



MADE IN
EUROPE



NON GMO



BioÖkonomieRat



BLUU
SEAFOOD

Kultivierter Fisch als das zukünftige „Normal“

Die Transformation der Produktion tierischer Proteine mithilfe
von neuen Technologien am Beispiel von kultiviertem Fisch

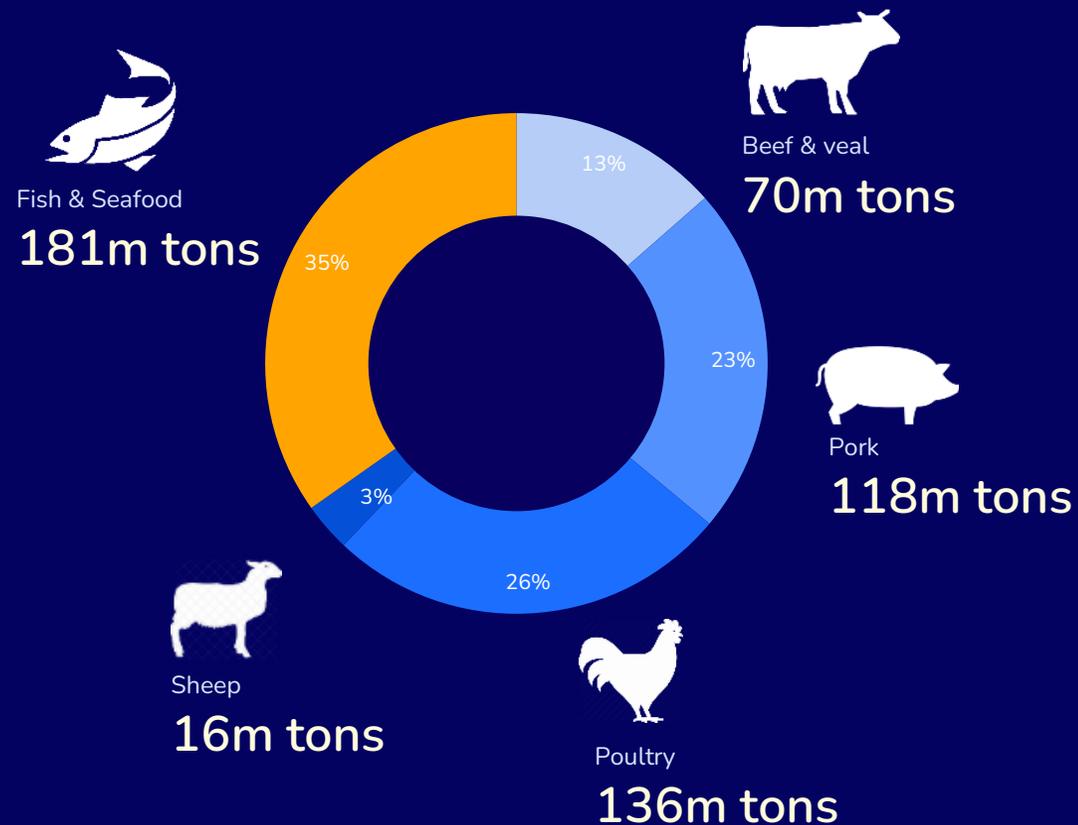


05.12.2023 | Dr. Sebastian Rakers | CEO Bluu Seafood

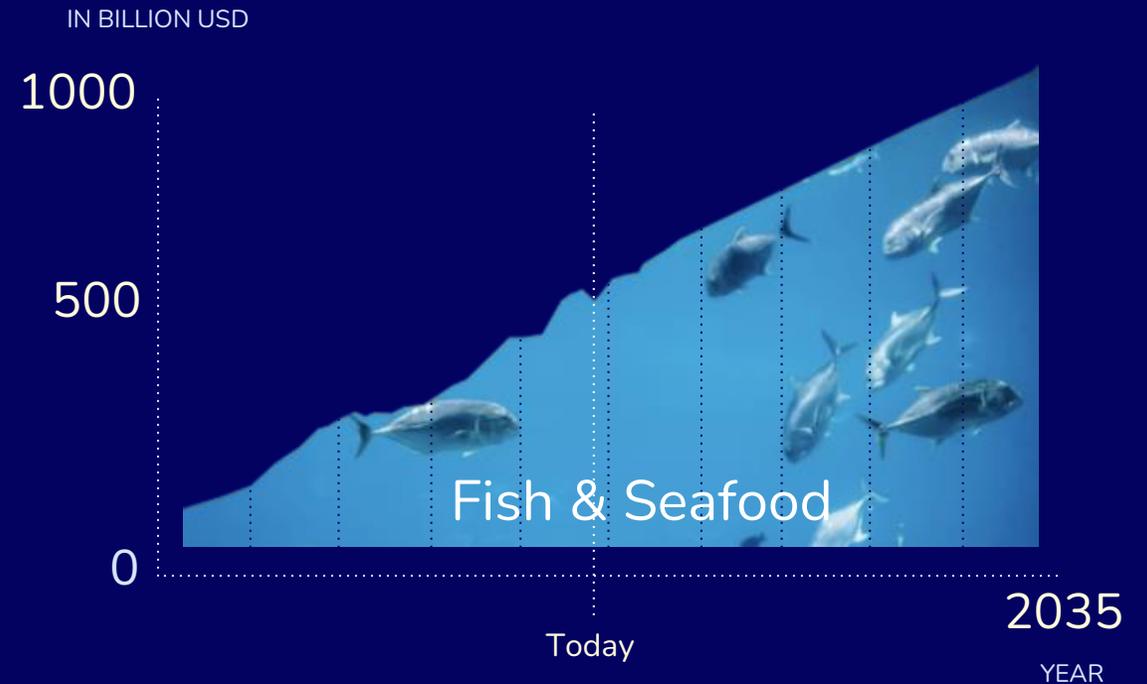
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Globaler Konsum von Meeresfrüchten steigt stark an

Schon heute sind Fisch und Meeresfrüchte die am meisten konsumierte Art von tierischem Eiweiß ...



... und wird voraussichtlich bis 2035 einen weltweiten Umsatz von 1 Billion USD erreichen



The compound annual growth rate of the market value in the period 2013 - 35 is predicted to be 4.2%

THE OCEAN POLLUTION-BERG

PLASTIC WASTE IS JUST THE TIP OF A LARGER PROBLEM

Pollution of the oceans is widespread, worsening, and in most countries poorly controlled. Human activities result in a complex mixture of substances entering the aquatic environment.

More than 80% arises from land-based sources

It reaches the oceans through rivers, runoff, atmospheric deposition and direct discharges. Ocean pollution has multiple negative impacts on ecosystems and human health, particularly in vulnerable populations

1 PLASTIC WASTE THE TIP OF THE POLLUTION-BERG

Plastic is a rapidly increasing and highly visible component of ocean pollution. An estimated 10 million metric tons enter the seas each year. Plastic pollution threatens marine mammals, fish and seabirds. It breaks down into microplastic and nanoplastic particles containing multiple manufactured chemicals that can enter marine organisms, including species consumed by humans.

