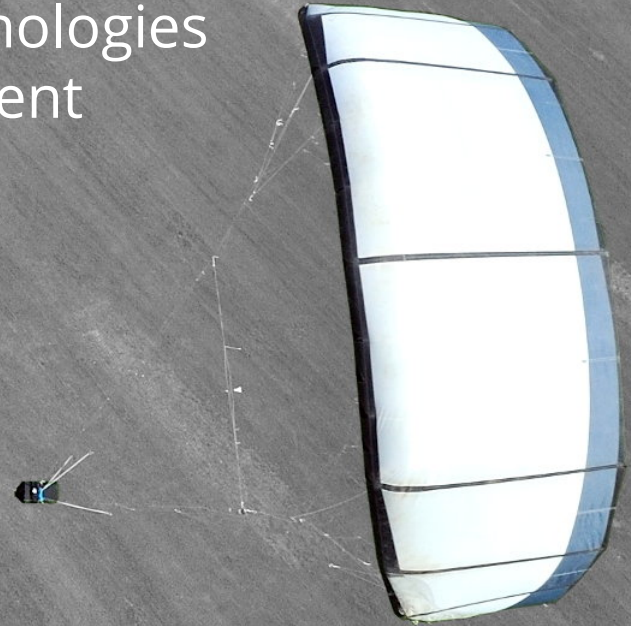


EU H2020 Projects AWESCO & REACH

Advancing Airborne Wind Energy Technologies
by Systematic Research and Development

