

Industry - Academia Interaction in the Marine Sector

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Enhancing the Innovation Capacity of Seafood Business - The Role of Higher
Education?

31st January 2014, 10h-13h
Technical University of Denmark, Lyngby



- InTerAct project: Aims and Methods
- Stakeholders views
 - Challenges in the aquatic food value chain
 - Views on need for education

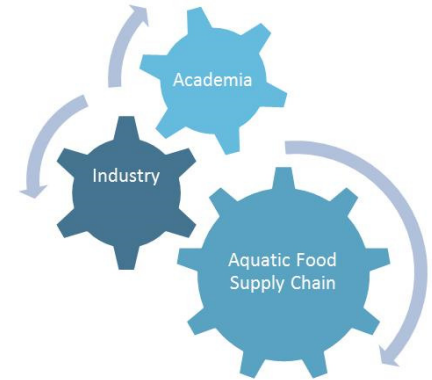




- Low interest of students in study programs like food science, aquaculture and engineering
- Reshaping of education focusing on the aquatic food value chain
- AQFood - International MSc program
- Building on already existing study programs and expertise



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Aims and Challenges:

- Motivate industry – academia interaction
- Reshape curricula and build better business-university links
- Enhance the interest of students
- Apply new communication approaches and social media

Expected outcome:

- ⇒ Education program linked to visible career opportunities in the industries
- ⇒ Motivate recruitment of highly qualified staff in industry
- ⇒ Enhanced innovation potential in the North Atlantic marine sector

Case study:

