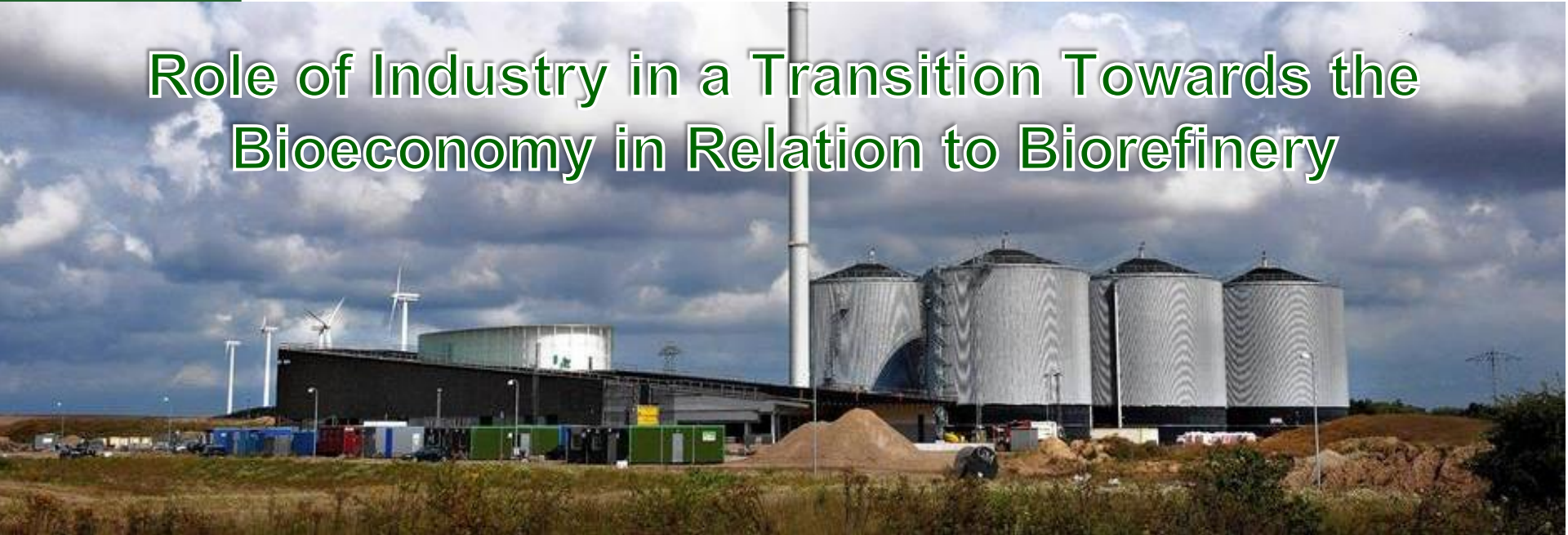


Role of Industry in a Transition Towards the Bioeconomy in Relation to Biorefinery



Senior Researcher PhD Henning Jørgensen
Center for BioProcess Engineering
E-mail: hejr@kt.dtu.dk

DTU Chemical Engineering
Department of Chemical and Biochemical Engineering

Results from the IEA Bioenergy Task 42 survey: The role of industry in a transition towards the BioEconomy (BE) in relation to biorefinery

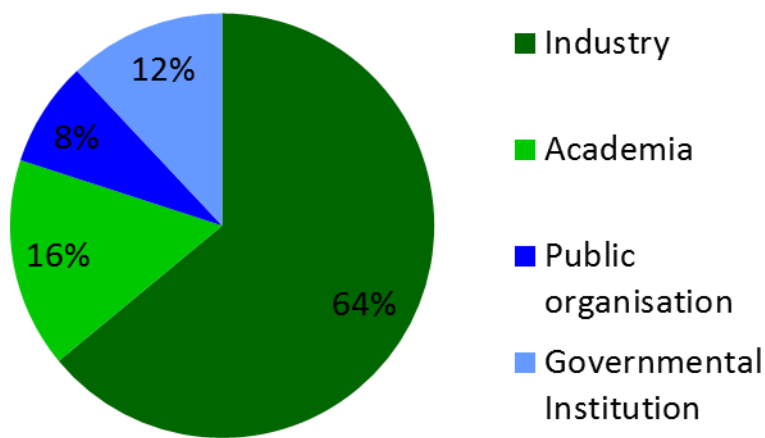
Purpose of questionnaire:

- Review the general opinion among stakeholders of the challenges and their role in the transition towards BE
- Identify factors that stakeholders identify as critical for increased cross-sector collaboration
- Create a knowledge base with strategies for how to facilitate increased collaboration

