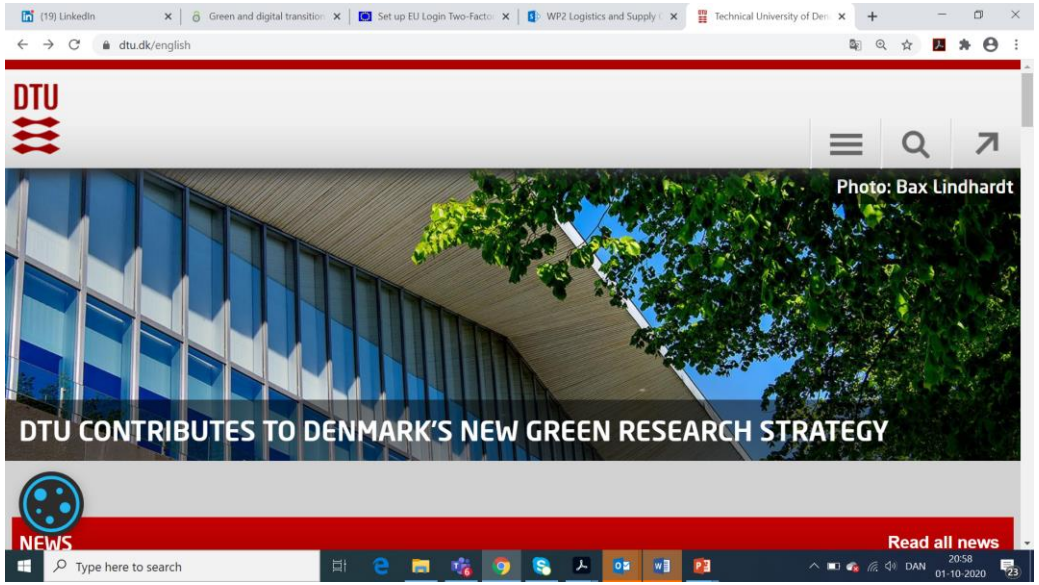
Charlotte Jacobsen, chja@food.dtu.dk
Professor and group leader