- ⇒ AQFood master program



AQFood

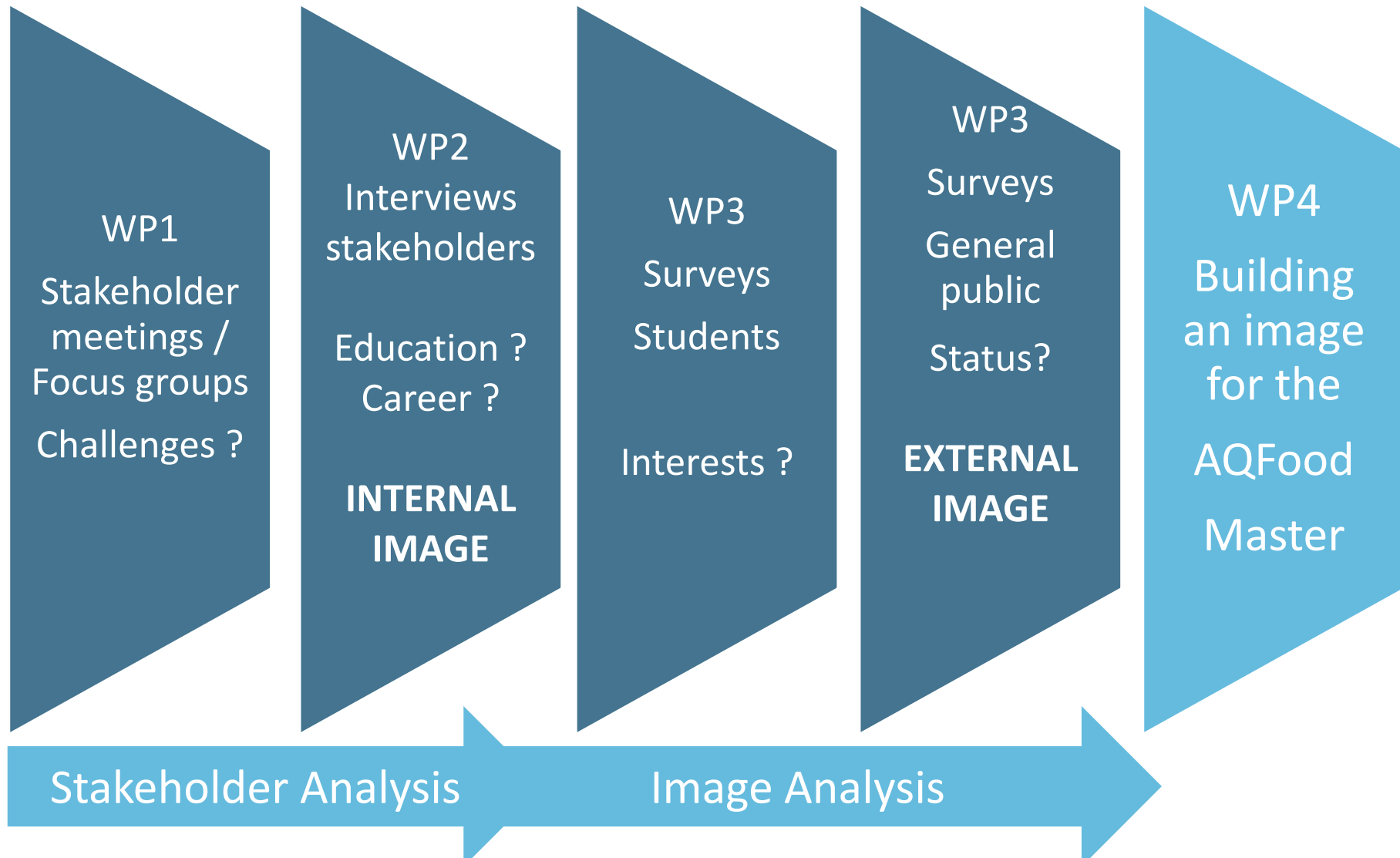


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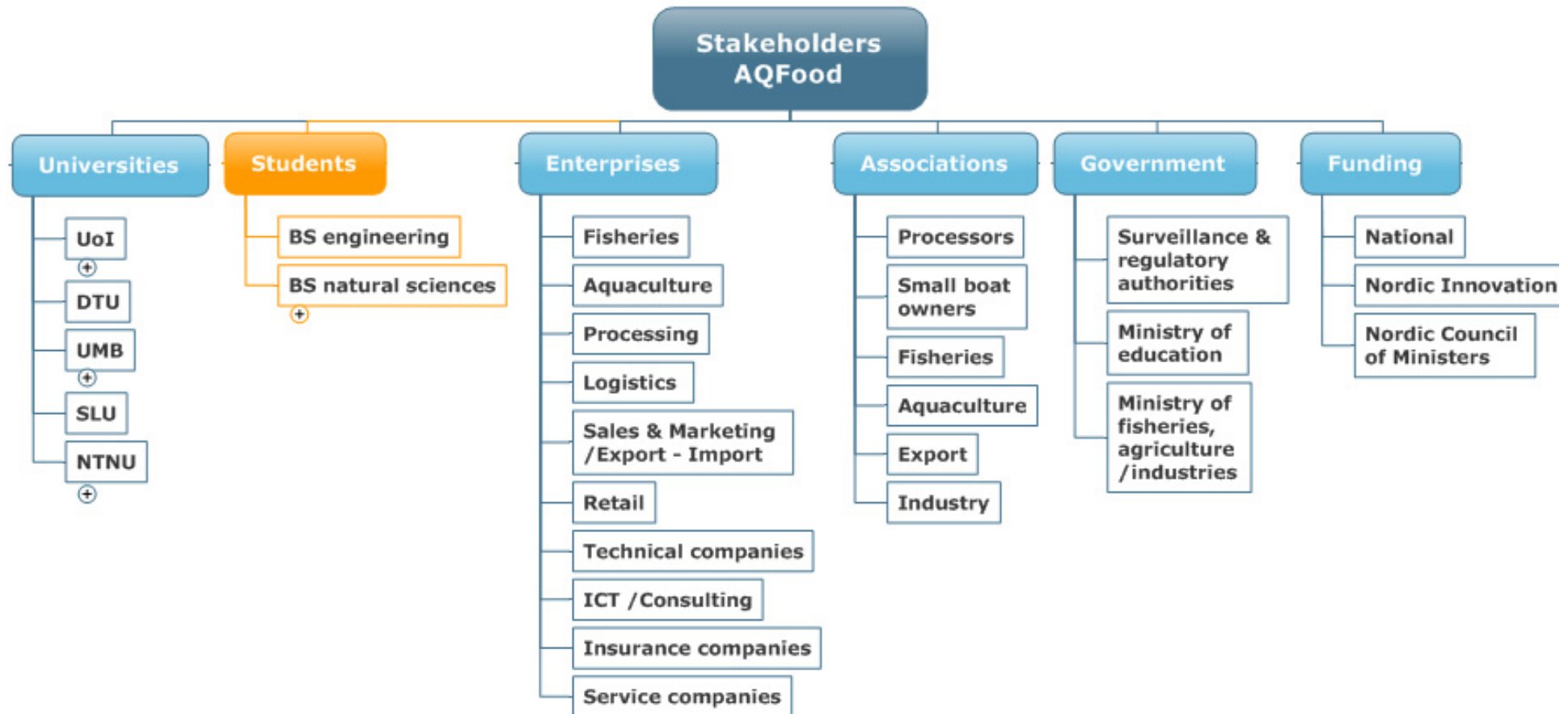
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Methods - InTerAct project



