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FOUNDER-MARKET FIT & EXPERIENCED TEAM



Mari Granström

Founder & CEO
PhD Organic Chemistry
BASF Senior Research Fellow
Stora Enso R&D Director
>20 years of experience

Go-to-market, R&D, Product development, customer relationship management, business development, IPR

Prior experience:

- Building business division inside large stock listed corporation
- Technology acquire and DD processes
- R&D management from innovation to commercialization
- Innovation processes focus on biochemicals, biomaterials and biorefineries
- Scale-up from the lab to production
- Leadership of multidisciplinary teams
- Business and application development
- IP strategy
- Biomass expertise



Heikki Heiskanen

Chief Operations Officer
MSc. Industrial Economics
Neova Biofuel Director
Afry Senior Consultant
>15 years of experience

Building up industrial operations, supply chain and organisation. Business and financial modelling.

Prior experience:

- P&L responsibility of 80M€ biomass based business with team of 80 professionals. Business growth and restructuring enabling corporate transaction
- Board member of a Swedish bioenergy company with 100M€ turnover
- Business director and P&L responsibility of 30M€ with team of 40 professionals. Business turnaround and development to achieve profitability
- Strategy and management consulting in biomass sector with international clients



FOUNDER-MARKET FIT & EXPERIENCED TEAM

R&D and laboratory		Industrial Engineering	Customer applications	Feedstock
				
R&D, Lead Science Activist	Laboratory, Senior Labtech Activist	Engineering, Lead Chemical Engineering Activist	Application development, Lead Formulation Activist	Feedstock, Lead Science Activist
Régis Delatouche PhD Organic Chemistry	Susanna Berghäll Laboratory Technician	Klaus Muuronen MSc Chemical Engineering	Anu Ruohosto MSc Biocosmetics	Laura Cappelatti PhD Biology
Experienced synthetic and organic chemist with with both industrial and scientific background	Laboratory professional with long and strong understanding from laboratory operations and related development activities	Strong Chemical engineering professional with industrial engineering and production scaleup experience	Decades of experience from natural cosmetic formulations, skin care and natural ingredients and go-to-market strategy in cosmetics.	Internationally experienced ecologist with deep understanding of raw material properties and sustainability

We are an experienced and diverse team of total 22 professionals

MSc Industrial Economics
MSc Chemical Engineering X2
MSc Env. Engineering
PhD Organic Chemistry X2

PhD Biochemistry
MSc Chemistry X2
MSc Food Chemistry
MSc Biocosmetics

PhD Biology
PhD Marine Biology
Laboratory Technician X6



PURPOSE

To make the chemical
industry run on algae





THE PROBLEMS

1. The global chemical industry is based on oil

- Consumers want sustainable and functional alternatives to substitute existing high carbon footprint products.
- 80% of the industry is based on crude oil: everything from plastics, paints, cosmetics, glues to fertilisers.
- Legislation is driving the change from oil based ingredients to bio-based alternatives.

(EU Chemicals Strategy for Sustainability
E 142/2020 and EU Plastic Strategy)



THE PROBLEMS

2. The oceans are becoming green and brown

- Oceans are suffering from excess nutrients.
- This creates harmful algae blooms which take up living space and oxygen from the marine ecosystem.
- We remove nutrients from the oceans in the form of algae and turn it into valuable, ecological and efficient products for all of us to use instead of oil-based products.



THE SOLUTION

Algae-based functional ingredients to decarbonise consumer goods

Origin by Ocean's functional chemical ingredients. Made out of algae.