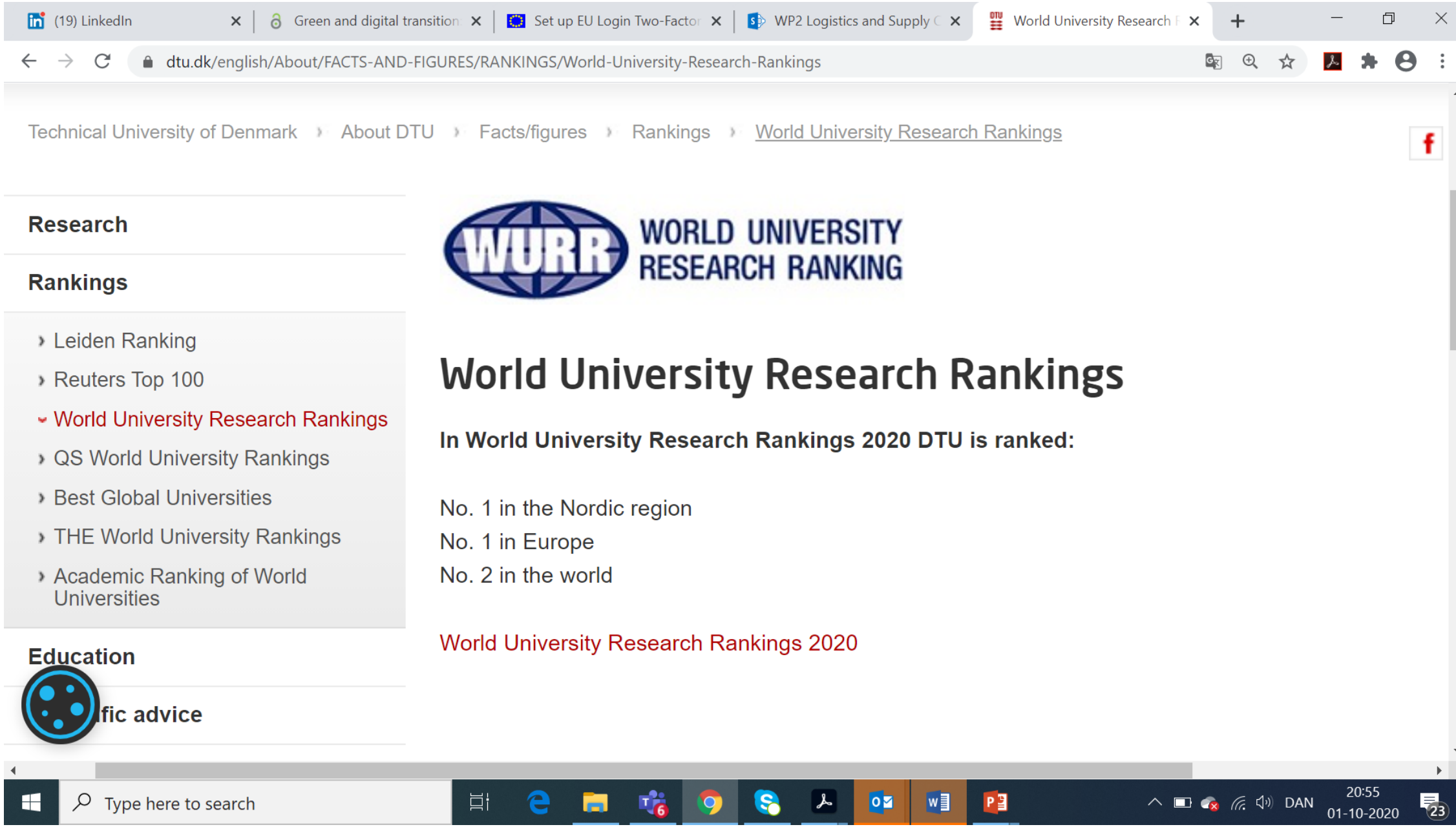
Research group for Bioactives – Analysis and Application

National Food Institute

Technical University of Denmark

- Founded in 1829 by HC Ørsted with the mission of creating value for the benefit of society.
- DTU is an international elite technical university where education, scientific advice, and innovation rest on a solid foundation of world-class research.
- 11.200 students
- 6,000 employees




(19) LinkedIn
Green and digital transition
Set up EU Login Two-Factor
WP2 Logistics and Supply
World University Research
dtu.dk/english/About/FACTS-AND-FIGURES/RANKINGS/World-University-Research-Rankings
Technical University of Denmark › About DTU › Facts/figures › Rankings › World University Research Rankings
Research
Rankings
› Leiden Ranking
› Reuters Top 100
› World University Research Rankings
› QS World University Rankings
› Best Global Universities
› THE World University Rankings
› Academic Ranking of World Universities
Education
WORLD UNIVERSITY RESEARCH RANKING
World University Research Rankings
In World University Research Rankings 2020 DTU is ranked:
No. 1 in the Nordic region
No. 1 in Europe
No. 2 in the world
World University Research Rankings 2020
Type here to search
DAN
20:55
01-10-2020

Research Group for Bioactives – Analysis and Applications

Mission and objectives

- To obtain knowledge and develop technologies and processes that contribute to **UN SDGs**
  - **2.1 and 2.2** (ensure access to nutritious food)
  - **3.4** (prevention of non-communicable diseases and promote mental health and well-being)
  - **12** (responsible consumption and production with particular focus on **circular bioeconomy**).

