How can collaboration be improved ?

- can research collaboration facilitate growth for sub-suppliers?

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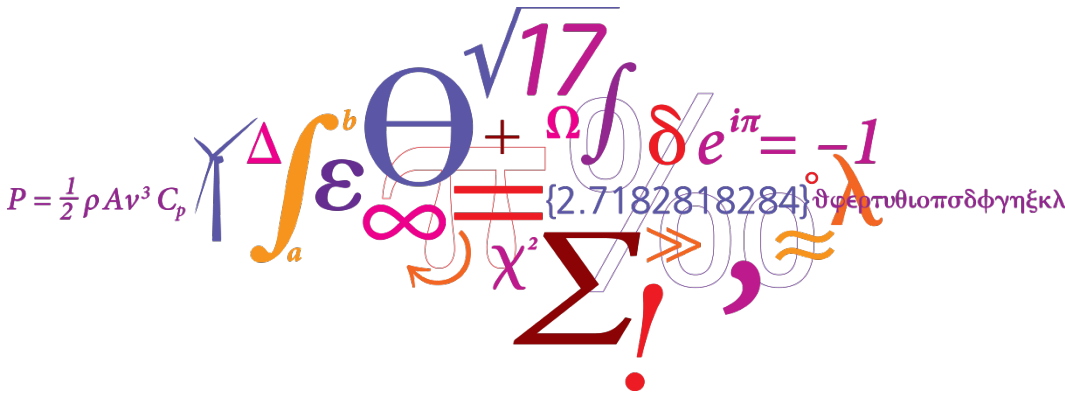

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An analysis of the wind energy sub-supplier sector

- Collaboration between
  - DTU – Technical University of Denmark
  - Danish Wind Energy Association

- Sponsored by the Danish Industry Foundation

- ***Can research and technology development play a role in further growth in the sub-supplier sector of the wind energy industry ?***

The sub-supplier sector is important

- More than 500 Danish companies are suppliers to the wind energy sector – 50% of the jobs

- Less than 20% have participated in publicly funded research projects within wind energy
- Less than 5% have participated more than once...

- Companies active in technology development and innovation generally have a higher growth rate than non-active companies

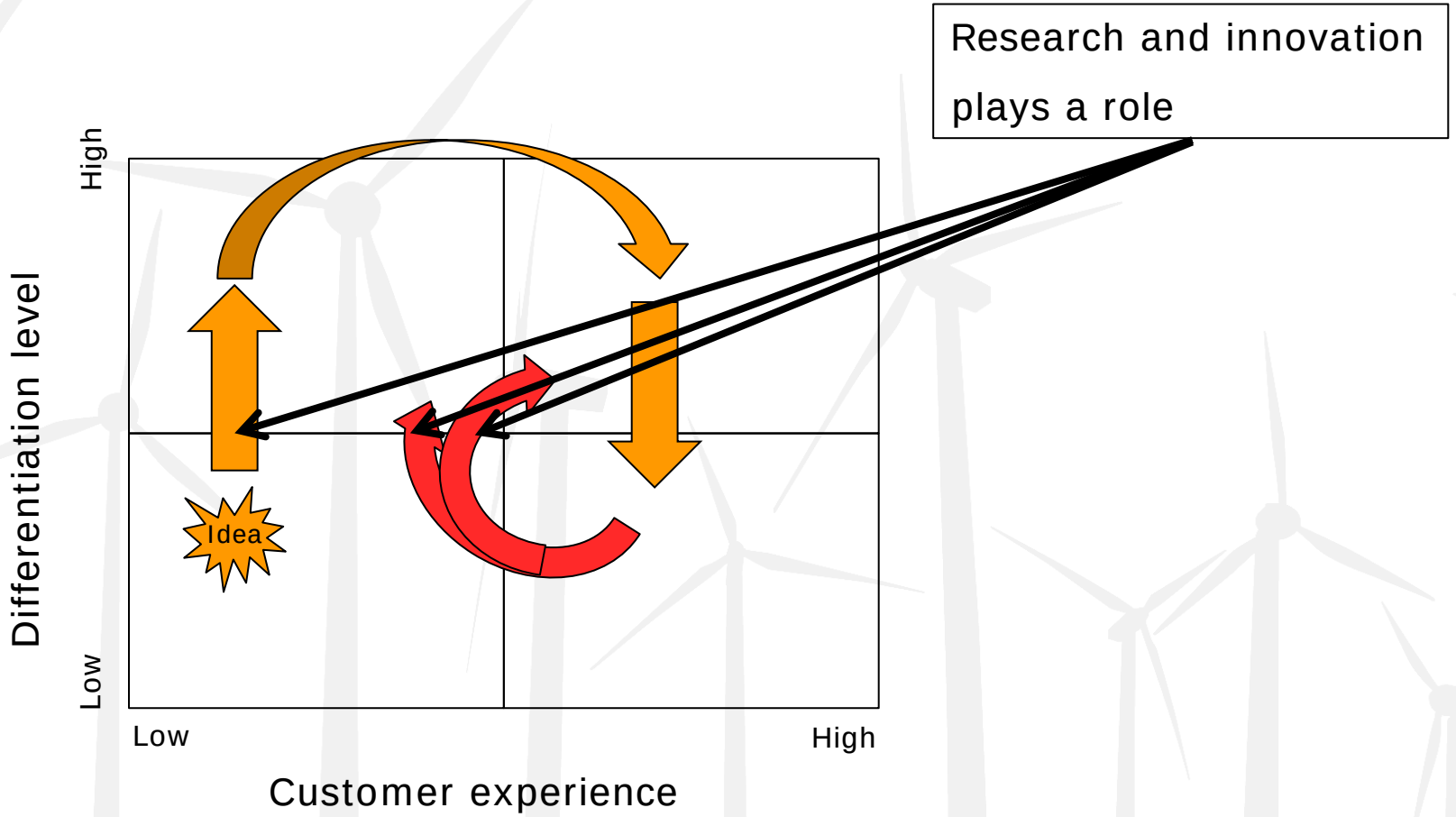
- We believe that research collaboration can be a basis for growth
  - but how can we make it happen?