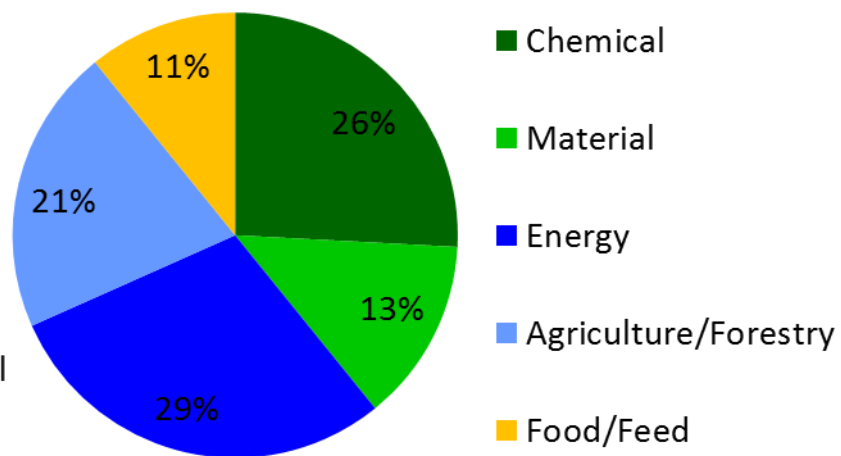
Results based on total of 75 respondents from AT, AUS, CAN, DK, IT, JP, NL, NZ, USA

Background of the respondents

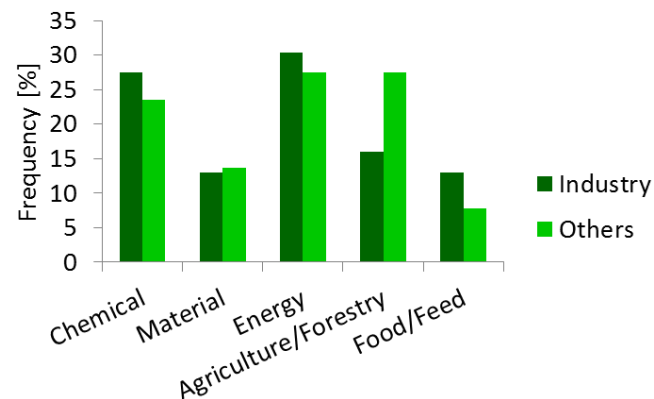
Affiliation



Sector

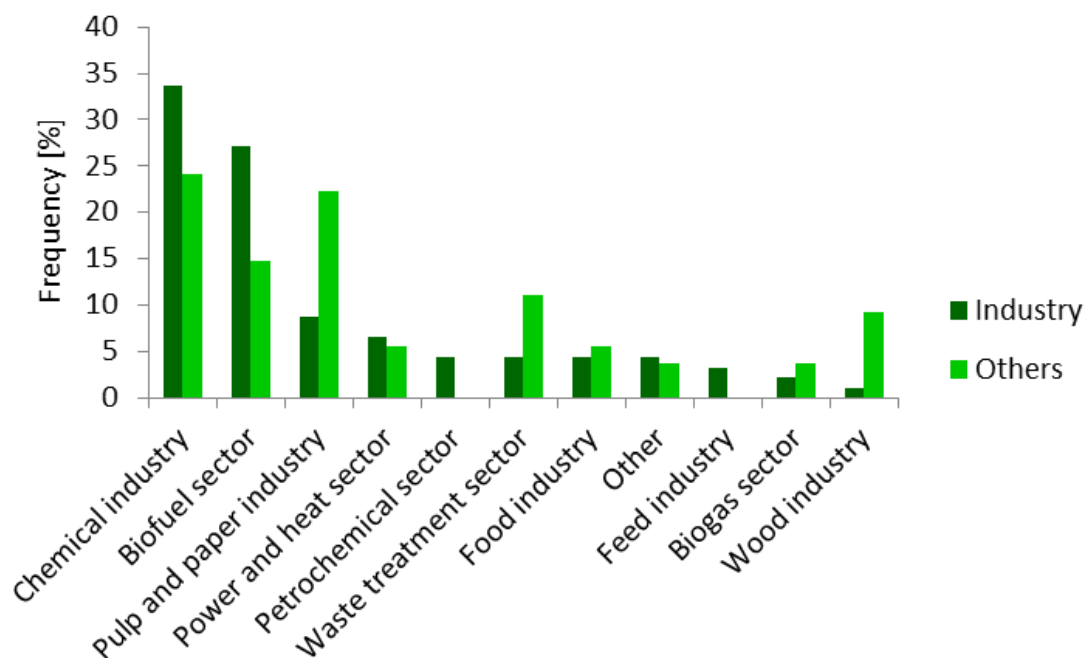


- Largest share of respondents are from industry.
- The energy and chemical sectors are the most represented, but from academia agriculture/forestry is relatively higher represented.