Specific objectives:

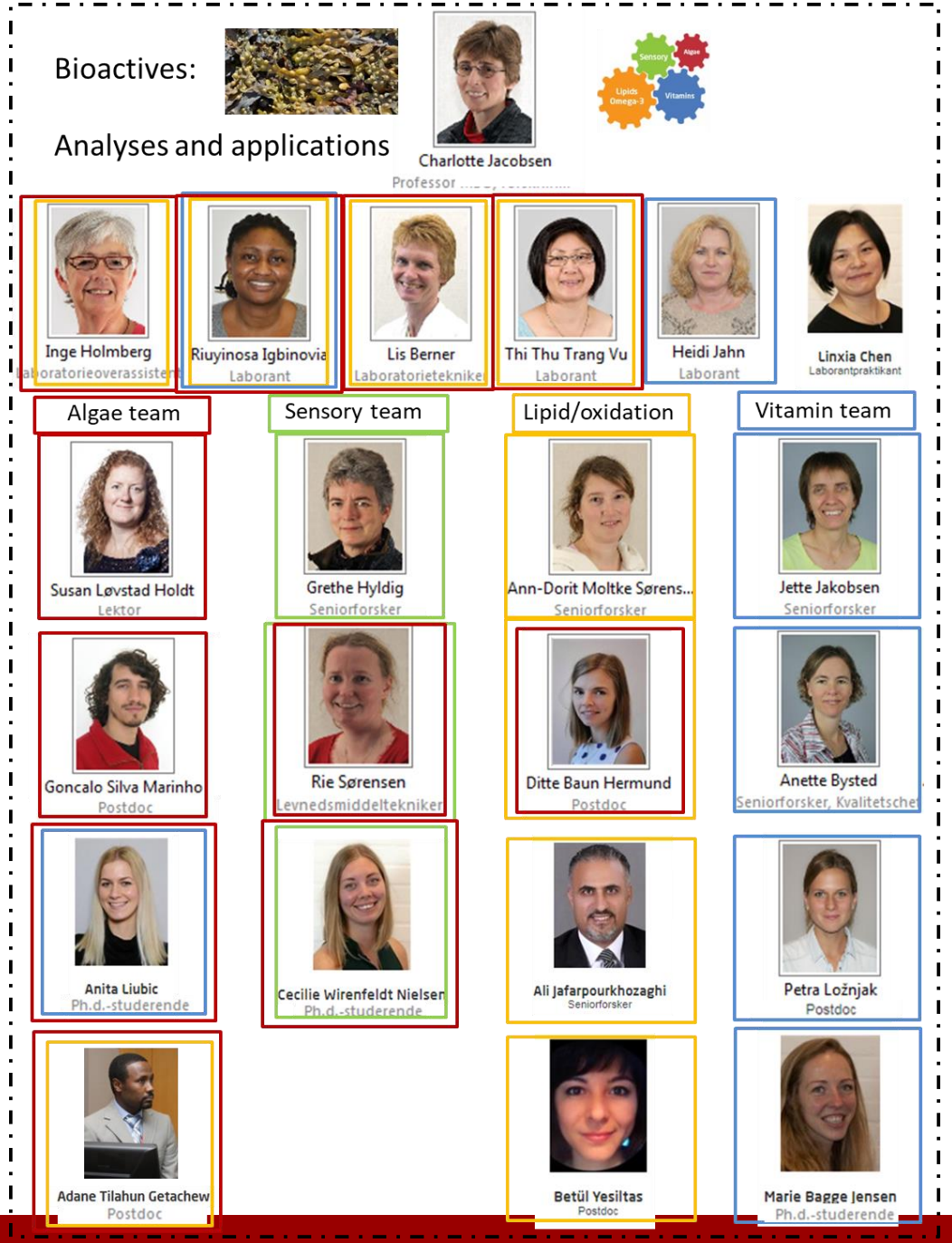
- Obtain knowledge and develop technologies, which contribute to:
  - improved **eating quality** and **oxidative stability** of foods
  - increasing the intake of healthy foods rich **in vitamins and healthy lipids and proteins**

- Optimize content of bioactive compounds in **algae biomass** and develop biorefinery technologies to secure full exploitation of **marine biomass**

Research Group for Bioactives

Introduction – Who?