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Stakeholders



Selection of participants with education, preferably within engineering and natural sciences, and a job position representative for each part in the value chain in each country

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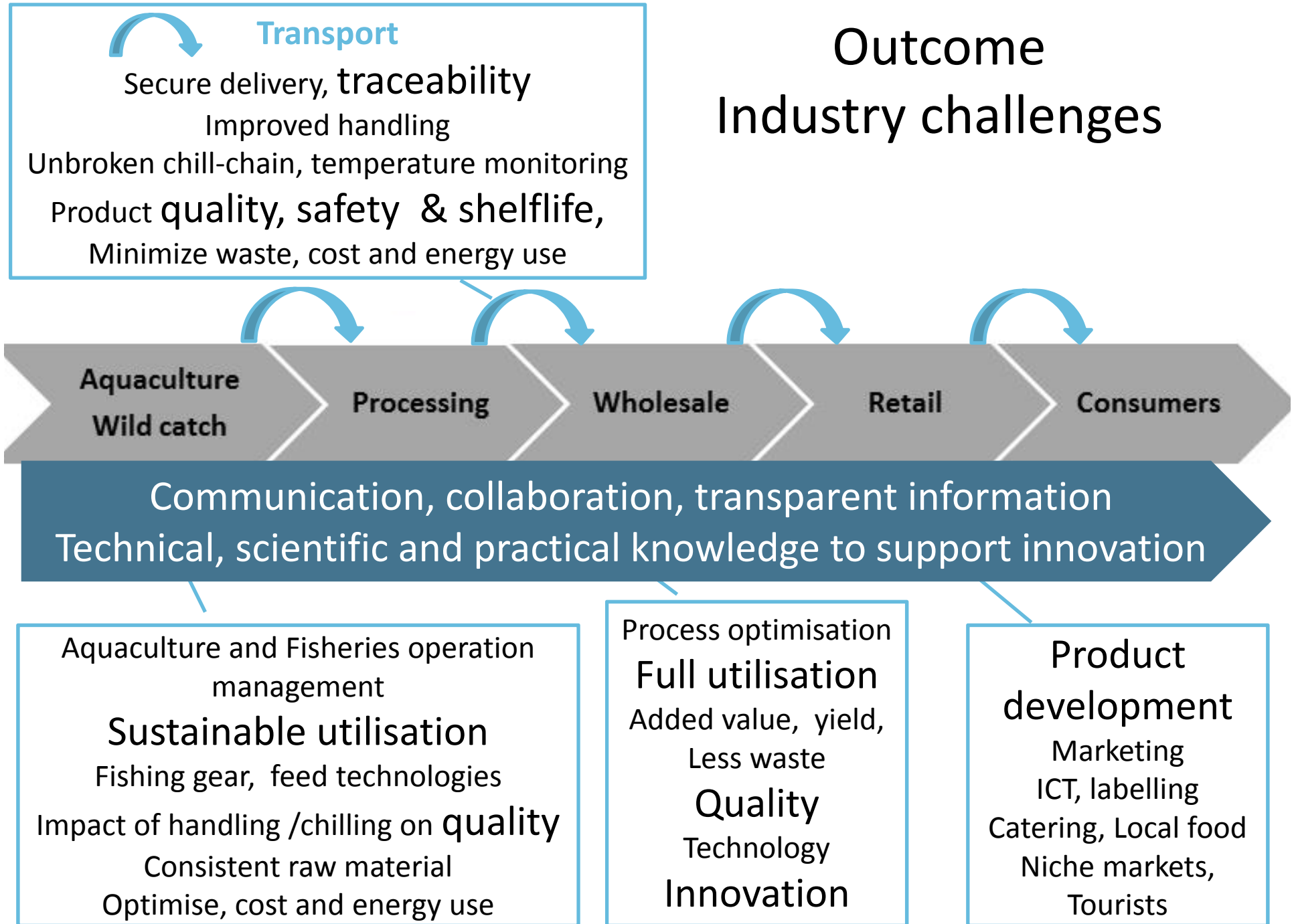
Grindavík stakeholder meeting March 21st, 2012

