

Havbruk mot 2050 i et globalt perspektiv

- hvordan kan digitalisering påvirke trendene?

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DNV

- a global assurance and risk management company

159

years

~13,000

employees

~100,000

customers

100+

countries

5%+

of revenue in R&D

DNV

- a global assurance and risk management company

Certify, verify and test

against regulatory requirements, standards and specifications

Co-develop and share

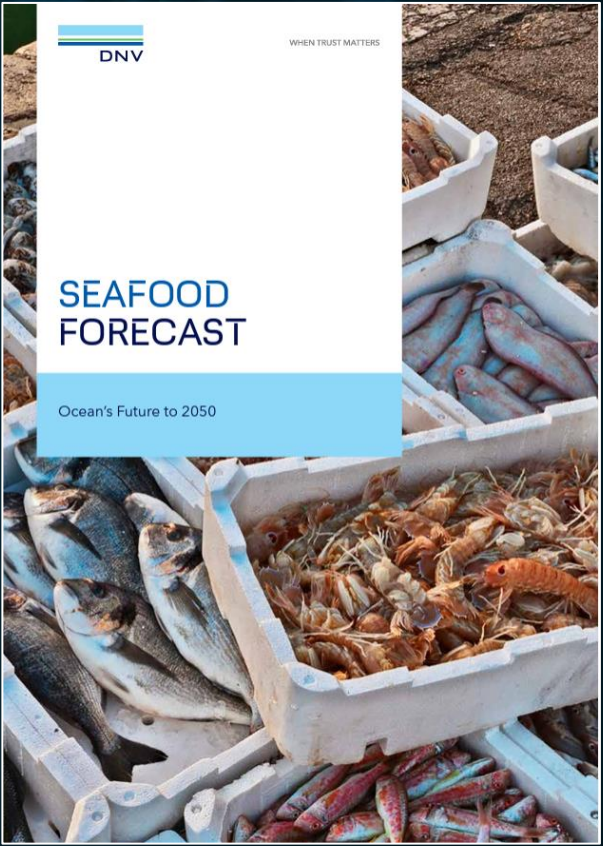
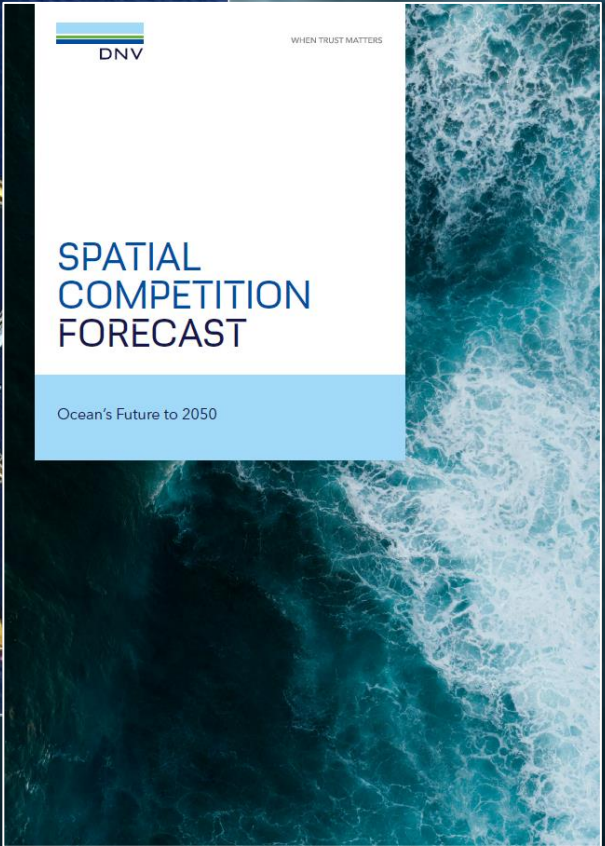
new rules, standards and recommended practices