USAGE

- Food
- Cosmetics
- Detergents
- Textiles
- Packaging & materials
- Agriculture

CAERULO™ (Sodium Alginate)

- > Thickening agent
- > Viscosity and rheology modifier
- > Humectant
- > Stabiliser

USAGE

- F
- C
- D
- T
- P

AXUREO™ (Fucoxanthin)

- > Pigment
- > Antioxidant
- > Nutraceutica

USAGE

- F
- C

LIVIDO™ (Laminarin)

- > Biopesticide
- > Thickening agent
- > Binder

USAGE

- A

CYANEO™ (Mycosporin)

- > UV filter
- > Antioxidant

USAGE

- C

CUMATILO™ (Fucoidan)

- > Antioxidant
- > Bioactive nutraceutical
- > Anti-inflammatory

USAGE

- F
- C

CALLAINO™ (Phycobilin)

- > Pigment
- > Protein
- > Photoactive

USAGE

- F
- T
- P

MASSIVE & GROWING MARKET

Total Available Market

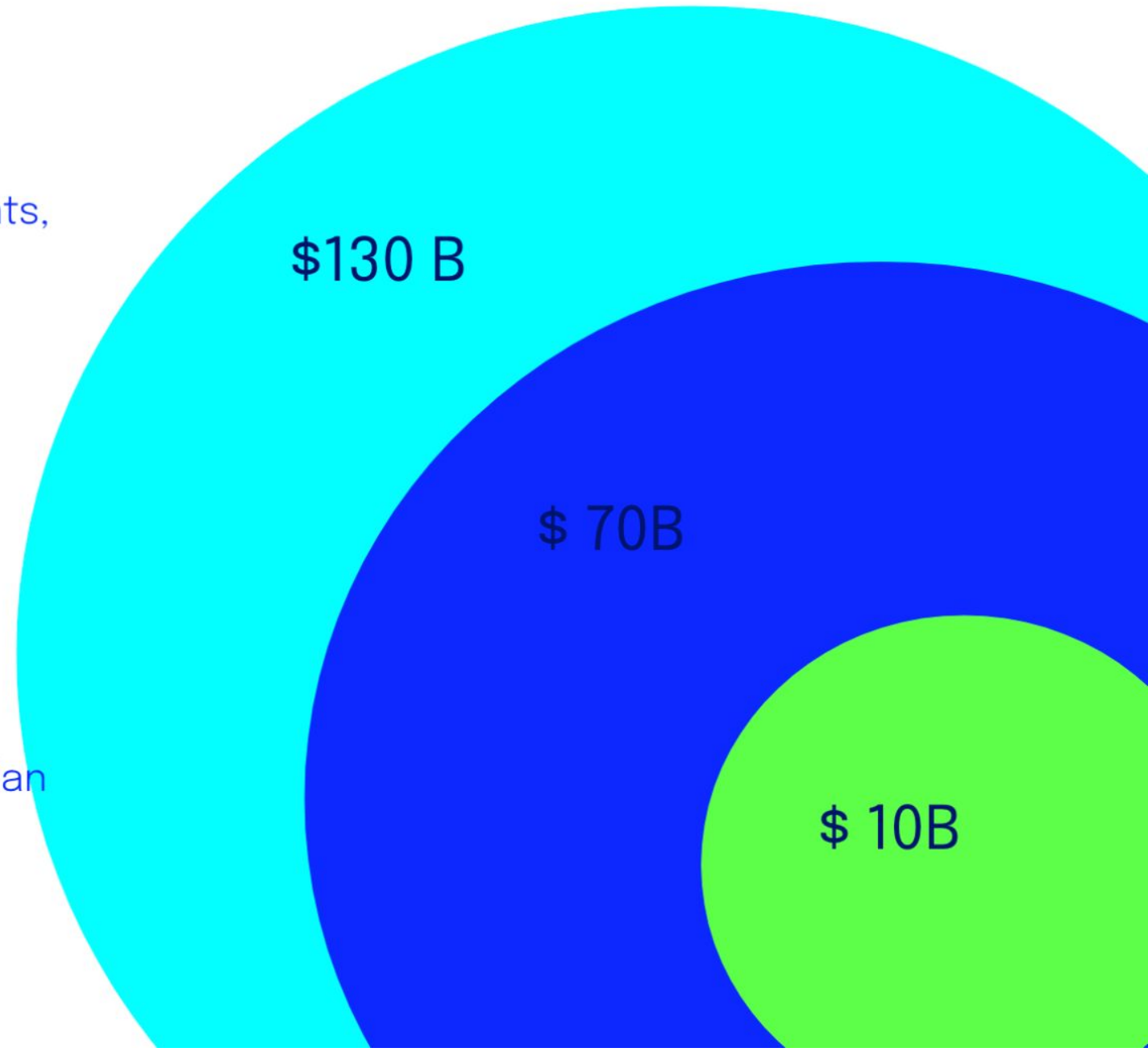
- Market for thickeners, sunscreen ingredients, feed additive, fucoidan, fucoxanthin