2 OIL SPILLS AN AQUATIC KILLER

Oil spills have occurred with increasing frequency in recent years as the result of growing global demand for petroleum. These spills have resulted in direct release of millions of tons of crude oil and other petroleum products into the oceans. Petroleum-based pollutants reduce photosynthesis in marine microorganisms that generate oxygen. They also disrupt food sources, destroy fragile habitats such as estuaries and coral reefs, and foul beaches.

3 MERCURY QUICKSILVER BULLETS

Mercury is released from two main sources - coal combustion and small-scale gold mining. Exposures of infants in utero when pregnant mothers eat contaminated seafood can cause IQ loss and serious developmental disorders. In adults, mercury increases risks for dementia and cardiovascular disease.

4 MANUFACTURED CHEMICALS A HEADY COCKTAIL

Manufactured chemicals - phthalates, bisphenol A, flame retardants, perfluorinated chemicals and pharmaceutical waste, can disrupt endocrine signaling, reduce male fertility, damage the nervous system, and increase risk of cancer. They can also damage coral reefs.

5 PESTICIDES COLLATERAL DAMAGE

pesticides are specifically designed to have biological effects, and thus even low-dose exposures can affect living organisms, including humans. Pesticides contribute to global declines in fish stocks, and can also reduce human fertility.