Qualify and assure

new technologies, data, operational concepts

Give expert advice

on safety, technology, risk efficiency, and performance,



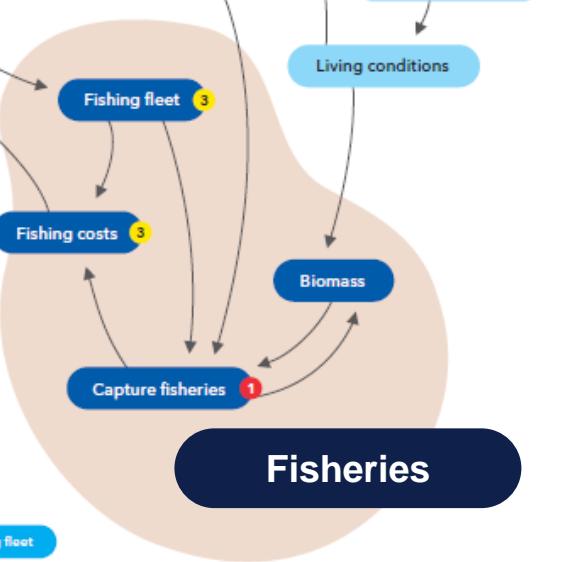
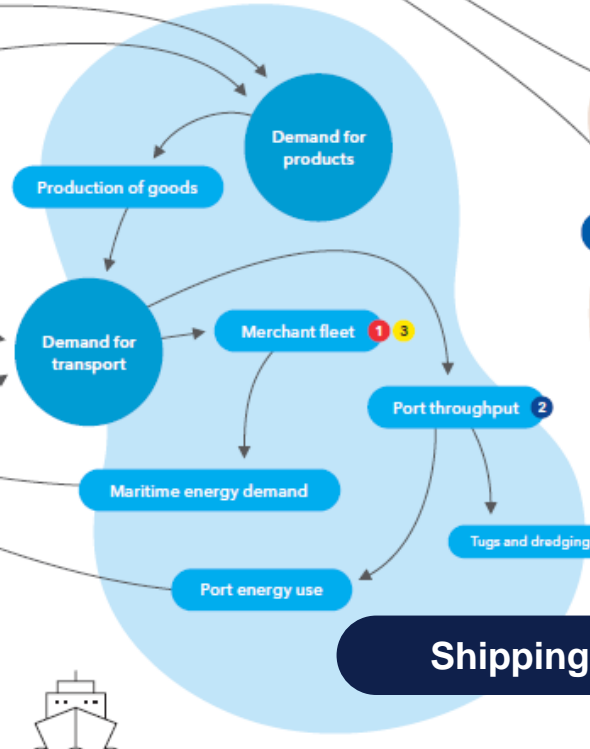