Serviceable Addressable Market

- Portion that can technically switch to bio-based

Serviceable Obtainable Market

- Portion of that you can sell to thickeners (\$ 5B), sunscreen ingredients (\$ 1B), fucoidan (\$ 2B), fucoxanthin (\$ 2B)





MARKET DRIVERS

Functional ingredients

Today's FMCG manufacturers are looking for functional ingredients to improve the performance, texture and characteristics of their products.

Natural cosmetics

Spiralling demand for vegan cosmetics among millennials is one of the primary growth stimulants of the market

Changing legislation

Regulatory changes are implemented banning harmful to humans and the environment classified ingredients

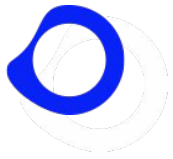
Sustainably produced consumer goods

Manufacturers are facing an urgent need to transition⁽¹⁾ from oil and animal-based formulations and ingredients. Driven by corporate strategies and consumer demand.

(1) Unilever Carbon Strategy: Replacing fossil fuel based ingredients in cleaning and laundry products to reduce carbon footprint by 20%.

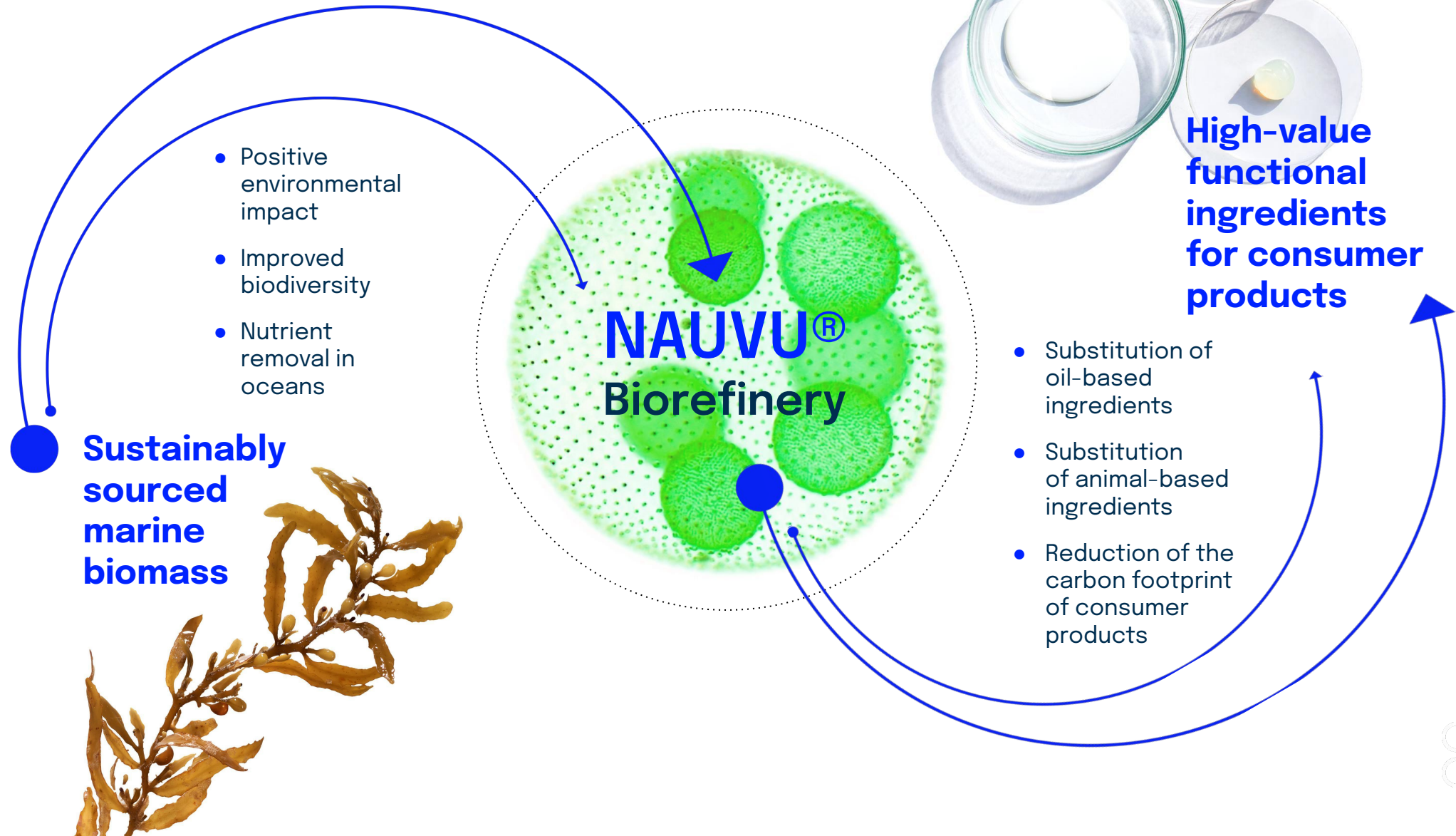
Valio Carbon Strategy: The emission reduction target for milk is 50% by 2030 and 85-90% of the impact is generated before milk is brought to a dairy.