Roland Schmehl

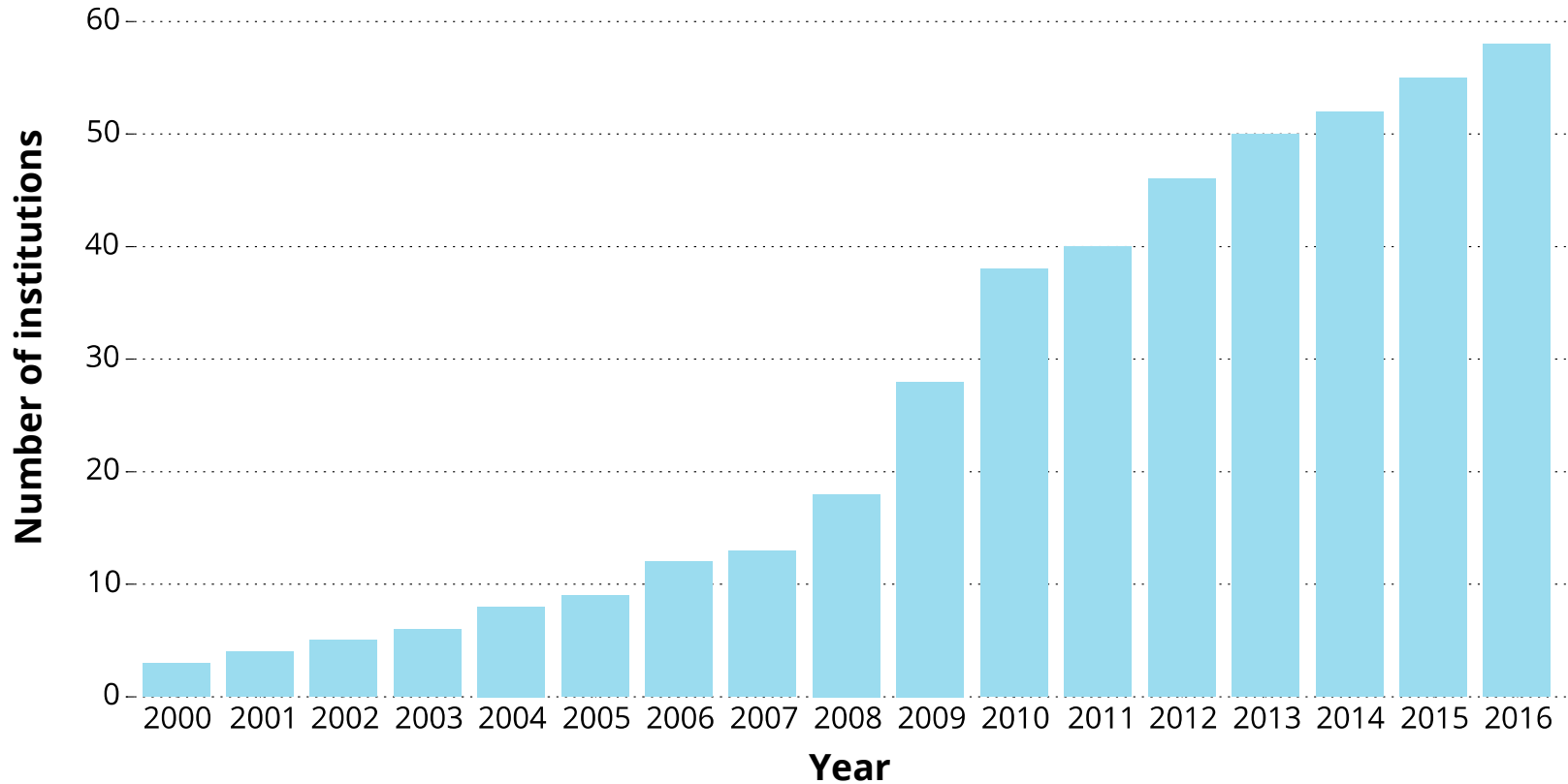


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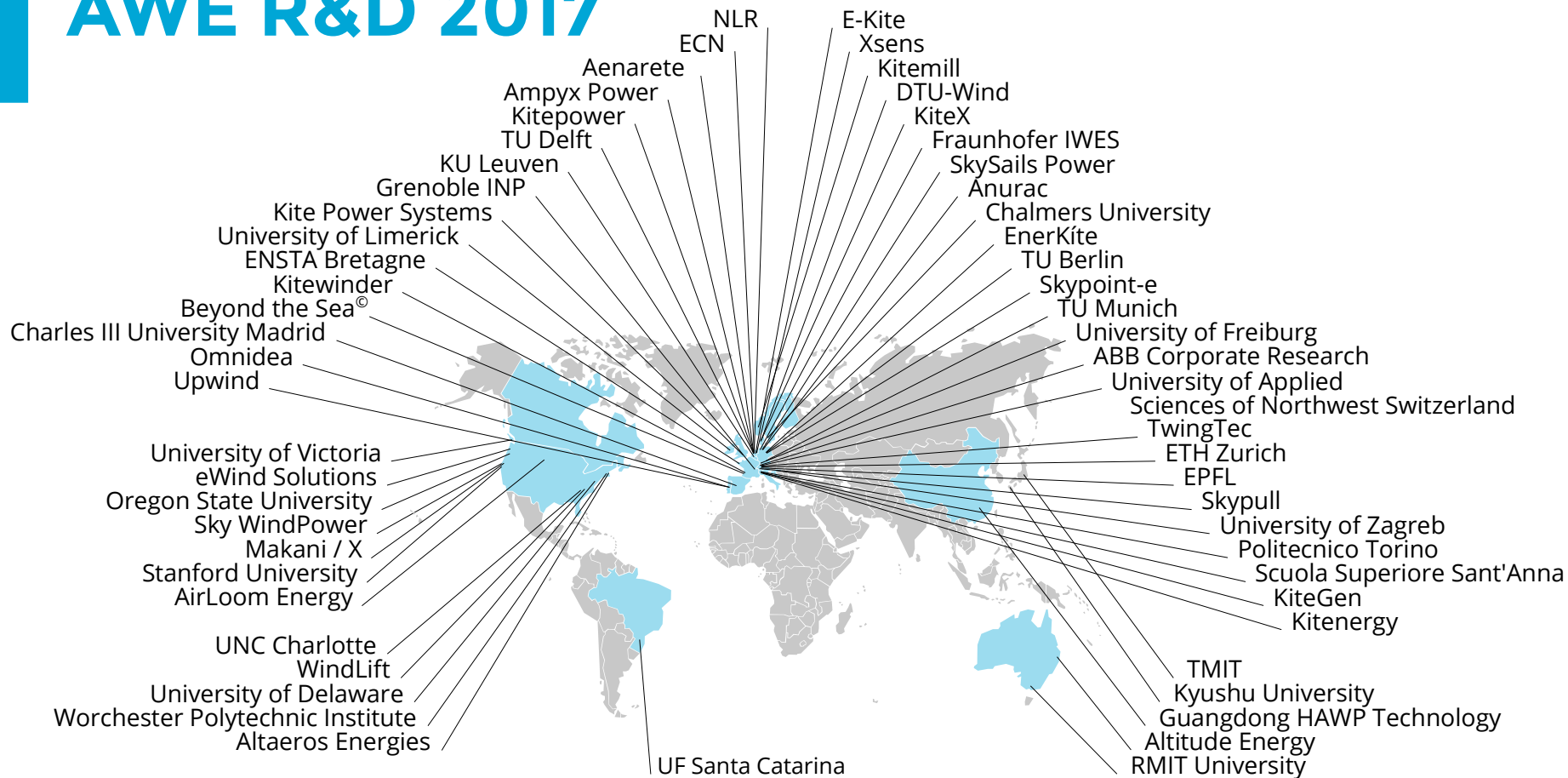
Outline