How did we do the analysis?

- Based on dialogue with a number of sub-suppliers
  - Why research collaboration – why not?
  - Barriers?
  - Challenges?
  - How is value created?

- Identified needs are linked with research competences at DTU
  - Can research collaboration remove the barriers?
  - What can we do? (DTU, the sub-suppliers, the customers, OEM, developers, etc)

Research in a supplier-buyer relationship



Sub-suppliers are different

Classical sub-suppliers	• Components or services based on specs • Commodity based supply
High technology sub-suppliers	• Deep technological insight (in a narrow field)
Sub-suppliers with system responsibility	• Supplier of systems – coordination with other suppliers
Test sub-suppliers	• Test facilities and services
Sub-suppliers for developer segment	• Products and services are different from the OEM suppliers

Classical sub-suppliers

Challenges

- Data and information sharing between customer (OEM) and sub-supplier
- Need for focus on operation and maintenance

"Typically, we get information on the elements of the turbine where our components are placed. We could suggest better solutions if we know more details of the rest of the design"

"We are pushed to deliver components for easy handling and low maintenance requirements"

High technology sub-suppliers

Challenges

- Product validation
- Knowledge within other areas of competence

"We need guidelines for validation of our products – and for upgrades of already installed products for life time extension"

"Technology management is key to us due to the relatively high cost of exploring new technology"

Sub-suppliers with system responsibility

Challenges

- Standardization of interfaces
- Understanding of the entire system

"Customers expect us to take responsibility and risk for a growing part of the value chain. This entails handling of other sub-suppliers"

"We have too little standardization within the industry. The result is that we have too much variation in our work load during a year"

Test sub-suppliers

Challenges

- Development of standardized test methods
- Life time extension of components

"We hope that the OEMs and sub-suppliers are ready for collaboration projects on test. The sub-suppliers would then see their components tested under realistic conditions"

"It is interesting to know how e.g. lightning impacts life time of components compared with other factors like vibrations, temperatures and moisture"

Sub-suppliers for developer segment

Challenges

- Cross-cutting competences, including logistics
- Installation, servicing, operation and maintenance

"An alternative to larger ships it could be interesting to consider other foundation types. Doing that could result in a significant price reduction"

"Many customers want to monitor the operations of the equipment remotely, e.g. level of fuel, cooling temperature, oil temperature, etc"

Main findings

More responsibility to and more involvement of suppliers

- Shared responsibility between customers and sub-suppliers
- DTU can increase focus on sub-supplier areas

Improved conditions for supplier involvement in research projects

- Use DTU in non-covered competence areas for competence improvement
- Use networking and partnerships
- Utilize the new flexible funding systems (InnoBooster, Eurostars)
- DTU must improve the accessibility to research areas
- DTU can support the sub-suppliers in identifying the proper funding channels
- Joint publications can be an advantage for the SMEs
- Communication from DTU to SMEs can be improved
- Regular workshops at DTU will be established
- DTU must establish a SME-oriented strategy across departments
- Utilize student and phd project possibilities

More focus on O&M, system understanding and tests

- DTU must focus on O&M – also by utilizing all relevant technical areas
- OEM, developers and sub-supplier must jointly focus on solutions for reduction of O&M costs
- Development of test methods and competences
- Utilization of the Danish role in standardization

The results are presented here – and in a report

Get a copy of the report at the DTU stand today !

Thank you to our sponsors and partners !