- 4 teams of experts with a high degree of collaboration between teams on joint projects



Research Group for Bioactives – Analysis and Application

Resources – facilities

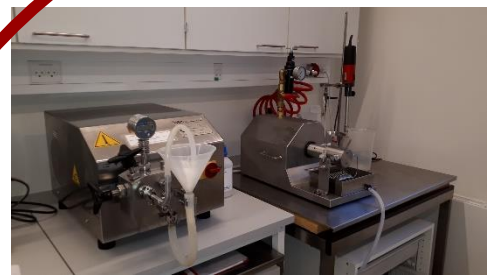
Objective

Tested and trained sensory panel

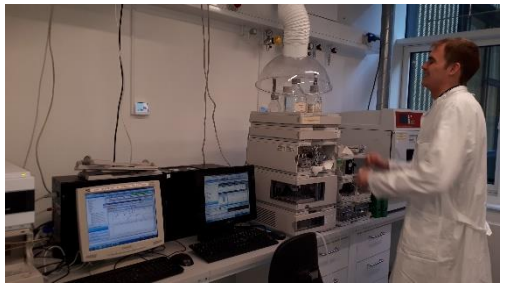
Sensory platform

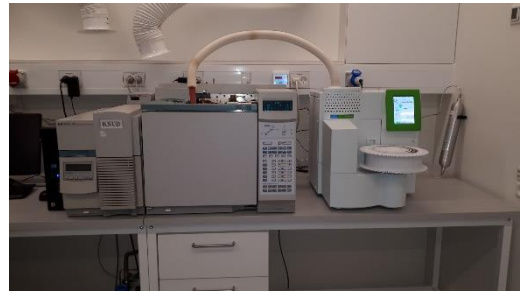
Subjective

Consumer test



Technology platform





Analytical platform

THE CHALLENGE

- The current exploitation of the aquatic resources is hampered by inefficiency
- Up to 70 % end up as low-value products or waste
- Proper logistics and infrastructure is needed to ensure high quality of side-streams
- Technologies need to be adapted to industrial scale and integrated into a biorefinery approach.

1 DTU

2 vifu videncenter for fødevareudvikling

3 CHALMERS

4 azti tecnalia

5 eit Food

6 VERTECH GROUP

7 barna

8 SCANDIC PELAGIC

9 nutrition sciences

10 BY APPOINTMENT TO THE ROYAL DANISH COURT Royal Greenland

11 ALFA LAVAL

12 PESCADOS Marcelino

13 JEKA FISH

THE WASEABI CONSORTIUM

MAIN OBJECTIVES

- To solve challenges that prevents more sound exploitation of the aquatic resources

THIS WILL BE OBTAINED BY DEVELOPING:

- Storage solutions
- Sorting technologies
- Decision tools that will secure an efficient, sustainable supply system for by-catches, and side-streams from aquaculture, fisheries and the aquatic processing industries
- Technologies to convert seafood side-streams into high value food and feed ingredients

Rejesmag (Shrimp flavour)

- Innovative flavor enhancer based on shrimp shells

- Funding: NaturErhvervstyrelsen
- Project Coordinator: Danish Seafood Organisat
- Collaboration: GEMBA, Launis, Højmarklab
- DTU Food partners: Charlotte Jacobsen, Grethe Hy

- TAP: Rie Sørensen, Riuyinosa Igbinovia
- Duration: 2018-2019

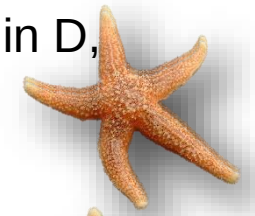
From liver discard to sustainable oil for consumption - creating value throughout the value chain

Investigate how to collect fresh fish liver from Danish fishing vessels and identify quality parameters for the oil from these livers.

