Innovation and education

Tapping into Blue Growth, the way forward for European aquaculture

May 24 2016, Brussels

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1. De-risking new ventures

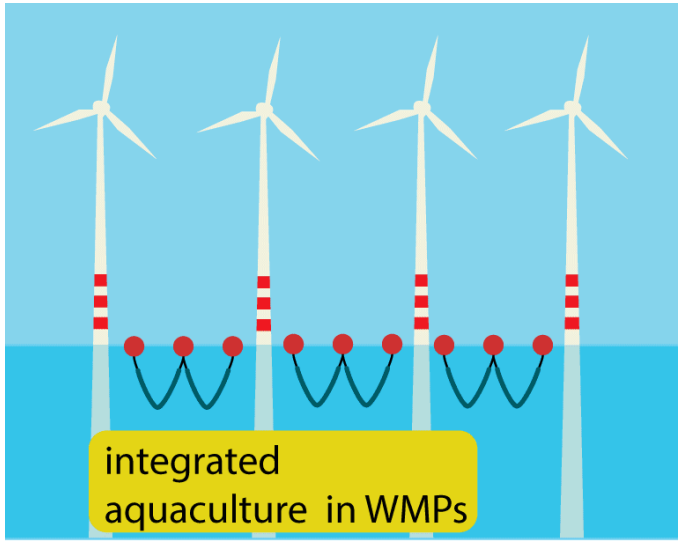
Taking the lead – investing when it is too early-stage for industry

Example 1: Integrated aquaculture in the North Sea

- Industry-driven roadmapping (2013-2015)
- Feasibility studies (2012/2014)
- Securing funding of pilot projects (2015 – now)

Current status:

- Working out business case of integrated mussel farm
- Identifying a location in the wind farms
- Creating partnership structure



Aquaculture Ghent University
colruytgroup
UNIVERSITEIT GENT
Pure
eCOAST RESEARCH CENTRE OSTEND
.Ocean nautical innovations
INVE AQUACULTURE
SIOEN INDUSTRIES
Brevisco bvba
Flanders' Maritime Cluster

1. De-risking new ventures

Example 2: Incubation of new ventures

- From PhD research to a portfolio of services
- Incubation and coaching during 2 years
- Incorporated with minimal risk, work capital financed

IMAQUA

AQUACULTURE IMMUNOLOGY TECHNOLOGIES

2. Education

Increase sustainability of aquaculture businesses – improve ocean literacy

- Integrate business and entrepreneurial skills into undergraduate and graduate aquaculture programs
- International Master's programs: create a global Alumni network (ambassadors)
- Start early on: e.g., integrate into programs of secondary and primary schools
- Experiment with new and flexible formats
  - MOOCS: online short-term courses tailored to the needs of individual trainees
  - Summer schools, intensive training programs, etc.

3. Transnational cooperation: in the EU

Learning from each other, sharing experiences and joining forces

- Bringing together industry and researchers of different regions
- Sharing and complementing regional competences, networks and contacts
- Sharing data, successes and failures, role models / partnership structures
- Within the EU:

RÉGION NORMANDIE

NTNU
Norwegian University of Science and Technology

SINTEF

and many more…

3. Transnational cooperation: Importance of the Asian market for the EU

Asian market:

- Growing economies & growing middle class
- Higher demand for high quality food
- Has the capacity to increase production significantly
- Is looking for foreign assistance: lack of technological and business skills