- Context and objective
- Doctoral training network AWESCO
- Fast Track to Innovation project REACH
- Lessons learned

Technology development since 2000



AWE R&D 2017



Objective

- Role of public R&D funding

Current EU H2020 funding



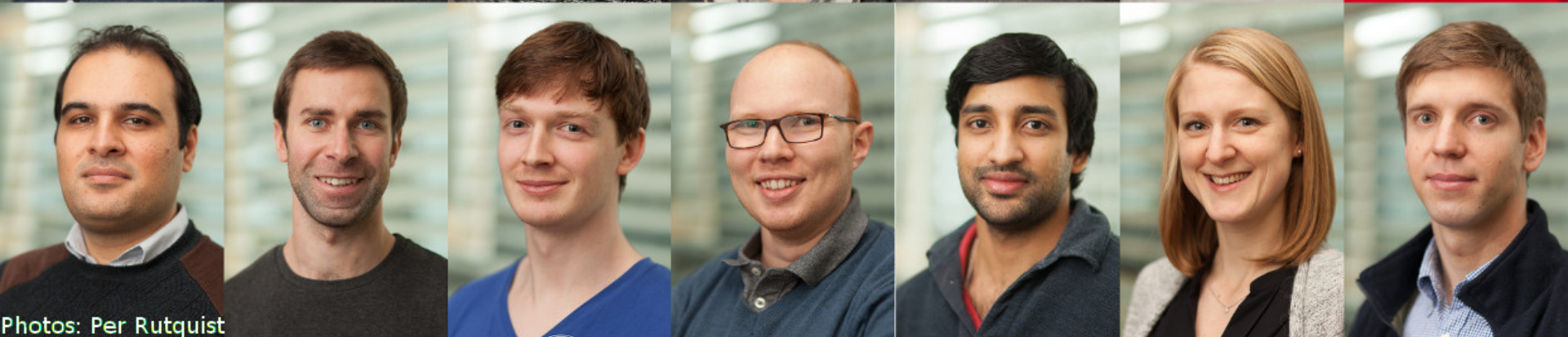
- AWESCO, H2020-**ITN**-642682: €3,400,000
- REACH, H2020-**FTIPilot**-691173: €3,665,744
- AMPYXAP3, H2020-**SMEINST-2**-666793: €3,701,937
- EK200-AWESOME, H2020-**SMEINST-1**-736399: €71,429
- NextWind, H2020-**SMEINST-1**-774974: €71,429
- TwingPower, **Eurostars**-11105: €1,504,180



- Marie Skłodowska-Curie Initial Training Network
- 4 work packages focussing on scientific challenges:
 - **Modelling and Simulation** (WP lead: TUD)
 - **System Design and Optimisation** (WP lead: ALU-FR)
 - **Sensors and Estimation** (WP lead: Xsens)
 - **Control Systems** (WP lead: TUM)

