Innovation Engagements for Industry & Academia

Future Wind & Marine 2020, University of Strathclyde, 5th March 2020

Chris Briggs – Regional Innovation Manager, Siemens Gamesa Renewable Energy.

futureWind 2020 & Marine

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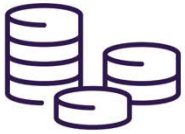
Siemens Gamesa – Key Facts*

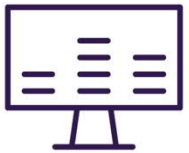
- Founded in April 2017 as a **merger of Siemens Wind Power and Gamesa**
- **A leading global provider of wind power products & service solutions**
- #1 in Offshore; #2 in Onshore & Service

+90 GW
Globally Installed

+23,000
Employees



€9.1 B
Annual Revenue



€10 B
Market Capitalization

€23 B
Order Book

True **global,** modern and scalable **footprint**

Advanced **digital** capabilities

Portfolio covering all requirements

* End of March 2019

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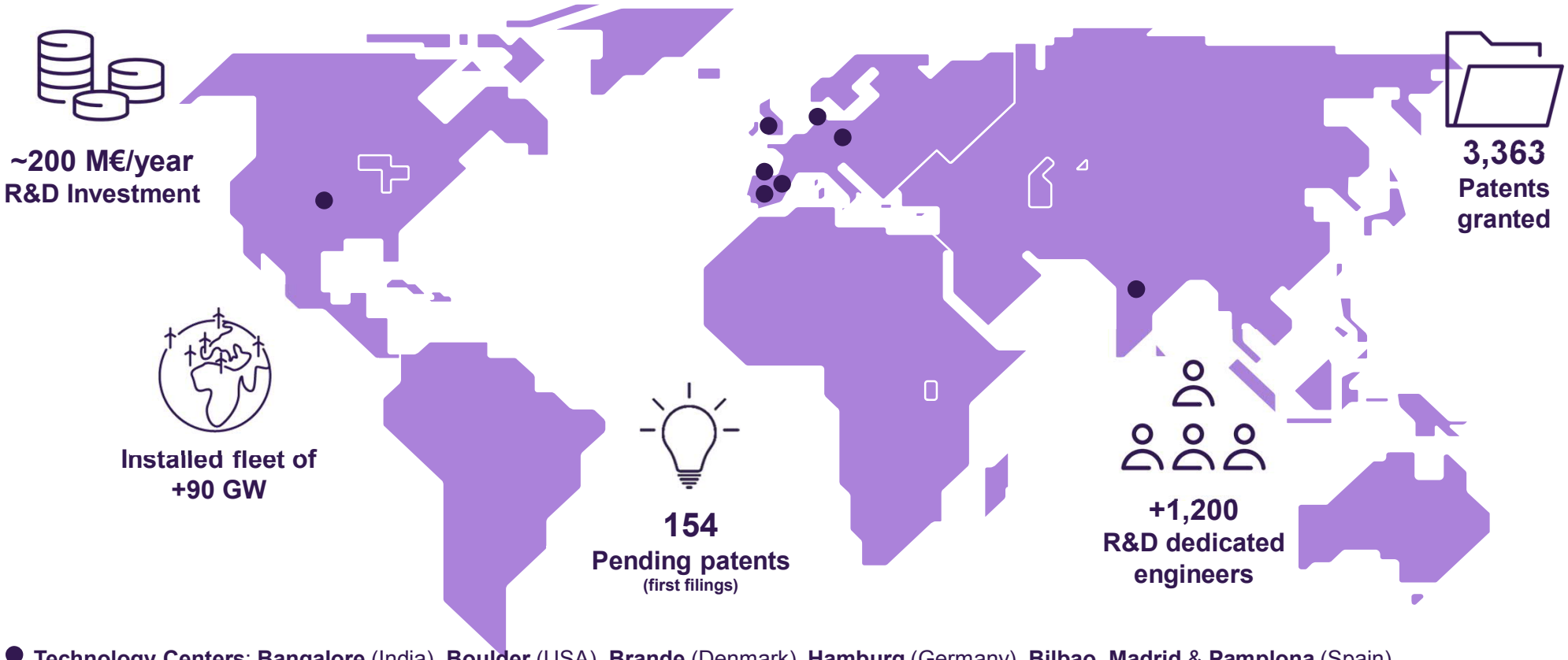
Technology & Innovation

ONSHORE | OFFSHORE | SERVICE | CORPORATE TECHNOLOGY



- **Technology Centers**: **Bangalore** (India), **Boulder** (USA), **Brande** (Denmark), **Hamburg** (Germany), **Bilbao**, **Madrid** & **Pamplona** (Spain), **Sheffield, Keele & Glasgow** (UK).