- Funding: NaturErhvervstyrelsen
- Project Coordinator: DTU Food
- Collaboration: inOMEGA-3, vessels: HG306, HM635 and HM228
- DTU Food partners: Charlotte Jacobsen, Nina Skall Nielsen, Ann-Dorit Moltke Sørensen
- TAP: Trang Vu, Lis Berner, Inge Holmberg
- Duration: Jan 2016- July 2017

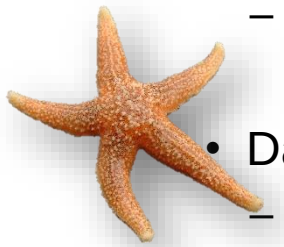
Starfish – a new source of omega-3 fatty acids

- Aim: To investigate and document possbilities for exploiting starfish for extraction of new ingredients rich in bioactive compounds such as omega-3 fatty acids, phospholipids, vitamin D, vitamin E and pigments



- DTU Food (Charlotte Jacobsen & Ann-Dorit M. Sørensen):
  - Analysis of lipids, scalable extraction methods for lipids, quality of lipids

- Sea Longevity Aps (Asser Kalsbøll):
  - Nutraceutical start up company, commercialisation potential



- Danish Marine Protein (Niels Jørgen Hedeager Madsen):
  - Production of protein meal from start fish