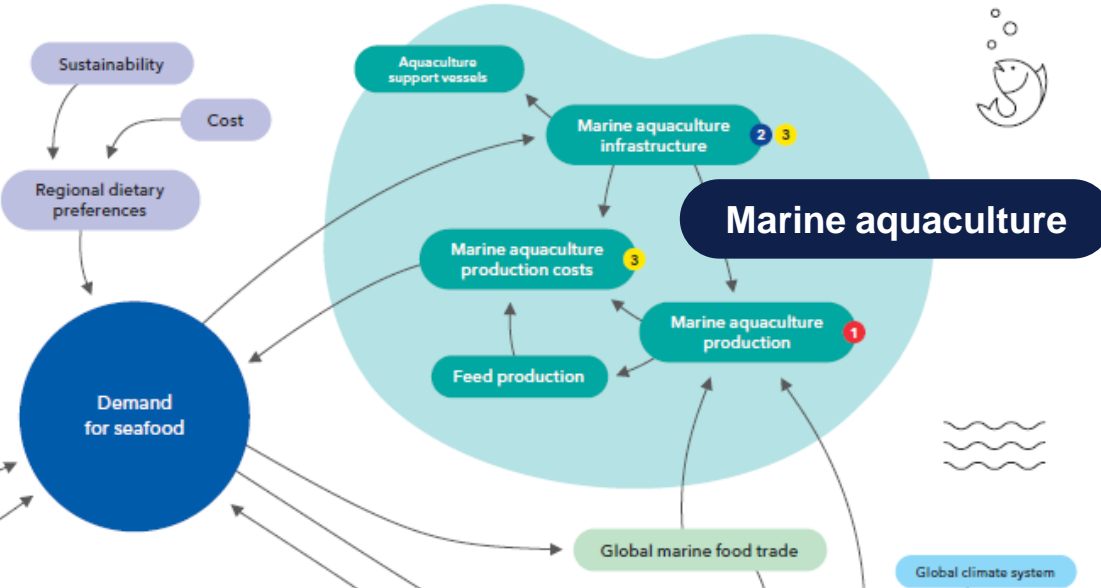
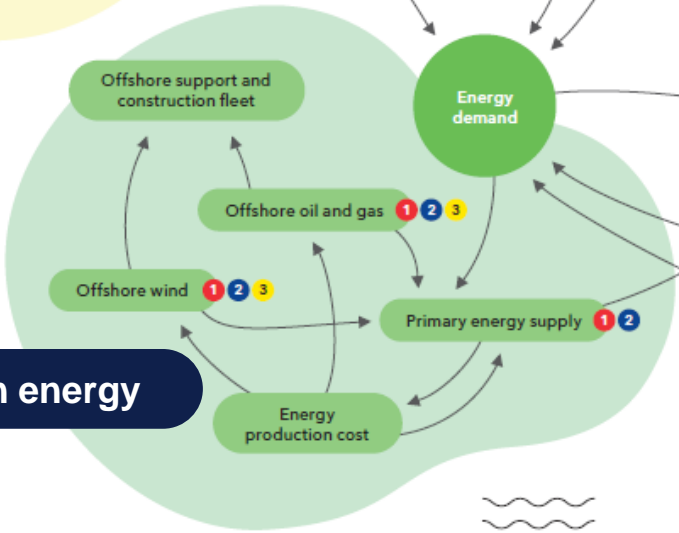
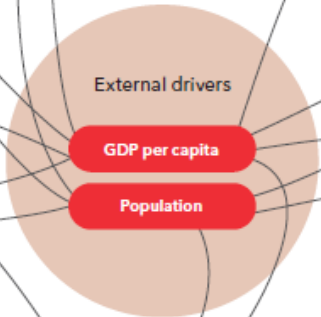
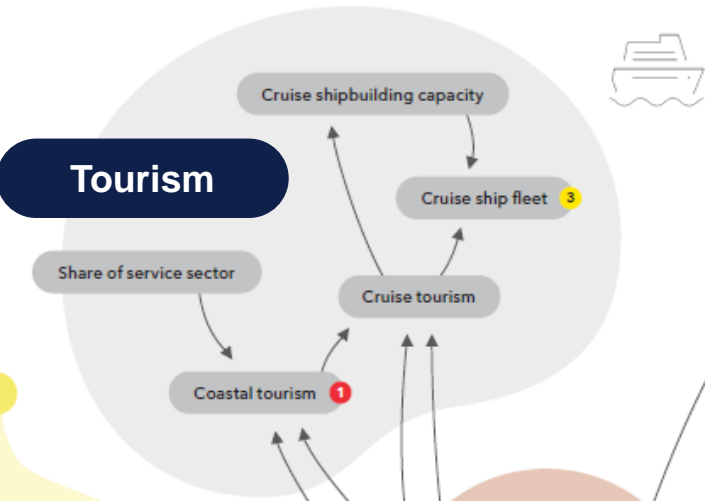
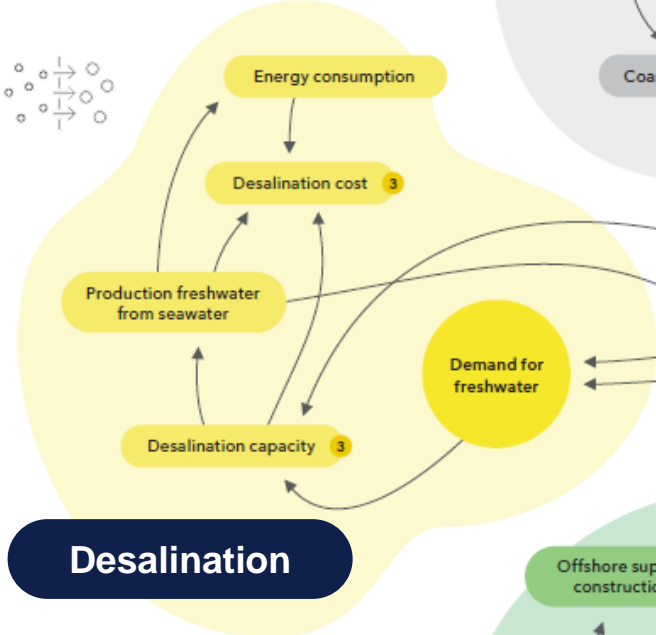