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SGRE have a broad range of interests for Innovation – some examples

Onshore

CORE TURBINE
- Blades – Aerodynamics, Materials, Structures
- Loads & Controls
- Drive Trains – Electrical & Mechanical
- Power Electronics
- Grid Integration

- Wind & Wake Modelling & Management
- Sensor Technologies

- Siting, Logistics & Construction technologies

Offshore

- Balance of Plant – foundations, (cables).
- Floating Wind

Service

- Remote Monitoring & Diagnostics
- Data Analytics
- Inspection technologies
- Repair technologies
- Autonomous solutions
- Robotics
- Vessels

Corporate Technology

- Industrialisation
- Circular Economy – decommissioning, recycling.
- Grid Integration
- Energy Storage
- Other Wind Technologies
- Other Renewable Energy
- Digitalisation
  - Blockchain
  - AR/VR/XR
  - AI/ML

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SGRE engage widely in Innovation Collaborations – some examples

HORIZON 2020

EPSRC
Engineering and Physical Sciences Research Council

Interreg

Innovate UK
Technology Strategy Board

i4Offshore

Integrated Implementation of Industrial Innovations for Offshore Wind Cost Reduction 'i4Offshore'

ROMEO

Reliable O&M decision tools and strategies for high LCoE reduction on Offshore wind

New Partnership in Offshore Wind

Underpinning technology for large scale wind generator manufacture.

dyvirt-etn.eu

Building virtual models for structures subject to high dynamic loads

HOME Offshore

Advanced sensing, robotics, virtual reality models and artificial intelligence to reduce maintenance cost

DTU

AALBORG UNIVERSITY
DENMARK

Fraunhofer IWES

The University Of Sheffield.

aura

University of Strathclyde

TU Delft

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Industry vs Academic driven projects

Academic ‘Push’

- Driven by novel research
- ‘Routes to Market’ not always clear
- Reactive Industry planning
- New Innovation Partners

Industry ‘Pull’

- Driven by known challenges
- Solution focussed
- Planned Industry activity
- Selected ‘known’ partners

BOTH ARE NEEDED

- Industry ‘Pull’ projects are ‘easier’ to set-up, but can limit Innovation Opportunities.
- Academic ‘Push’ projects can fail to get the right Industry support.
  - ➢ What are the pitfalls and how can we improve?

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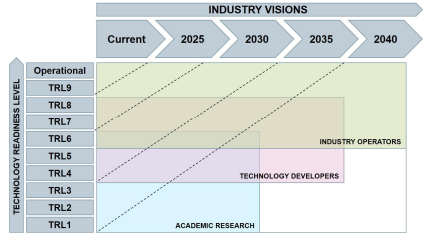
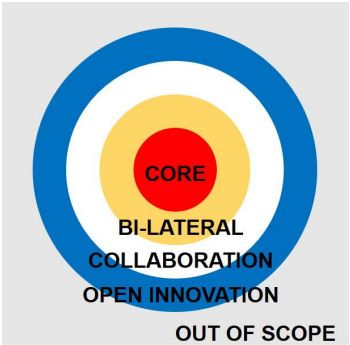
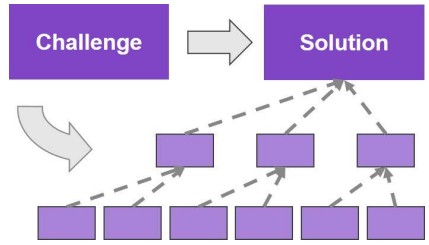
Academic R&D Proposals – Considerations for Industry Buy-In

1. TRL & Time to Market – do they match the Challenge?
2. Who do you really need to partner with in Industry – and in what capacity?
3. Consider ‘routes to market’ – who will commercialise it?
4. What’s the Innovation? And how will it benefit Industry partners?
5. Beware of ‘Industry Anecdotes’ – recheck industry needs regularly
6. Industry can be ‘Challenge-Solution’ focussed, but problems are multi-facetted (e.g. Drones for Blade Inspections).
7. Think about Commitments & Benefits (prior to LoS request)
8. Industry Engagement takes time – engage early to avoid disappointment
9. Invite dialogue & industry input
10. Data Sharing requests need to be specific – and be aware of sensitivities.







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How can Academic-led proposals get more effective Industry Buy-in?

- Onus on Academia for individual projects…….
- but both Industry and Academia can lay the foundations
  - Joint Industry-Academic Forums
  - Industry Road-mapping
  - Academic Road-mapping?
  - Innovation Brokers?

➢ **ONGOING DIALOGUE IS CRITICAL!!**

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Thanks

Chris Briggs, 05.03.2020

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