Project period: 1. January – 30. June 2020

Danish Marine Protein

DANISH FOOD INNOVATION

DANISH
TECHNOLOGICAL
INSTITUTE

Danish Technological Institute

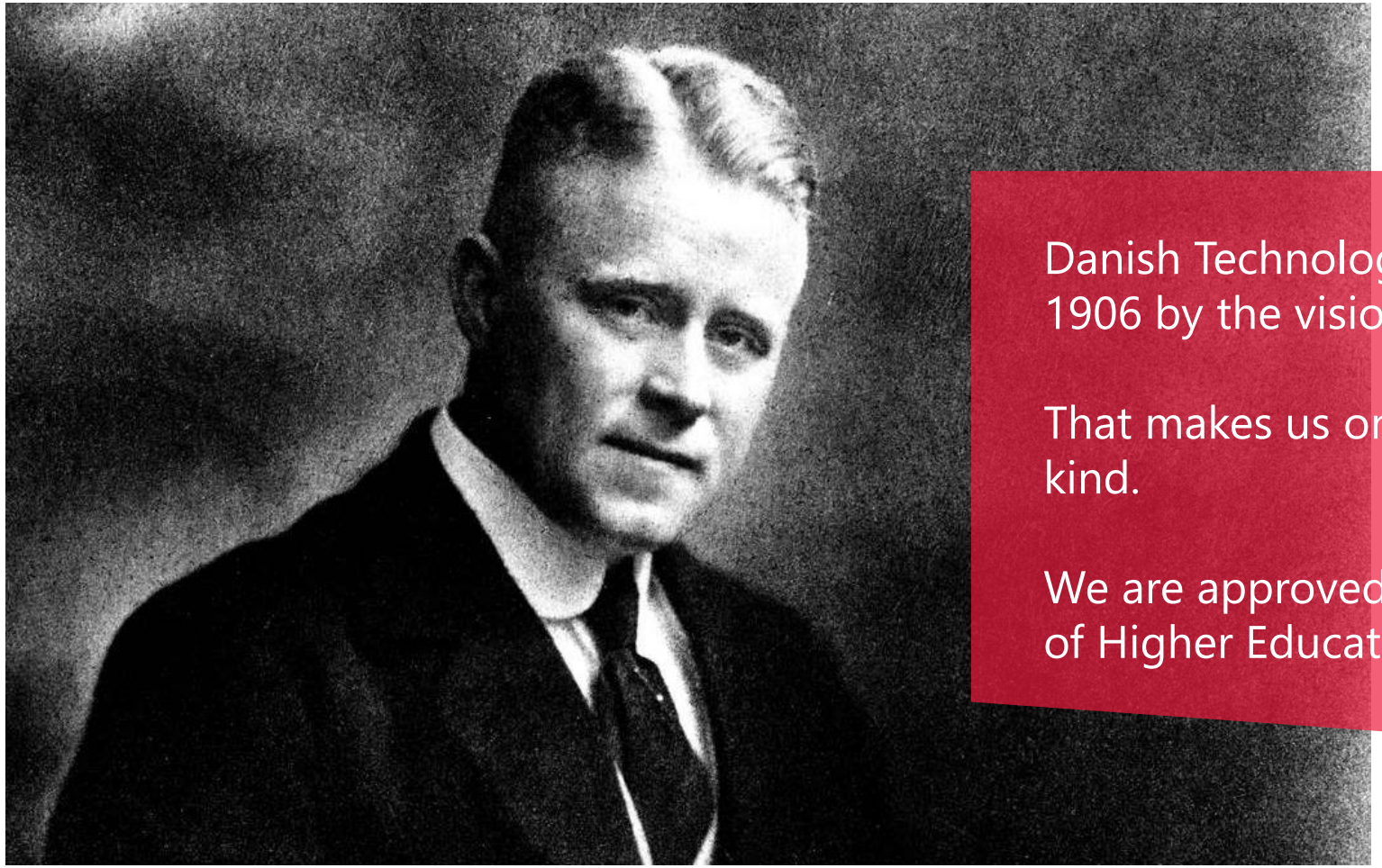
Karin Loft Eybye

DANISH
TECHNOLOGICAL
INSTITUTE

Welcome

DANISH
TECHNOLOGICAL
INSTITUTE

Creating value since 1906



Danish Technological Institute was founded in 1906 by the visionary engineer, Gunnar Gregersen.

That makes us one of the oldest institutes of our kind.

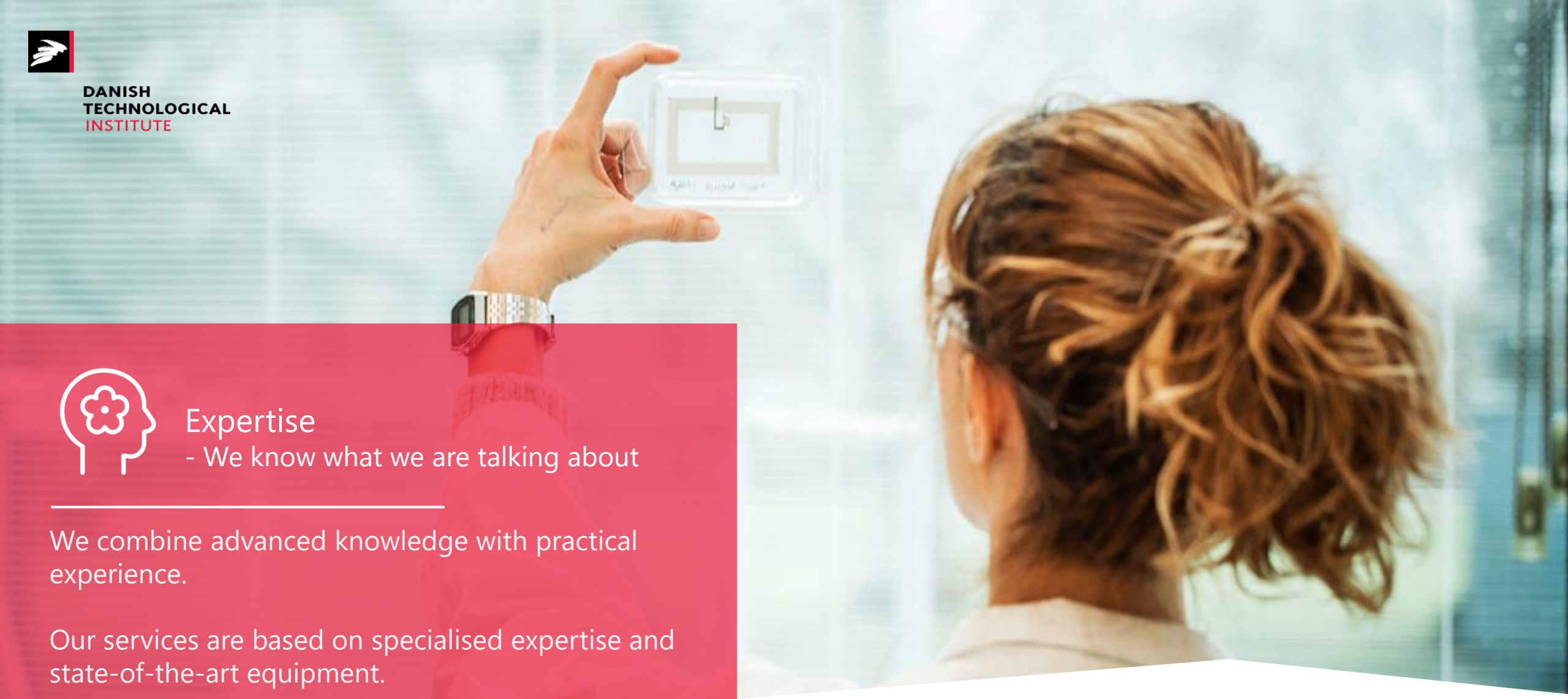
We are approved as an RTO by the Danish Ministry of Higher Education and Science.