6 NUTRIENTS FEEDING FRENZY

Industrial releases, runoff from animal feedlots and human sewage increase frequency and severity of harmful algal blooms (HABs), bacterial pollution and anti-microbial resistance.

THE WAY FORWARD

World leaders who take bold, evidence-based action to stop pollution at source will be critical to preventing ocean pollution and safeguarding human health. Measures such as these could help with the six problems.

- 1 Better management of plastic waste
 - Bans on single-use plastic
- 2 Wide-scale transition to renewable fuels
- 3 Banning mercury use
 - Eliminating coal combustion
- 4 Chemical control policies
 - Mandatory premarket toxicity testing
- 5 Bans on persistent organic pollutants (POPs)
 - Control of industrial discharges
- 6 Better treatment of sewage
 - Reduced applications of fertilizers
- ALL Transition to a circular economy
 - Building scientific capacity
 - Embracing green chemistry
 - Designation of Marine Protected Areas (MPAs)

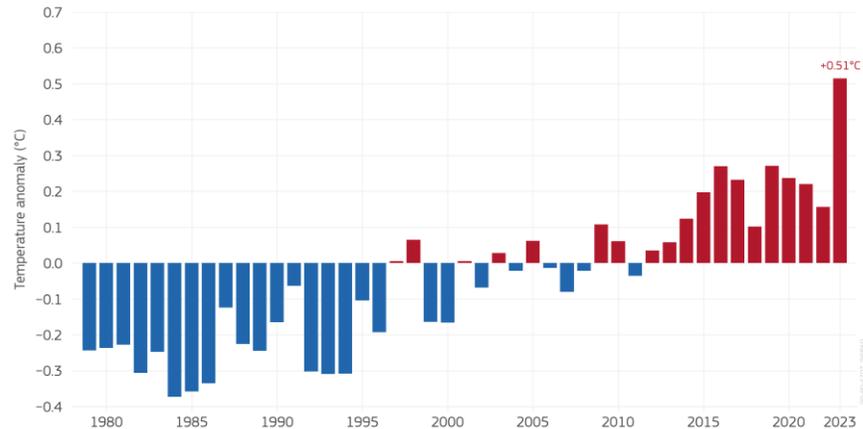
FOR MORE INFORMATION, SEE THE FULL PAPER AT:
<http://bit.ly/pollutionberg>

Es besteht ein dringender Handlungsbedarf!!!

SEA SURFACE TEMPERATURE ANOMALIES • JULY

Extrapolar global ocean (60°S-60°N)

Data: ERA5 • Reference period: 1991-2020 • Credit: C3S/ECMWF



800 million
people depend on blue food systems for their livelihoods.