What will be the future demand for seafood and how will this be met?

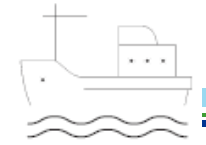
What are the key social, technological and environmental trends shaping this future?

SIMPLIFIED OVERVIEW OF OUR SYSTEM DYNAMICS SIMULATION MODEL

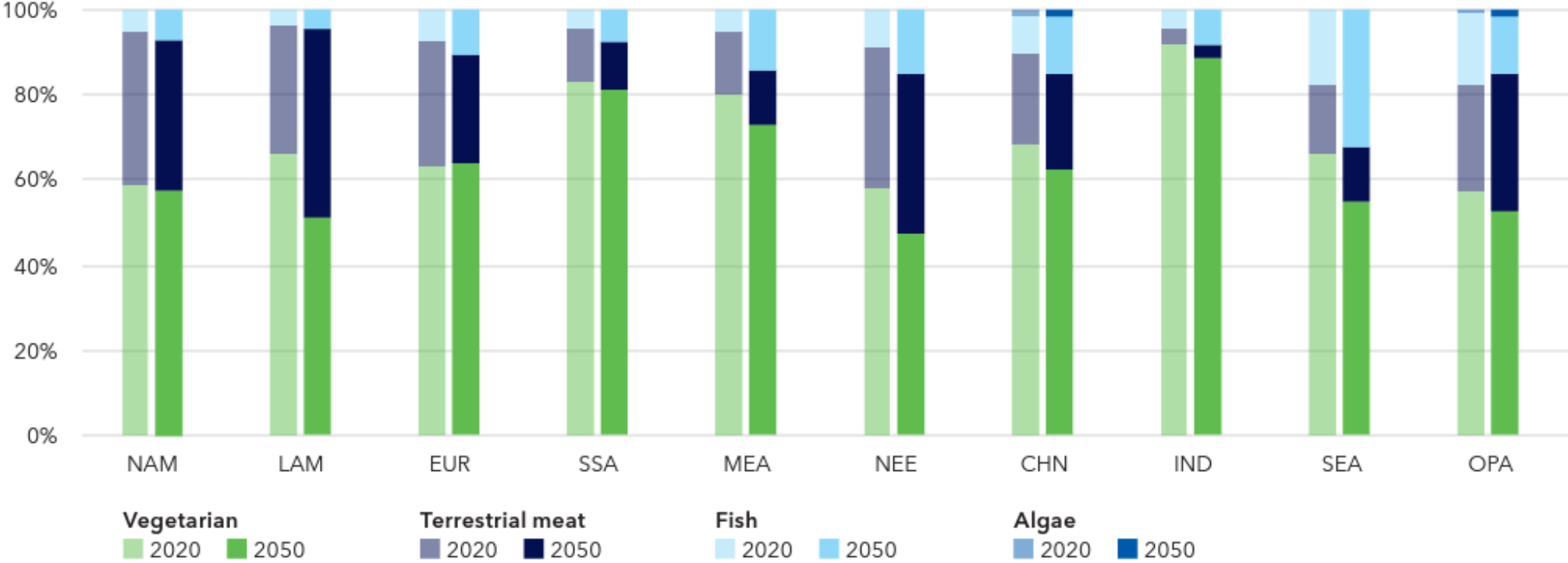
This diagram shows the drivers of the Blue Economy, and the relationships between the different variables in our model.



