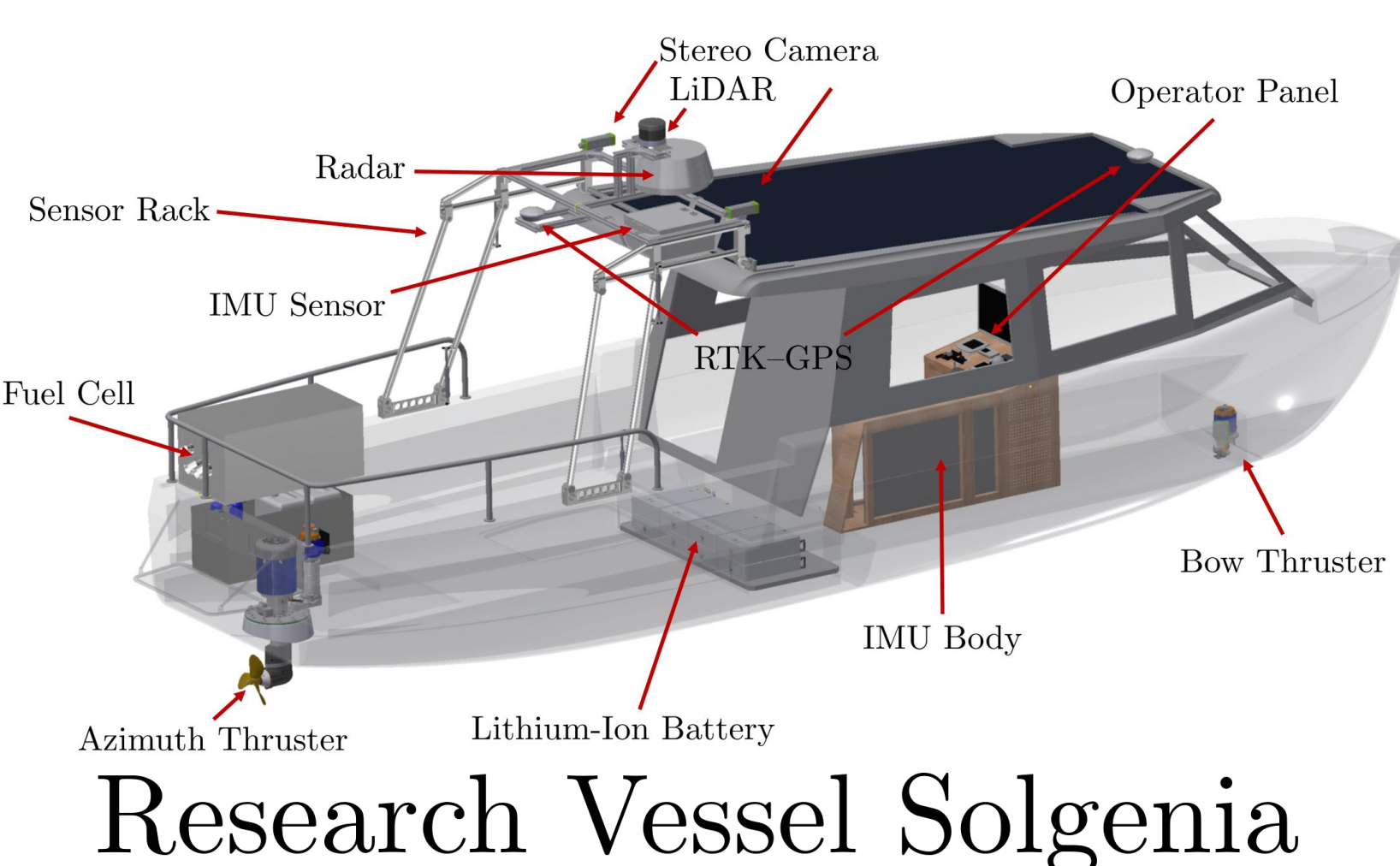
- $\approx$  **6M passengers/year**
- Important part of **decarbonization**
- Improved **efficiency**