The role of different sectors in the transition

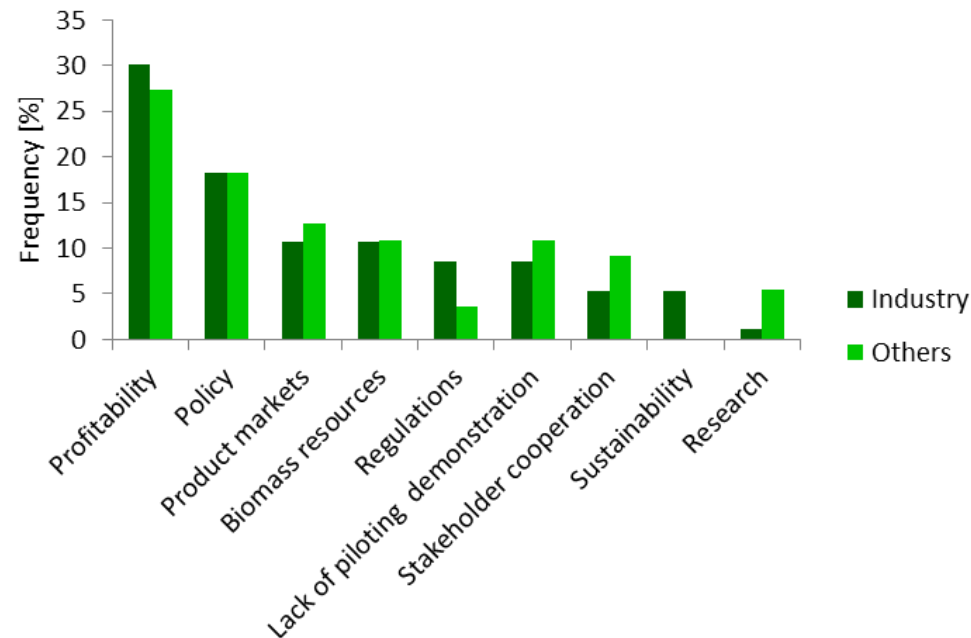
Which market sectors are most important in the transition towards the BioEconomy (BE)?



The chemical industry is seen as the most important market sector (selected by 59% of all) followed by biofuels (44%) in the transition towards BE. For the group “others” the pulp and paper sector is identified as more important than biofuel sector, but overall it ranks third.

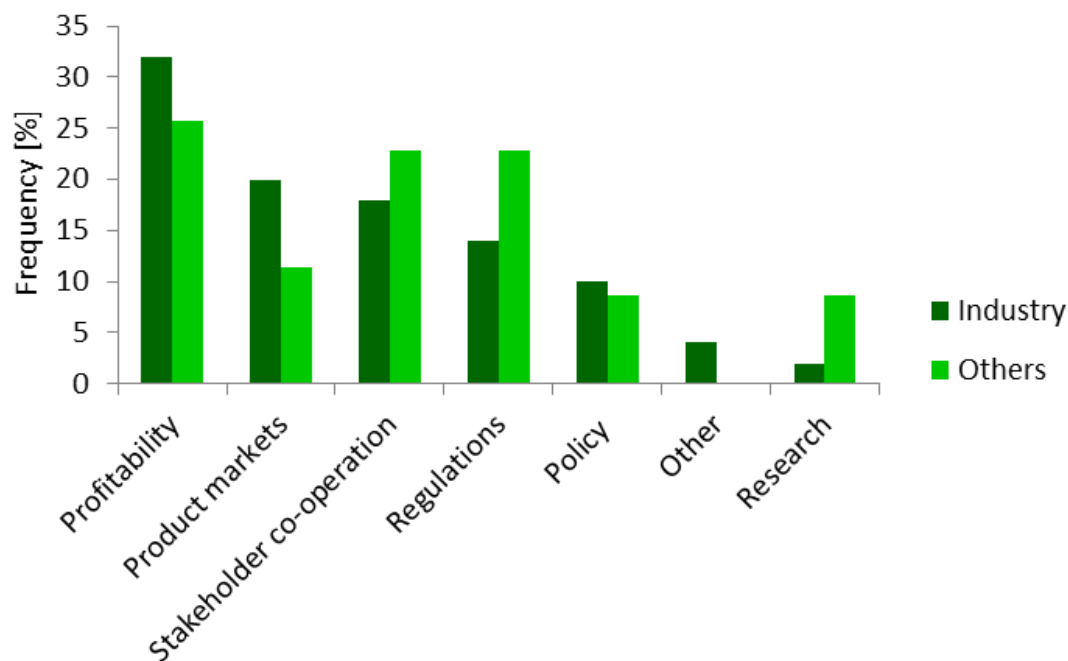
This is likely due to the background of the respondents being largely from the chemical industry or the energy sector. Forestry is overrepresented in the group “others”.