- Hosted by companies Þorbjörn hf and Vísir hf
- Joint effort of two Nordic Innovation projects: InTerAct and Nordic Innovation Marine Marketing project (NIMMP)
- Method:
 - Business Model Canvas
 - Fifteen participants from companies, education and research



Groups of 3-4 people discussing current status, perceived challenges and opportunities for improvement in the aquatic food value chain

Outcome Industry challenges



- A priori negative view towards higher education
- Education dedicated to the marine industry is lacking at all levels in the school system.
- The importance of the fishing industry for the Icelandic economy was not reflected at all in the educational system.
- Few study programmes that cater to the special needs of the aquatic food industry.
- In general a lack of interest by the industry in university education.

Changes in level of education ?

- Comment from interviews

*“The education level is very low. In general the process industry is a place where you get **employed without any education**. It is not attractive to be employed in the process industry. It is a low prestige job.” (Male, M.A. in politics, Industry)*

*“The **educational levels have enhanced**; managers are more or less all with higher education and then it just moves down. [...] global competitive environment which requires people with higher education. (Male, B.S. in fisheries technology, Fisheries, processing, marketing and sale)*

*“We have a very high **aquaculture education** level in Denmark and Norway compared to the rest of the world. Norway are experts on sea based aquaculture and Denmark on recirculation aquaculture - **the best in the world**” (Male, M.A. in chemical engineering, Industry)*

*“[...] The **trend is clearly towards higher educated people** in the business.” (Male, Ph.D. in fisheries technology, Processor)*

InTerAct Need for education on

- Denmark
- *“Within our sector there are many possibilities for people with a higher education within the area of **research and development.**” (Male, BS in biology and MBA, Aquaculture)*
-
- *“What we need is people that have a **general food education in combination with education in economics.** We need **flexible** people that can work with **ingredient lists, EU demands and economics** as well.” (Female, Master of Science in Economics, Processing)*

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Need for education on marketing, labelling, law, certification, audit, trade, and quality management

- *“The companies need a boost within **marketing**. The companies need to make a sales and marketing strategy that includes **labelling, branding and market** [...]. There is also a need within **law and contracts** [...]. Trade companies need this expertise because **international trade** has become much more complicated.” (Male, M.A. in politics, Industry)*
- *“There are increasing demands for **certification, audit, law and quality management**. People with a higher education are needed for those jobs. The business becomes more and more complicated and we need people with a higher education.” (Male, Ph.D. in fisheries technology, Processor)*
- *“What we need are people that have a **general food education in combination with education in economics**. We need flexible people that can work with ingredient lists, EU demands and economics as well.” (Female, Master of Science in Economics, Processing)*

Do stakeholders' business interests and expectations towards innovation in companies reflect a need for higher education ?

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Need for education on food, biology, engineering and economics

- *“Innovative investments in the business (equipment) [...]The production process in the seafood sector in Denmark becomes more and more advanced - **there is a clear need for engineers.**” (Male, M.A. in politics, Industry)*
- *“Within our sector there are many possibilities for people with **a higher education within the area of research and development.**” (Male, BS in biology and MBA, Aquaculture)*
- *“**Biology, water treatment and technical equipment** are very important qualifications. **International trade (business)** is also very important.” (Male, BA in Danish and Graduate Diploma in Business Administration, Aquaculture)*

Do stakeholders' business interests and expectations towards innovation in companies reflect a need for higher education ?

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Need for education on fish processing, natural resources and environment

- “The *expertise in fish processing is sometimes lacking* and that is a serious business, because if the product is not a quality product it affects the buyers. [...] *The understanding of the whole process is lacking in this industry* [...] .” (Male, Cand. Oecon., Logistics)
- “.....the most important things are to *utilize all resources*.....utilize the whole fishminimise the use of resources for the production and have as little influence on the environment as possible. Environment is the number one to focus on in the future.”