Kiilto Carbon Strategy: Aiming carbon neutrality by 2028 by reducing fossil oil utilisation



OUR REGENERATIVE BUSINESS

Commercially viable, scalable & sustainable biomass processing





A UNIQUE APPROACH

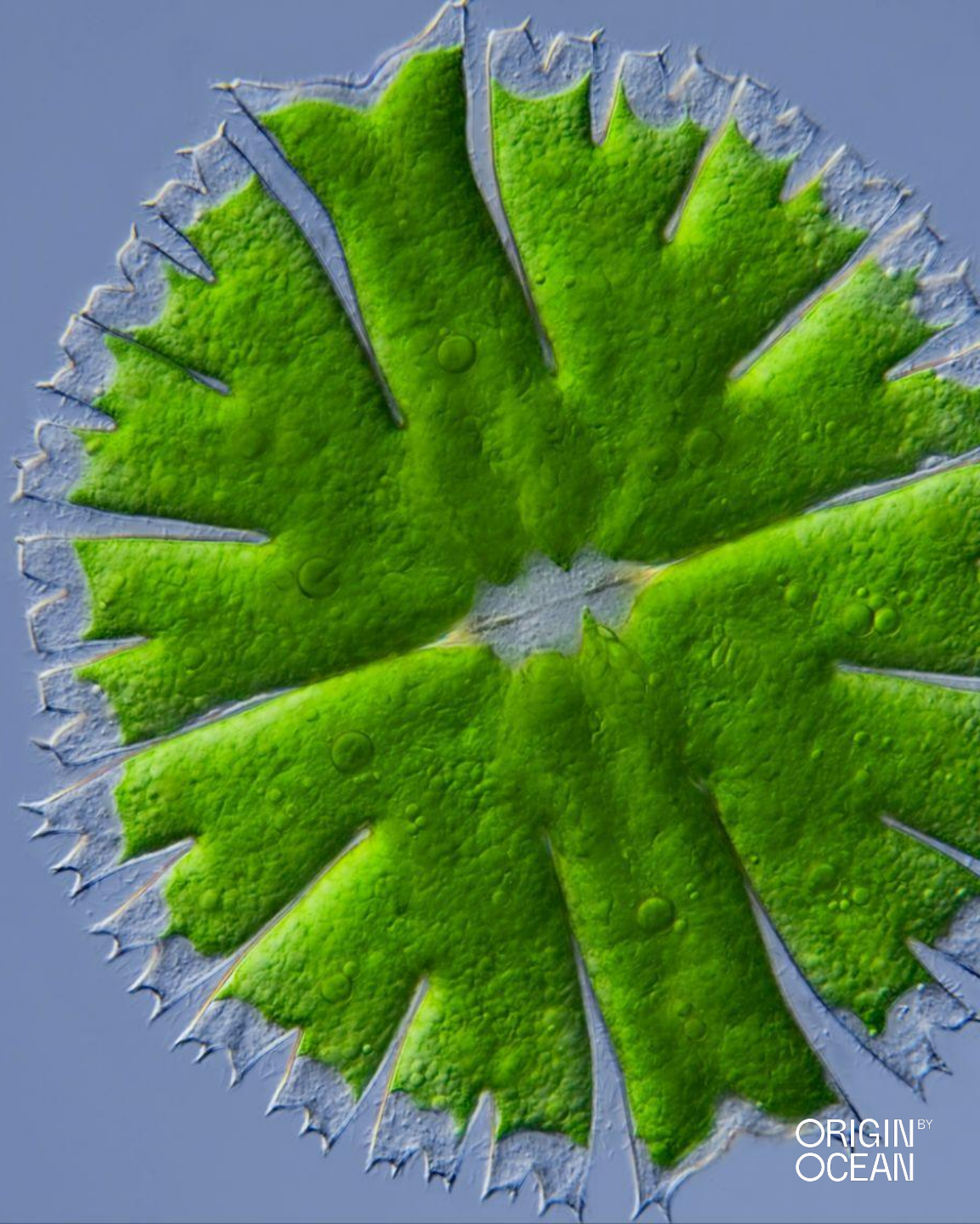
- Patented biorefinery processes marine biomass, sustainably
- No toxic chemicals
- Multi-feedstock
- Multi-product, high value products
- Reducing the environmental problem of the oceans and the chemical industry