## Challenges

1. Get **crew** acceptance
2. Dominating **disturbances**
3. Limited **information**

## Targeted Results

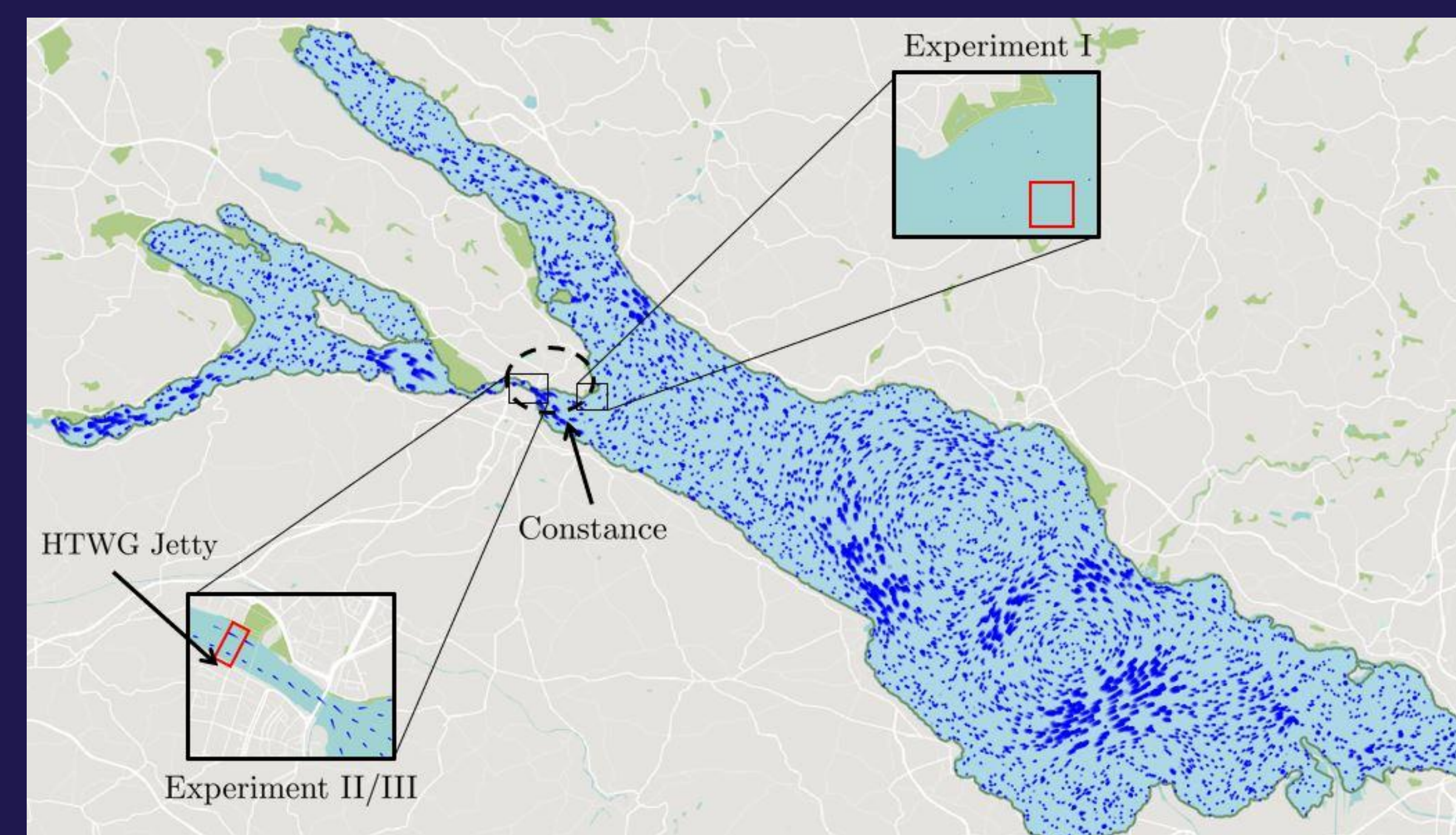
- Accurate **model** of vessel
- **Application** of **optimization**
- **Heavily reducing energy** for transfer and docking



# Optimization promises significant energy savings for sustainable shipping on Lake Constance



Fully-Electric Ferry MS Insel Mainau (300 Passengers)



Modeled Current Field on Lake Constance



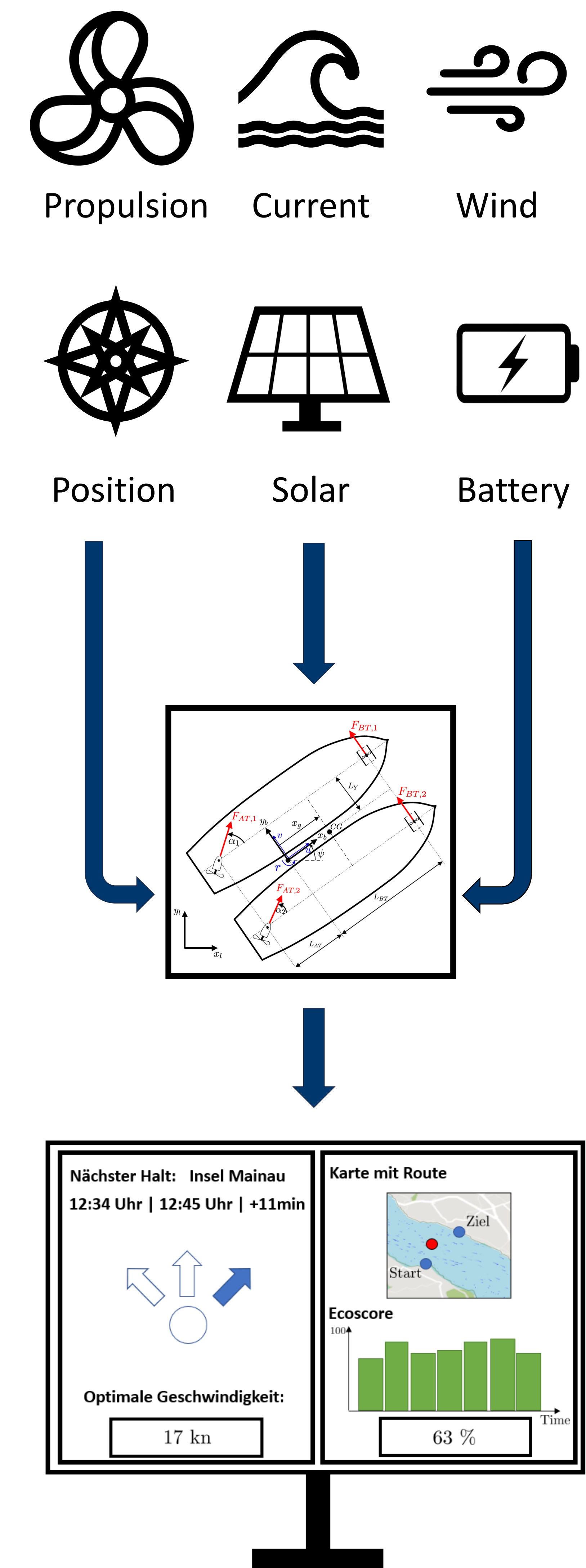
Download the poster



Main reference paper

universität freiburg

## Decision Support



## Key Elements

- Human in the loop
- Gamification via nudges
- Real-world impact