Are problem areas in the industry likely to be solved by R&D collaboration with higher education programs and students' projects?

InTerAct Stakeholders conclusions

The industry was positive towards higher education for the aquatic food value chain

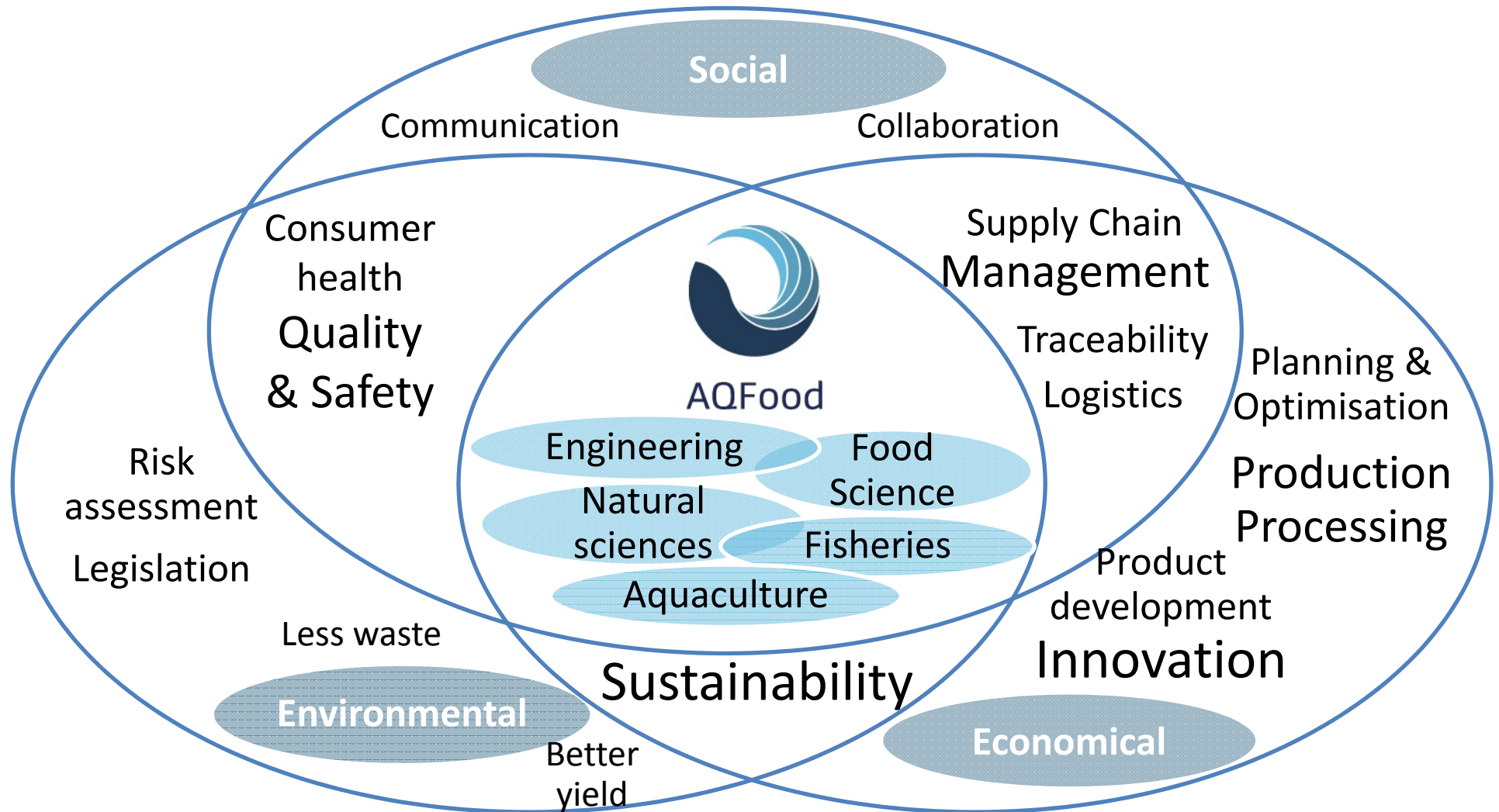
- Need expertise to enhance innovation, product development, and knowledge to underpin marketing and better understanding of sustainability
- Various job opportunities in the aquatic food sector
- Stakeholders are willing to collaborate with higher education programs like AQFood and support student's projects

Further suggestions for education at all levels

- Short courses in life-long learning programmes,
- Distance education => more flexibility for the student
- Create links between particular study programmes and the industry.
- Offer practical training for students within companies
- Collaboration in R&D projects
- Direct financing through scholarships.