OUR CREDO

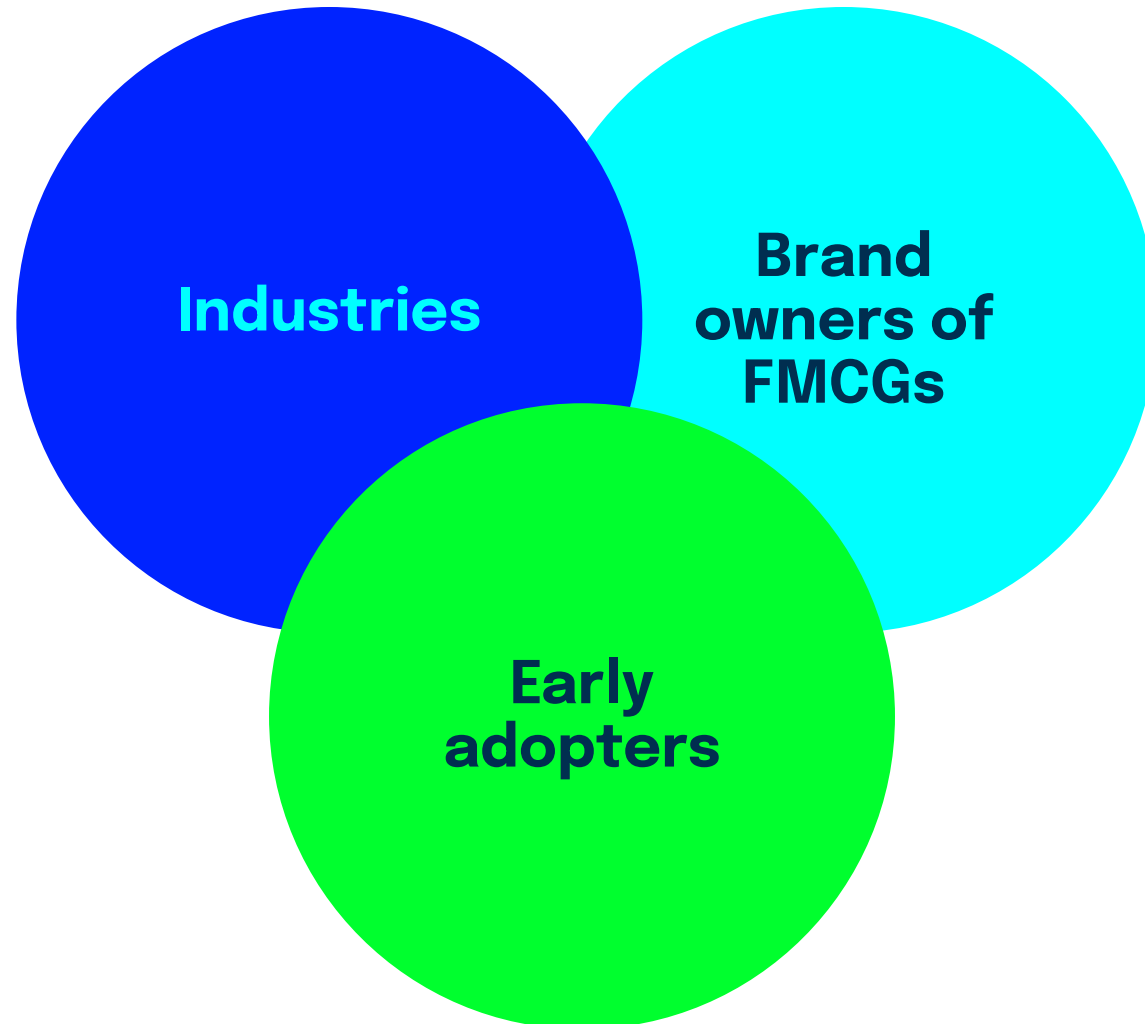
Algae is the **only** significant and sustainable biomass source that can reliably replace oil-based chemistry.



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OUR CUSTOMERS



- **INDUSTRIES**
 - > Food
 - > Cosmetics
 - > Hygiene
 - > Detergents
 - > Textile printing
 - > Packaging
- **BRAND OWNERS OF FMCGs**
 - > Local
 - > Regional
 - > Global
- **EARLY ADOPTERS**
 - > Customers with articulated sustainability strategies
 - > Readiness to invest in biobased product road-maps and product launches



CUSTOMERS & APPLICATIONS

Food

LAGERBLAD FOODS

meeat.



Dairy & Non-dairy



Beverages

HARTWALL

Confectionary

Anonymous
Customer

Cosmetics

Vitae
Clean
Cosmetics



Hygiene

ECO & VEGAN
OLE
HYVÄ

VYLD

Detergents



Textile

marimekko

Packaging



Brightplus

More partners
are joining the
movement to
decarbonise
their products!



CO-BRANDING

Consumer products with ingredients and licensed product formulation

- Co-branding business model
- First demo products are ready
- First FMCG customer, product launch Q1/2023
- Several patented product formulations
- Proved functionality of the ingredients in several products





CASE EXAMPLE – UV-FILTER IN SUNSCREENS

SUNSCREEN MARKET

The global market size for sunscreen in 2025 is estimated to be

13bn
EUR

with an annual growth of

~ 6%

The main ingredient in the sunscreen product is the **UV-filter** giving the protection.