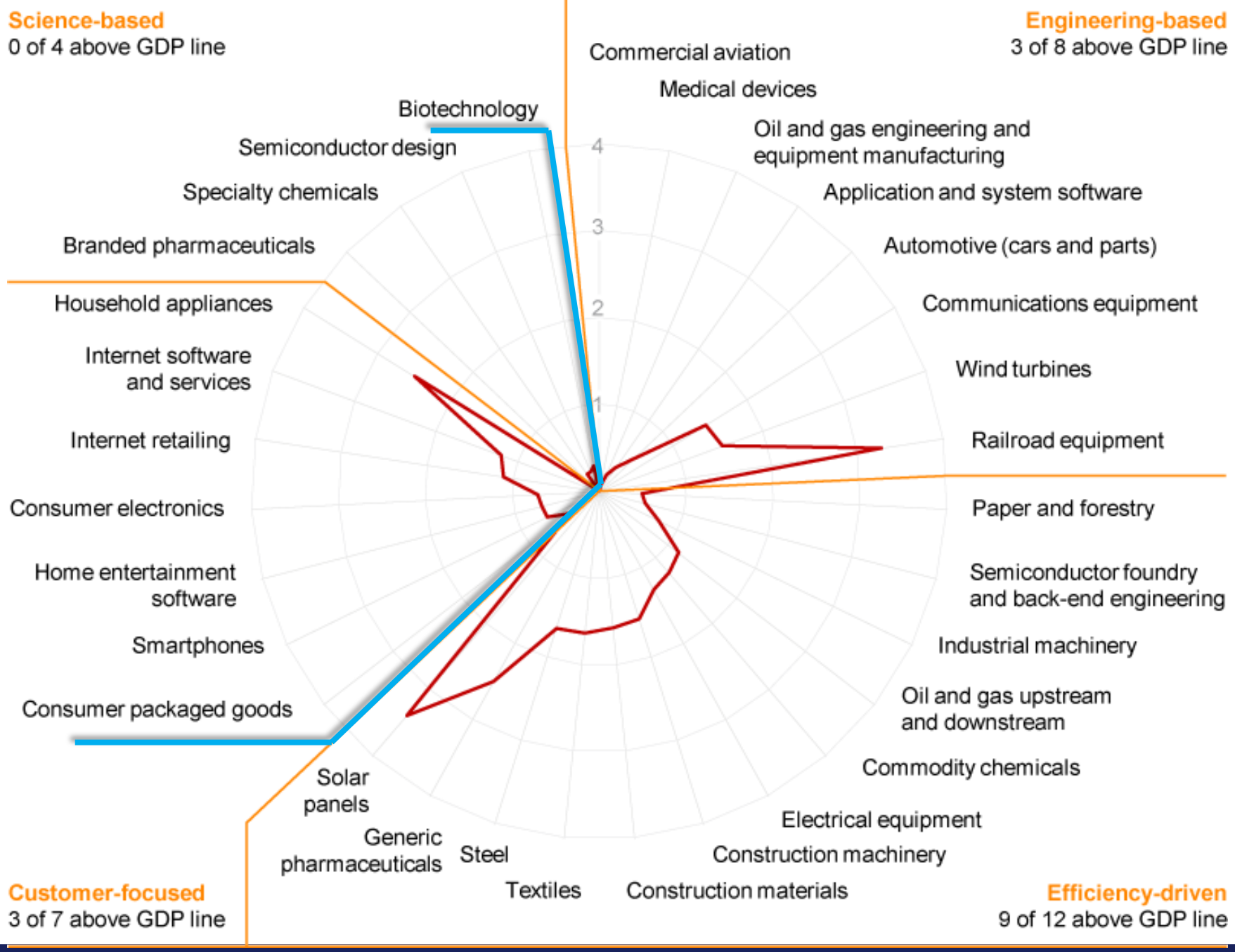
Mutual benefits for collaboration:

- Europe will continue to **need seafood imports from Southeast Asia**
- Tackle together the vast problems of the coming decades to solve the **seafood security and safety issues**
- More concerted efforts to **reinforce capacity building at academic and vocational level**
- Companies from both regions could benefit from **increased business interaction**

China:

strong in efficiency-driven and customer-focused innovation

lags in science- and engineering-based innovation



McKinsey Global Institute, 2014

3. Transnational cooperation: ASEAN region + China

Continue

Top down: **stakeholder dialogues – consultation**

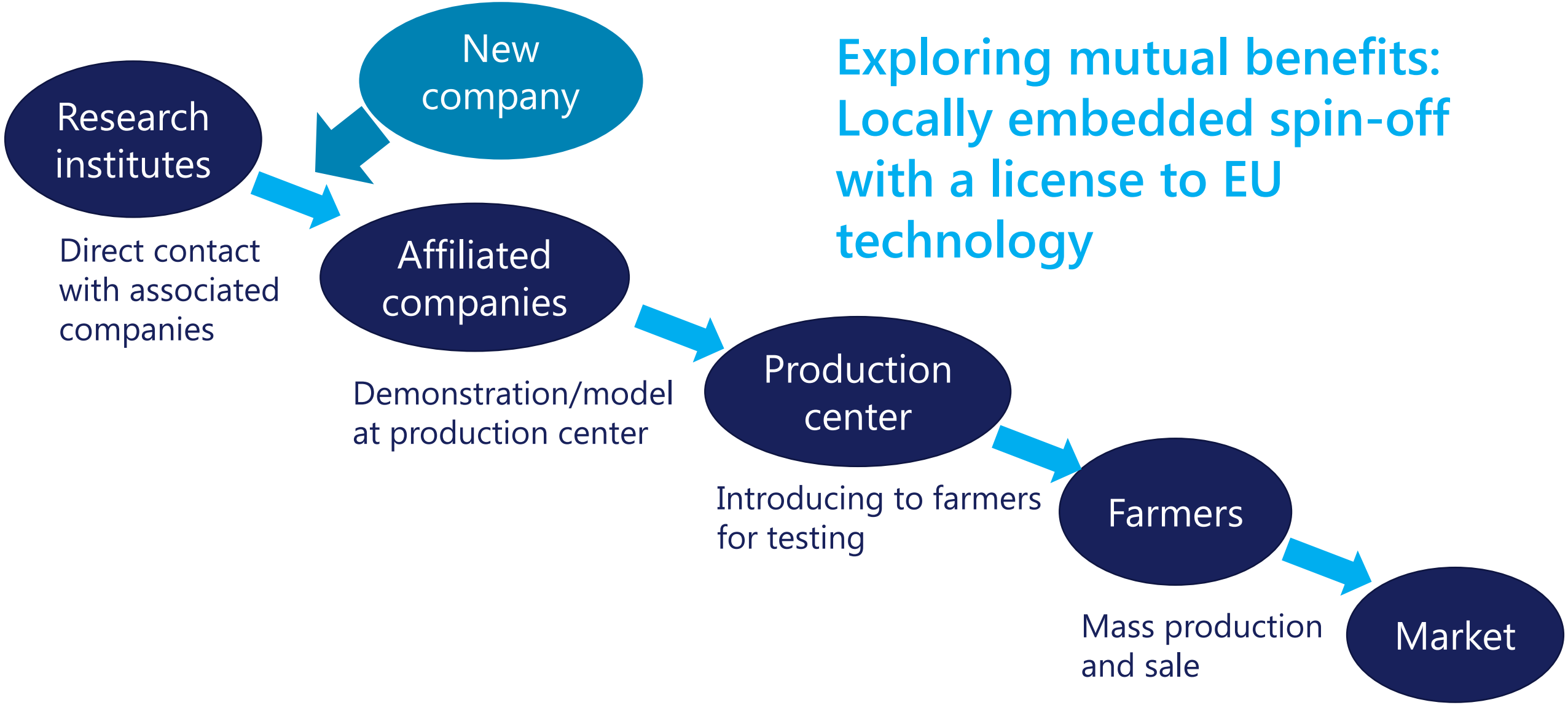
- Verifying farmer & industry needs in Asia
- Identifying R&D/Innovation/Capacity Building priorities of mutual benefit in support of these needs
- Developing a possible agenda & road map for future joint initiatives

Strengthen

Bottom up: **competence building**

- Establishing local entities and campuses: not only education and research, also technology transfer activities
- Alumni network
- Spin-offs: locally embedded, with licenses to EU technology

Exploring mutual benefits: Locally embedded spin-off with a license to EU technology



Niu & Drouillon, 2016

Innovation and education for sustainable growth of aquaculture in the EU

Exploring and establishing new role models for:

- "Blue" entrepreneurship
- Transnational cooperation
- De-risking new ventures and private-public partnerships
- Building mixed competences in the EU and abroad

Societal challenges:

- BG-03-2016: Multi-use of the oceans' marine space, offshore & near-shore: Compatibility, regulations, environmental, legal issues (CSA)
- BG-04-2017: Multi-use of the oceans' marine space, offshore & near-shore: Enabling technologies (RIA)

EASME/EMFF/2016:

- **Blue Labs**: innovative solutions for maritime challenges
- **Blue Careers in Europe**
- **Blue technology**: transferring innovation to sea basin economies

Thank you to:
* Prof. **Patrick Sorgeloos** & ir. **Jean D'hont**, Ghent University
* **Anna Zito** & **Eoin Mac Aoidh**, Policy officers Aquaculture, DG MARE, EC
* Dr. **Isabelle Dupont-Morral** & Dr. **Aude Jouaux**, Région Normandie, France
* **Wendy Sonneveld**, EU Office, Ghent University
* Dr. **Noémie Wouters**, Greenbridge Incubator, Ghent University

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