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Does the AQFood MSc program address the industry challenges?



Scientific disciplines and key areas for **sustainable development** of the aquatic food value chain

– InTerAct session / Aquaculture Europe 2014 EAS

- “..... conclusion from the special session was that a definite need exists for bridge building between the industry and academia, and graduate students working on industry relevant projects could be a core building block for bridging”.
- INDUSTRY – ACADEMIA collaboration
- INDUSTRY – **STUDENTS** - ACADEMIA collaboration

AQUACULTURE EUROPE 2013



Communication and Transfer (INTERACT)
Chair: Sigurdur Bogassen, University of Iceland

The session included seven presentations focused on methods and tools required for facilitating communications and interactions between the aquatic food industries and the academia. The importance of the whole value chain from the live fish, production of seafood and delivery all the way to final consumers was covered, as the value drivers, checks and controls impact differently the various steps in the supply chain. The session chair introduced the objectives of the session and showed a video giving an overview of the InTerAct project <http://youtu.be/x6g0HTLnUj8>. He discussed the need to develop new innovative methods of education, capable of delivering well educated young people that are equipped with appropriate skill-sets and know-how to work in the aquatic food industry.

Caroline Baron, DTU introduced the international master education Aquatic Food Production-Safe and Quality" (AQFood) which aims at linking aquatic food production, processing and distribution

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Industry – Academia Interact
in the Marine Sector

- How to establish collaboration with industry?
 - Visits to companies, collaboration in R&D projects, short term study visits in companies, internship practices.....
 - Define students projects in collaboration with the industry
 - Give examples of career opportunities
- How to reach students ?
 - What are their interests?
 - What factors influence students?
- Are there differences between countries?

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- Marine Innovation
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Technical University of Denmark



NTNU – Trondheim
Norwegian University of
Science and Technology



Swedish University of
Agricultural Sciences

Eurofish
INTERNATIONAL ORGANISATION

UMANO



UNIVERSITY OF ICELAND

InTerAct

Dissemination: Website, conference, newsletters and articles

www.nordicinnovation.org

InTerAct - Industry-Academia Interaction in the Marine Sector

The main goal of the InTerAct project is to establish interaction between the marine sector and universities, to address the higher educational needs of the aquatic food value chain with the long term objective to enhance the innovation capacity of the marine sector.

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The unique approach in the InTerAct project is to use the AQFood Nordic masters program as a framework to increase and strengthen interaction between academia and the marine industry.

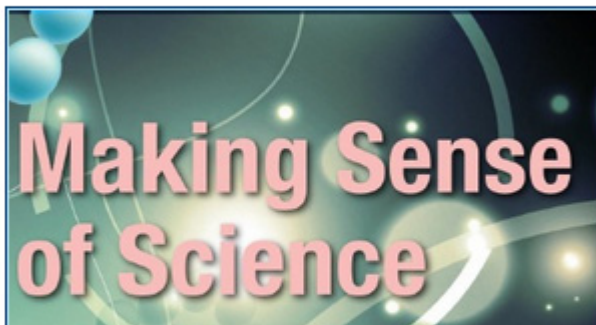
There is a gap between the academic values and industry's expectations and new approaches and communication strategies are needed to motivate industry-academia interaction, reshape curricula and build better business-university links.

WHY

The main challenge is to enhance the interest of students in the study program and make sure that the content of the program is aligned to the needs of the marine industry in order to deliver a highly qualified work force. The key is to demonstrate an image of attractive career



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Nordic Innovation Centre funded project Issue 2 / January 2013

InTerAct News

Students, Academia and Industry collaboration

The international AQFood master programme Aquatic Food Production - Quality and Safety was launched in September 2012. This second issue of the InTerAct newsletter is dedicated to interaction with students in the first semester, development of web courses for the aquatic food industries and collaboration with the Nordic Innovation Marine Marketing Program, AQUATNET and the Icelandic Ocean Cluster.