Known issues and concerns of synthetic oil-based UV-filters are:

1 | **Carcino-
genic**

2 | **Harmful to the
environment**
(kills corals)

Changes in European chemical legislation regarding the use of oil-based synthetic UV-filters will ban the majority of these chemicals.

National chemical regulations around the world are already starting to impact markets.



CASE EXAMPLE – UV-FILTER IN SUNSCREENS

OUR SUNSCREEN SOLUTION

**The first 100% bio-based UV-filter
with high protection**

CYANEO™

Our first sunscreen formulation
demonstrates a high **SPF of 22**

Tested
and
verified

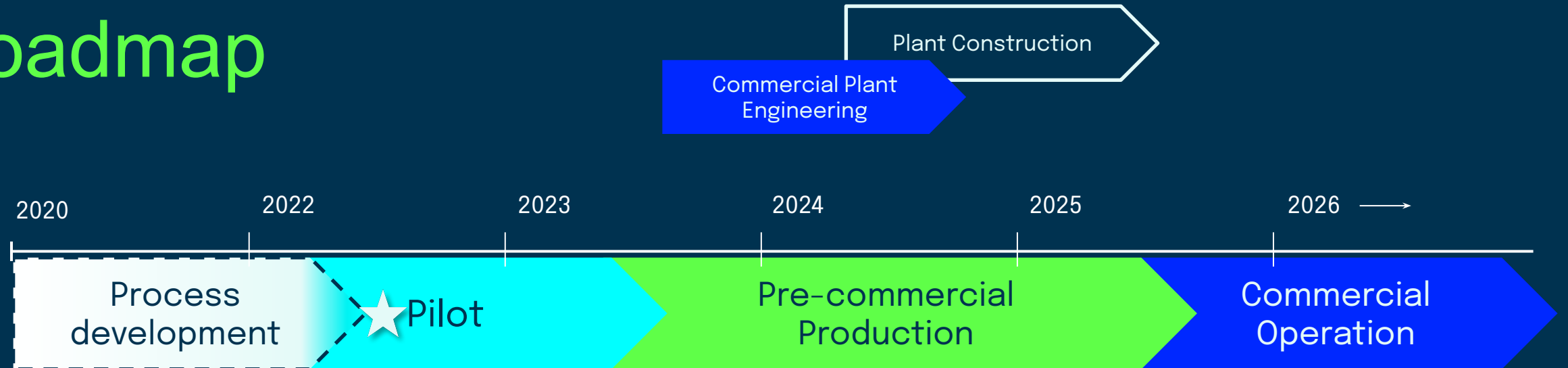
Baseline product
formulation
available

Produced by a
patented production
process

Supported by
sunscreen product
application patents

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Roadmap



Achievements

- ✓ Lab scale process development completed
- ✓ Piloting readiness level achieved
- ✓ IP portfolio established to protect the process and product formulations
- ✓ First sample delivered after only 4 months from the start
- ✓ Building of the team (2 -> 20)
- ✓ Feedstock supply chain established
- ✓ Bladderwrack farming established
- ✓ First commercial products in progress

Pilot Goals

- ❑ Industrialization of the lab process
- ❑ Process blueprints
- ❑ Product launch campaigns with commercial customers
- ❑ Process patent secured (FI & USA)
- ❑ Building of the team (20 -> 29)

Pre-commercial Goals

- ❑ Pre-commercial production process maturity achieved
- ❑ OPEX & CAPEX costs verified
- ❑ Pre-engineering completed
- ❑ Process blueprints
- ❑ Approval process for production plant started
- ❑ Off-take agreements signed
- ❑ Patent Portfolio expansion
- ❑ Recruitment of Production team

"Based on the already done first successful piloting tests with Origin by Ocean, we see that Nauvu® biorefinery process can be feasibly piloted and demonstrated in our existing facility. We are happy to offer our expertise and process infrastructure to Origin by Ocean",

Keijo Hytönen, General Manager Oulu Site from Chempolis Oy



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