- 1 Ocean industry employment
- 2 Spatial competition
- 3 Economics (capex/opex)

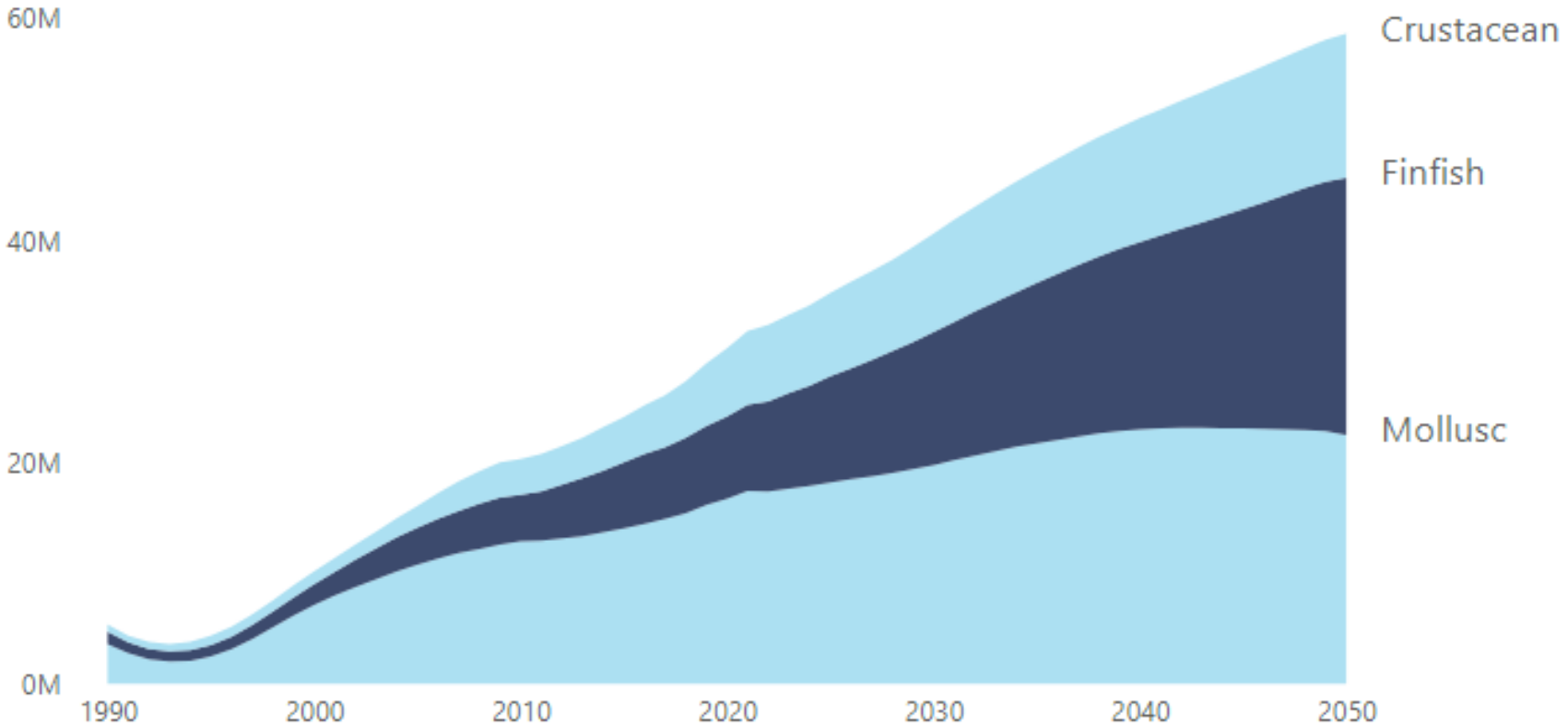


Seafood will play an increasingly important role in the global supply of animal protein