ISSUE 2

Content

Lessons learned and success stories

NIMMP workshop - Nordic students in the Forces helping the marine sector

AQUATNET - Academia & innovative teaching methods

AQFood e-learning platform

Icelandic Ocean Cluster Project sharing

Competition: Student projects with Vitea

Fivive: Students - industry Speed Dating

AQFood new e-learning courses

1. Primary production, Aquaculture and Fisheries
2. Aquatic Food Processing and Technology
3. Safety and Human Health Effects of Aquatic Food
4. Aquatic Food Supply Chain Management, Environment and Resources

Upcoming Actions

AQFood Master Programme

Improving collaboration between industry and academia

The Nordic Master in "Aquatic Food Production - Safety and Quality" AQFood targets Nordic and other students with a background in chemistry, biology, natural sciences, environment, health and production, or biotechnology who are interested in specialising in aquatic food production at the post graduate level. Participants may come from a background in aquaculture production, industrial food production, or natural resource management. The focus in AQFood is to address the entire value chain and to consider important aspects of economy, production management as well as environmental challenges making it a unique master degree.

Answer session the main conclusions from the meeting were summarised as follows:

There is a need for bridge building between the industry and academia. Graduate students working on industry relevant projects could be a rare building block for bridging. However, concerns were evident about how industry-based research projects could be matched to the most suitable students. Further work is needed to draw industry into closer collaboration with academia, as industry most often needs a relatively rapid response to current problems, but students' projects often need to be based on a timeline linked to the training program.

Regular open dialogue would bring positive changes

Consensus was reached that the positive changes will be reached

and to work with the sector in the development of cutting-edge solutions useful for businesses. This issue-based is required for industry to stay competitive and sustainable in the aquatic food value chain. Academia can support this by delivering well educated young people with the required skill sets and training. This requires a continuous dialogue between academia and all the actors in the diverse aquatic food supply chain. The whole value chain perspective needs to be promoted with all stakeholders.

Participants from the InTerAct project also attended the first part of the Aqua Net 2013 exhibition. Discussions with the industry were held, interviews recorded, and promotional videos filmed, which will be used to promote the AQFood master programme. The material will be ready for the final InTerAct event which is planned for

Leading Nordic universities participate in programme

The Nordic Masters in Aquatic Food Production is offered by a consortium of five universities:

- Technical University of Denmark (DTU), National Food Institute, Sønderborg, Denmark
- Norwegian University of Science and Technology, Ås, Norway
- Swedish University of Agricultural Sciences (SLU), Department of Wildlife, Fish and Environmental studies, Umeå, Sweden
- University of Iceland III (UoI)

norden Nordic Innovation Issue 1 / September 2012

InTerAct News

Industry Academia Interaction in the Marine Sector

ISSUE 1

Content

Stakeholder meeting was held in March 2012 in Gøteborg, Sweden. Fishing industry and academia collaborated on educational needs.

Business Canvas Methodology workshop

Stakeholder March meeting in Gøteborg, Iceland. University of Iceland Social Science Institute is interviewing industry experts in Iceland.

More Nordic interviews scheduled

Upcoming Actions

Stakeholder workshops and Focus Group meetings planned for Denmark, Norway and Sweden.

Academia aims to reach out to industry. Feedback from the aquatic industry regarding educational needs throughout the value chain is needed to guide educational developments.

Food quality, safety and value chain drivers

The interactions between academia and the fisheries, aquaculture and processing industry includes the whole value and

The InTerAct project is funded by the Nordic Innovation Centre and includes participants from Norway, Sweden, Denmark and Iceland. The Applied Supply Chain research Group from University of Iceland coordinates the project (see full list of partners on the last page). The project started in January 2012 and ends in December 2015.

InTerAct News

Issue 3 / September, 2013

InTerAct session at Aquaculture Europe 2013, Trondheim 12 August

UPCOMING EVENTS

December, 2013

Final Dissemination Event

Launching of promotional videos

- Image of the Nordic Marine Sector
- AQFood recruitment

InTerAct session

The project hosted a special session featuring presentations about educational programs for the aquatic food value chain. Various tools like e-learning, and methods needed for successful facilitation of interactions between the aquatic food industries, academia and the students were highlighted. Preliminary results from InTerAct surveys among students and general public were presented, as well as the view's of stakeholders from industry and academia regarding need for specialised education to enhance