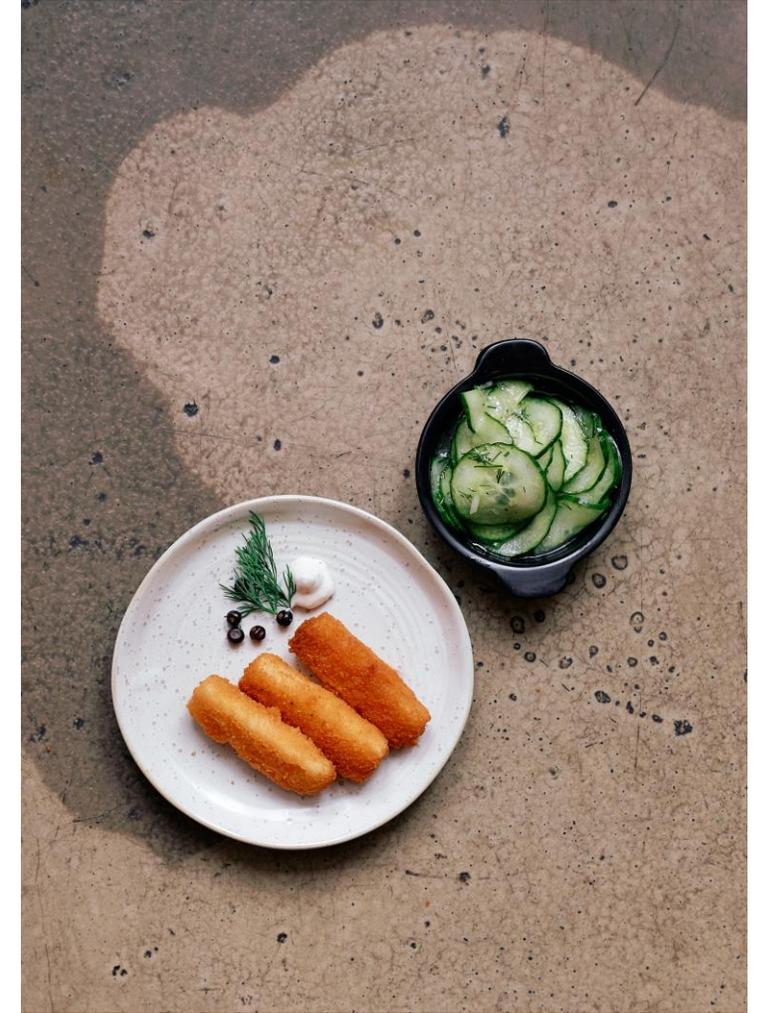
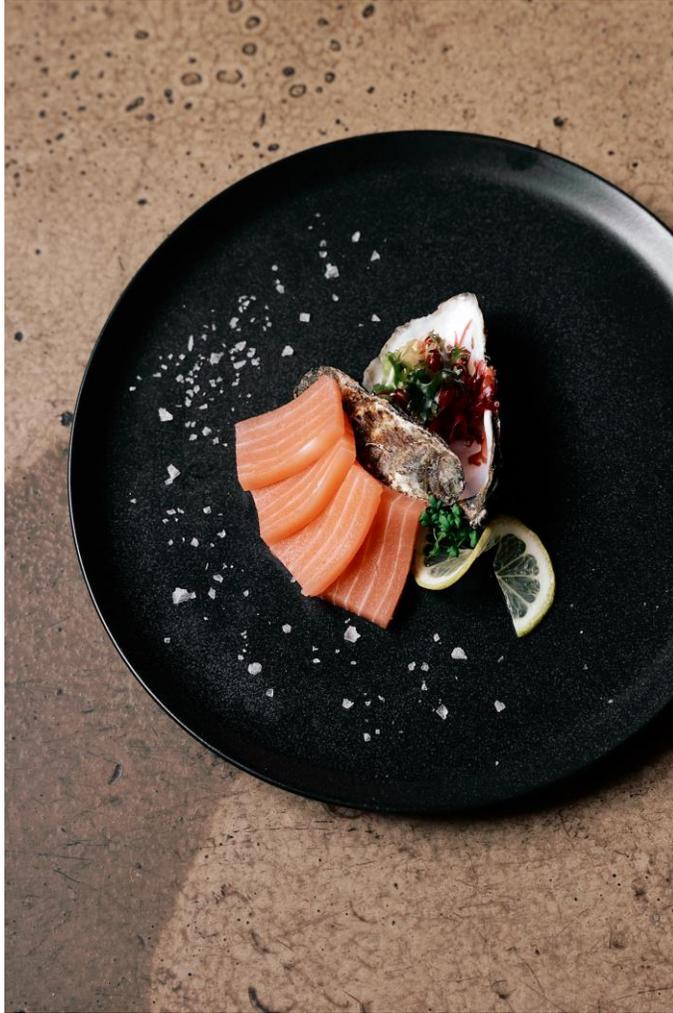
Blue Food Assessment
bluefood.earth

Die Technologie: Alles startet mit einer Stammzelle ...

EINMALIGER PROZESS



Und endet mit leckeren und gesunden **Produkten**.



Förderung aus dem BMEL: INVERS

In-vitro Erzeugung von smarten Fischproteinen: Etablierung von Fettvorläuferzellen aus lachsartigen Fischen für die Entwicklung nachhaltiger, hochwertiger Fischlebensmittel

Förderer



Call

Innovationsförderung

Partner

Prof. Petra Kluger

University of Applied Sciences Reutlingen

Prof. Nick Lin-Hi

Universität Vechta

Unterauftragnehmer

PELO Biotech GmbH



What's Next?