Which barriers are the most important for the transition towards the BE in general?



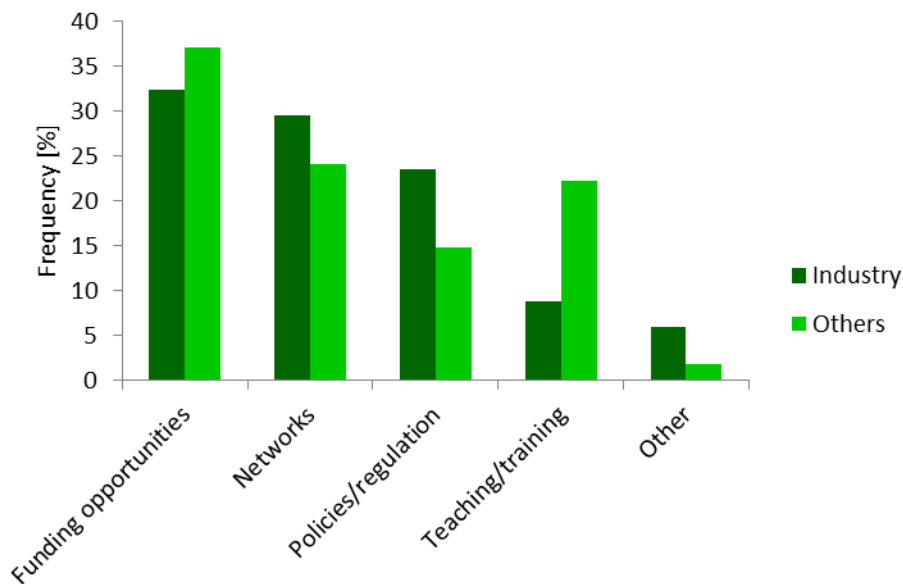
- Profitability is seen as main barrier among all (selected by 57% of all respondents), followed by policy barriers (selected by 36% of all).
- Availability of biomass resources is ranked 4th.
- Lack of collaboration is not identified as a critical barrier as it ranks 7 out of 9.

What barriers are limiting the collaboration across traditional markets ?



Profitability is again seen as main barrier for collaboration (selected by 33% of all), followed by stakeholder co-operation (23%) and regulations (20%). There is quite some difference between industry and “others” in the perception of most important barriers for collaboration.

What is needed to facilitate collaboration between stakeholders currently working in different marked sectors in order to accelerate the development of the BE or can it anyway be driven by normal marked demands?



- Policies/regulations to stimulate or ease collaboration
- Create funding opportunities that support cross marked sector integration
- Create networks across different marked sectors
- Teaching/ training to increase understanding and awareness of possibilities
- Other

- **87% responded that facilitation is needed.**
- Slight difference what “Industry” and “others” identified as best approach to facilitate collaboration.
- **Funding opportunities** that supports cross market sector integration identified as the most important driver to facilitate collaboration and acceleration of the development of BE (selected by 44%)

How can stakeholders currently working in distinct marked sectors collaborate in order to accelerate the development of a BE?

- **Creation of networks** is needed
 - Many exists already, but usually within same sector
 - Focus should be on **networks crossing traditional sectors** (e.g. agriculture and biotechnology) and supply chains
- Need for technology and personnel exchange to build skills across sectors
- **Opening and sharing of test sites**
 - Universities could be hub for to do initial demonstration
 - Universities could use private facilities for scale-up

Barriers:

- Problem is **trust** (commercial and competitive market).
- Long term agreements also with respect to biomass supply needed to ensure trust and confidence
- Difficult to engage producing industries (e.g. 1G ethanol) which are focused on production and not testing new innovation

- The chemical industry and the biofuels sector are the sectors that are going to drive the development and transition towards a BE
- The main barrier for developing a BE is profitability and lack of appropriate policies (political stability to ensure long term planning and commitment)
- Profitability is also limiting collaboration between stakeholders in distinct market sectors – there is a need to see economical benefits => good examples need to be better exposed and communicated
- It is a competitive market and trust between stakeholders is needed in order to build the synergies needed for driving the BioEconomy development
- Funding programs that facilitates/encourage collaboration across traditional market sectors can stimulate the development
- But also cross sectorial networks could facilitate collaboration (Task 42 role)
- **Task 42 can play an active role by monitoring and communicate the progress within demonstration of technologies and highlighting success stories.**

www.IEA-Bioenergy.Task42-Biorefineries.com



Henning Jørgensen

Center for BioProcess Engineering
Department of Chemical and Biochemical
Engineering
Technical University of Denmark
E-mail: hejr@kt.dtu.dk