Protein Consumption mix

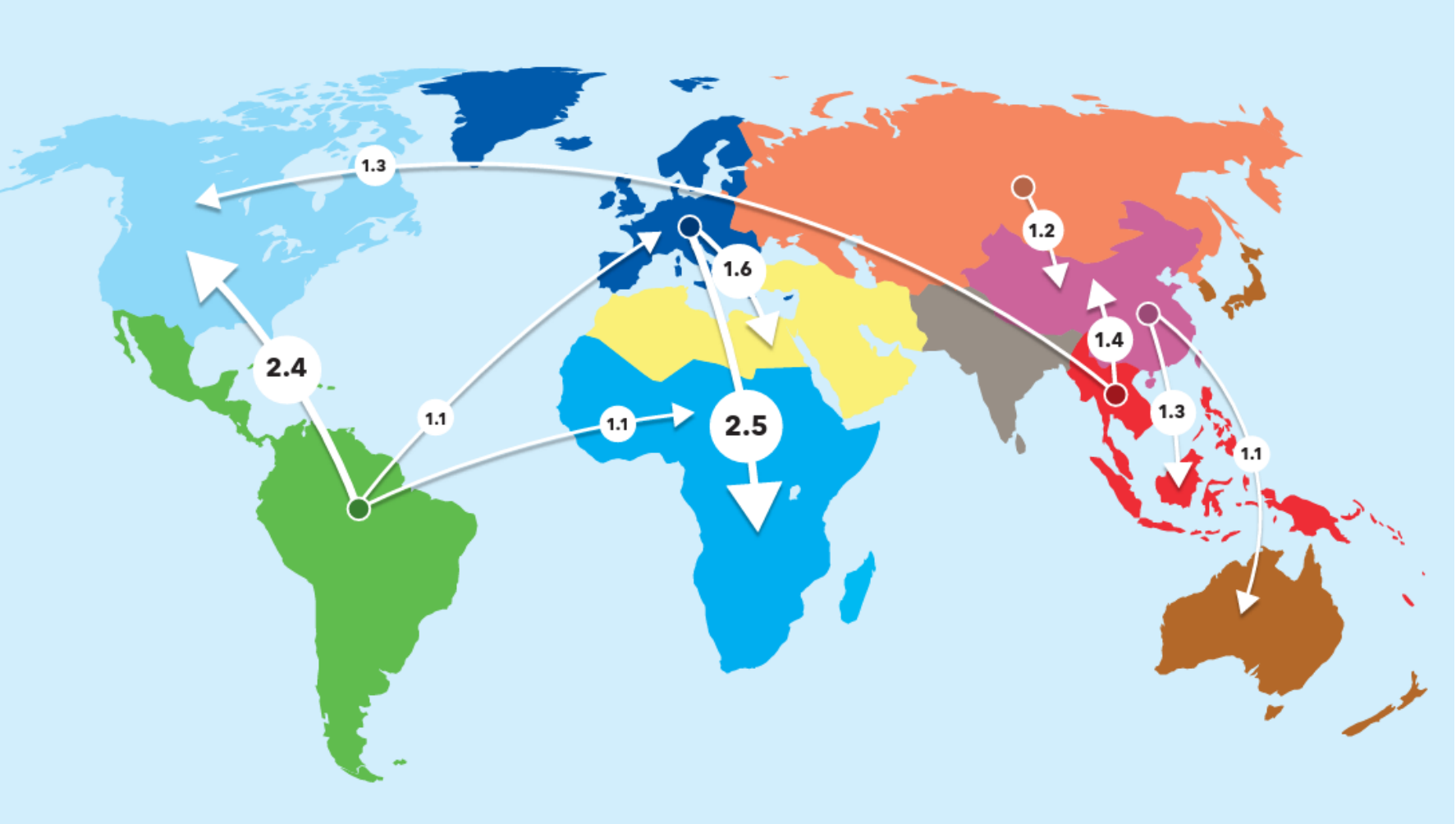
Marine aquaculture production doubles – finfish almost triples