Proving the concept

Penetrating commodity market

Precommercial

Commercial

Conceptualization

Lab Proof of Concept

Pilot Scale

Demonstration Scale

Industrial Scale

Recognizing the possibility of generating meat from tissue culture

Developing bench-scale prototypes of cultivated meat

Transitioning to facilities producing first wave of salable products

Generating market samples and key process-engineering understanding

Manufacturing cultivated meat products at an industrial scale

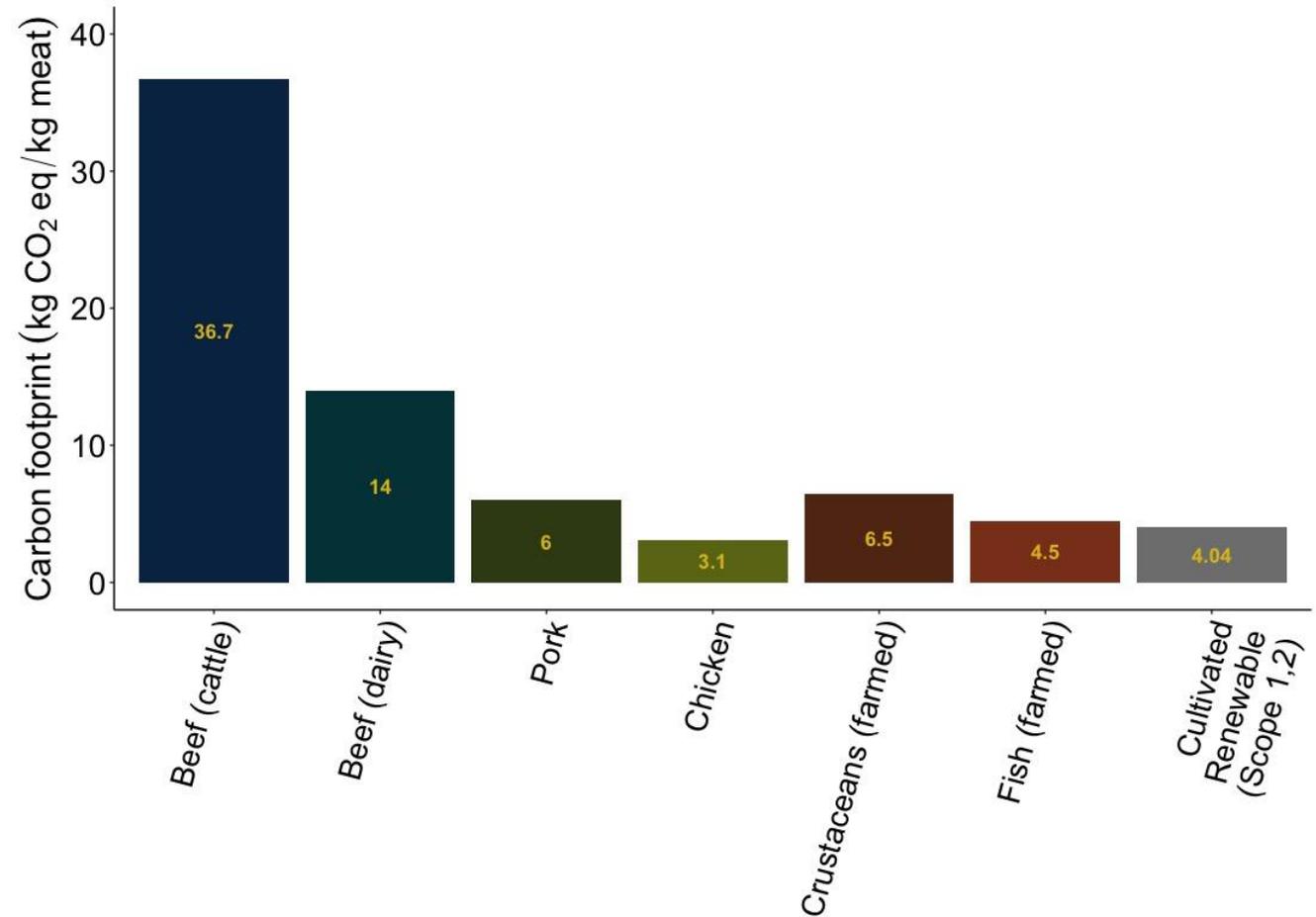


Marzipanfabrik Hamburg - New headquarter location

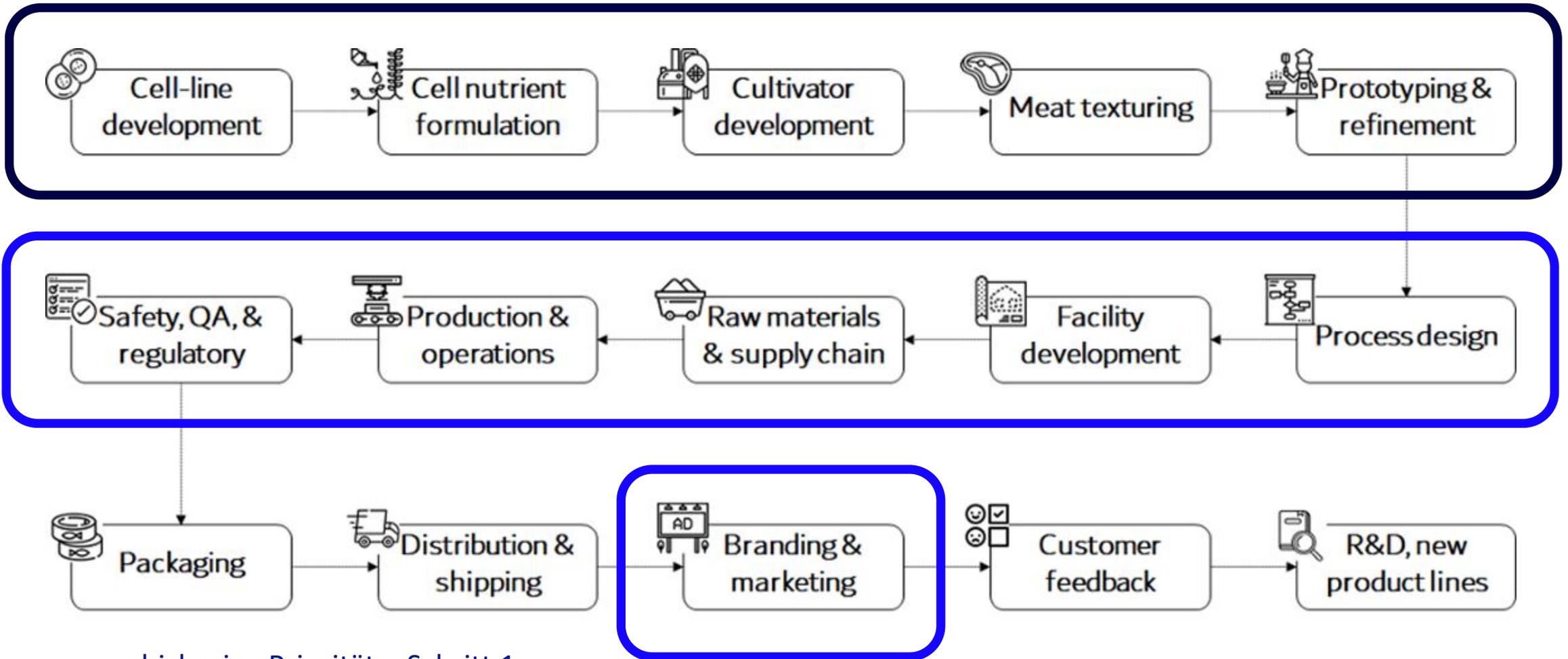
LCA kultiviertes Fleisch und Fisch

Sinke et al 2023:

Wenn Hersteller von kultiviertem Fleisch- und Fisch erneuerbare Energie in ihren zukünftigen Produktionsanlagen beziehen und nutzen, könnten sie einen geringeren CO₂-Fußabdruck haben, als die große Mehrheit konventioneller Hersteller von Fleisch und Meeresfrüchten der Welt



Langfristig wird ein „neuer“ Industriezweig aufgebaut



— bisherige Priorität – Schritt 1

— nächste Priorität – Schritt 2



Zukunft braucht Mut und
Beharrlichkeit, auch
gegen Widerstände.

Lasst es uns gemeinsam
anpacken.

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