DANISH
TECHNOLOGICAL
INSTITUTE

Locations

Danish Technological Institute has five different locations in Denmark, two in Sweden and one in Spain.

DANISH
TECHNOLOGICAL
INSTITUTE



Expertise
- We know what we are talking about

We combine advanced knowledge with practical experience.

Our services are based on specialised expertise and state-of-the-art equipment.

70+
Laboratories

1,000+
Specialists

110+
Years of history

DANISH
TECHNOLOGICAL
INSTITUTE

Achieving results
- We find the best solution

We provide solutions that create value for our customers.

Our commitment and insight drive us to achieve high-quality results.

10,000+	4.6 / 5	>150 mio. Euro
Customers	Customer satisfaction	Annual turnover

DANISH
TECHNOLOGICAL
INSTITUTE

Food

We help the food products industry to:

- Ensure effective, sustainable production through new technological production methods
- Produce foods that provide high levels of safety, health and quality
- Develop new products, regardless of whether the raw materials are plants, animals or insects

DANISH TECHNOLOGICAL INSTITUTE

Food Product Technology

Product development

New processes, e.g. 3D print and fermentation

Food ingredients

Development of prototypes in our FoodtureLab

Food product safety

HACCP-based management systems

Food fraud

Hygiene and microbiology

Food labelling

Food allergens

Characterising

Texture, structure and consistency

Content analysis

Chemical analyses

Application tests

Pilot production

Extrusion

Pelleting

Testing enzymes and ingredients

Consumer tests

Consumer acceptance testing

Product comparisons

New product prototype tests

Danish R&D projects 2017-2023 : Creating value from fish and shellfish

DANISH TECHNOLOGICAL INSTITUTE

Creating value from fish :

- Production of silage from waste aboard fishing vessels (2.1M Eur, GUDP)
- MarineLipids network (0.3M Eur, GUDP)
- Chips and gelatin from fish skin (0.7M Eur, GUDP)
- Utilization of fish skin –leather products (0.2M Eur, GUDP)
- Utilization of white fish sidestreams (0.5M Eur, Danish Fisheries Agency)

Creating value shellfish sidestreams :

- FloTek - from shrimp wastewater to high value resource (0.3M Eur, MUDP)
- FlotFood - Shrimp wastewater (0.4M Eur, MUDP)
- Blue growth: Utilization of shrimp waste to high value products (0.3M Eur)
- Value creation of brown crab bycatchs (1.4M Eur, GUDP)
- ShimpeBits (53t Eur, ENBIOM)

>6M Eur portfolio

DANISH
TECHNOLOGICAL
INSTITUTE

Thank you!

For more information about projects and services,
https://www.dti.dk/

Contact

Karin Loft Eybye, klt@teknologisk.dk