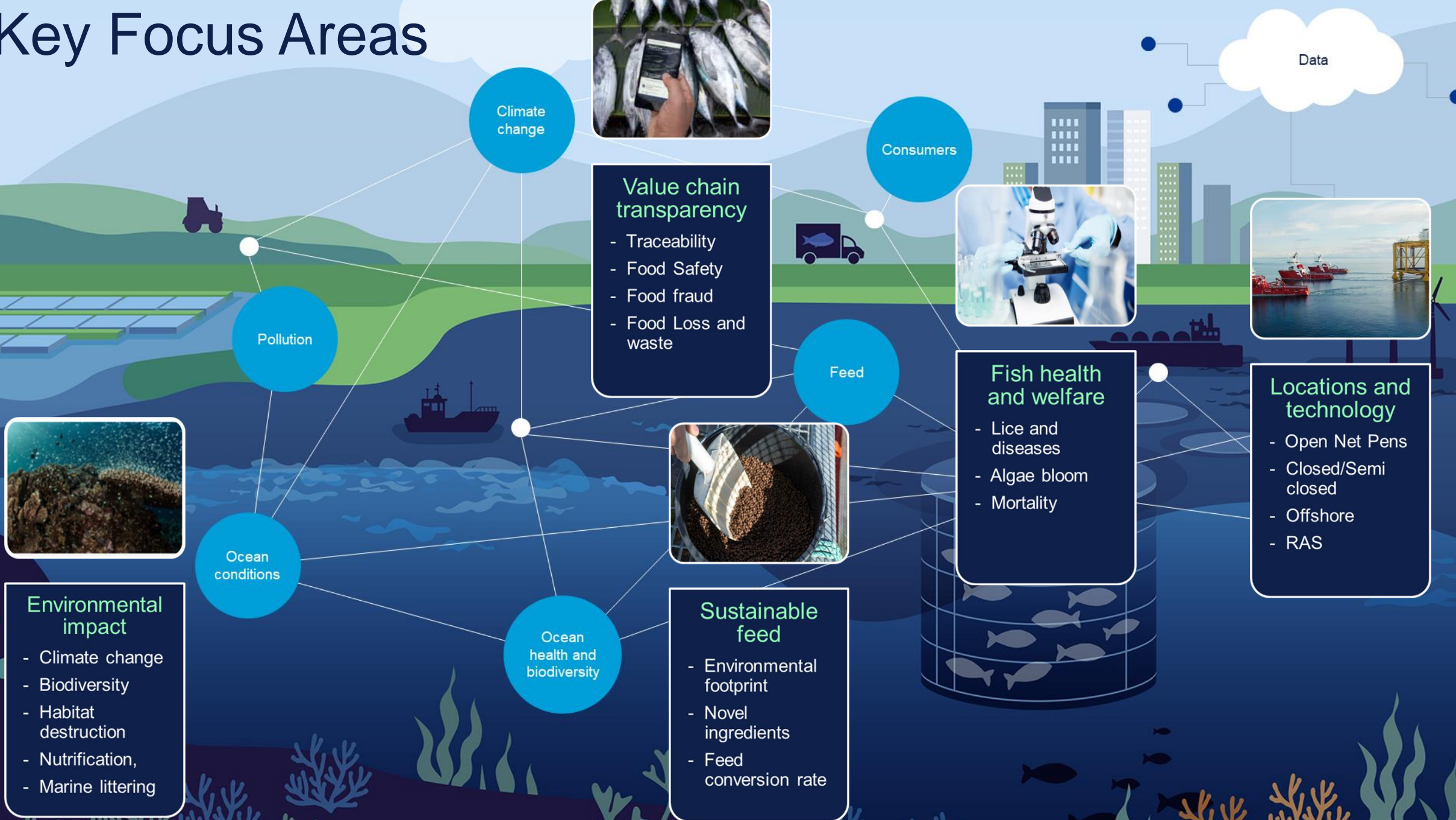
Marine Aquaculture production (tonnes)



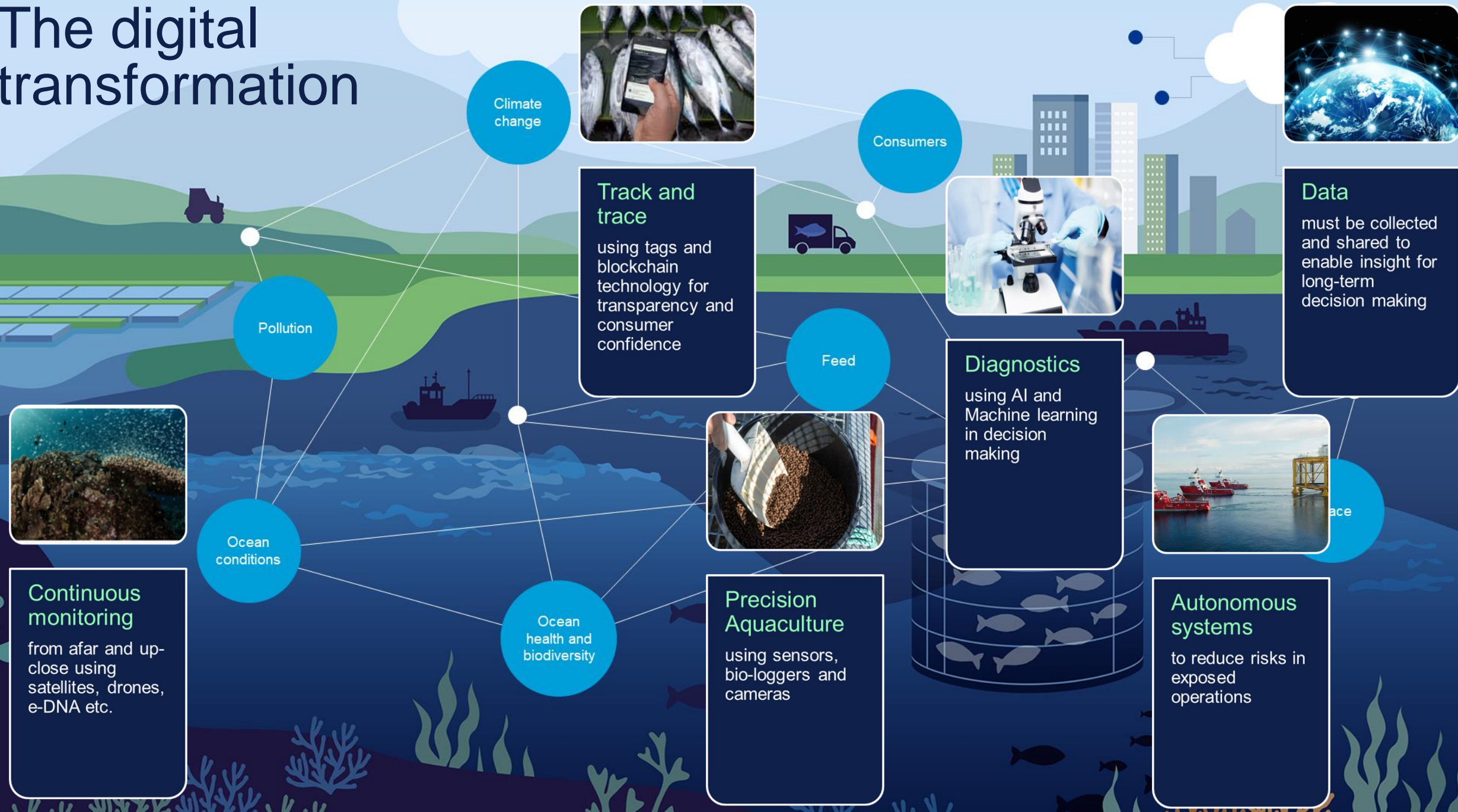
Marine aquaculture will not grow enough to close the gap in supply and demand for capture fisheries



Key Focus Areas



The digital transformation



Transition from Physical to Virtual assets



Form is fixed
Changes are difficult and slow
Behaviour is predictable
Direct human contact

Form is flexible
Changes are easy and frequent
Behaviour is hard to predict
Complex human factors

Digital technologies – engines for progress but also risks

- **Must ensure that digital assets perform as intended**
 - through their lifetimes,
 - in the context of continual updates, and
 - while connected to other digital assets and systems.
- **Risk challenge are shifted** from
 - a small number of high-risk assets to
 - multiple interconnected vulnerabilities.
- **Trust gaps emerge** as technology development outpaces the evolution of regulations and standards.



Thank you for your attention!

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