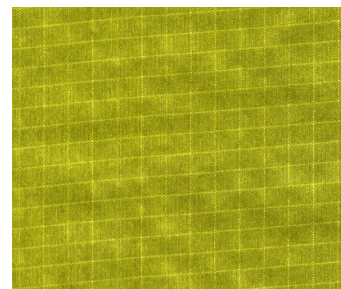
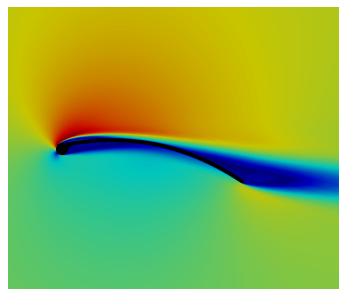
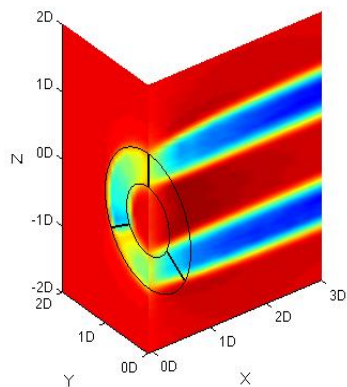
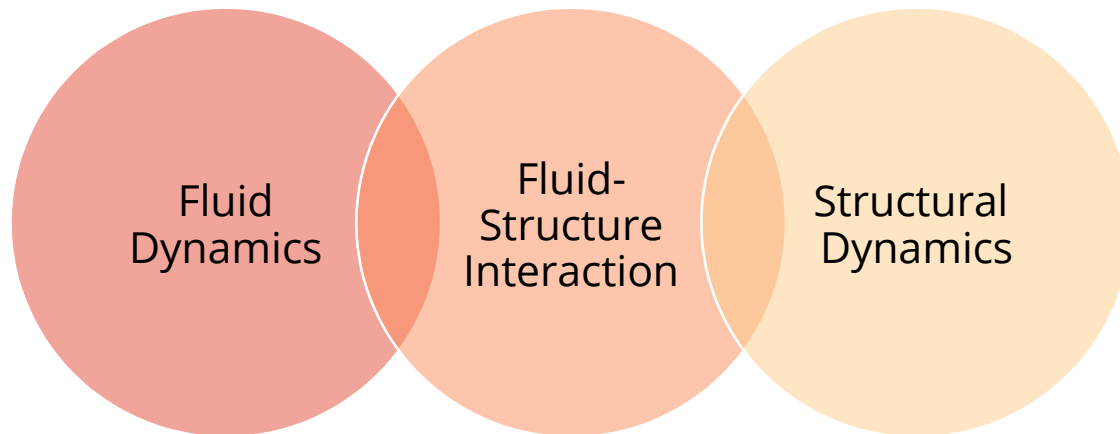
- 14 PhD projects, all contributing to relevant questions of industry
- 4 PhD projects supervised by TU Delft
- 10 EU-funded partners
- 2 CH-funded partners
- **3.4 M€** total budget (2015-18)





Photos: Per Rutquist

Thomas Haas Mikko Folkersma Paul Thedens

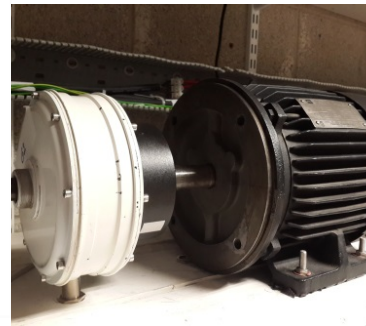
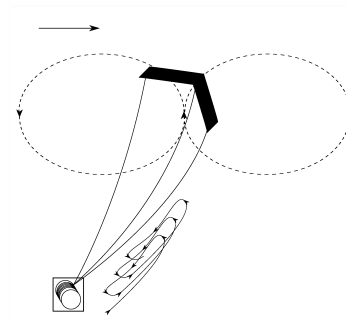
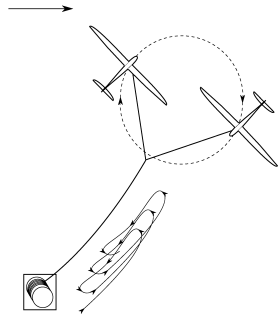
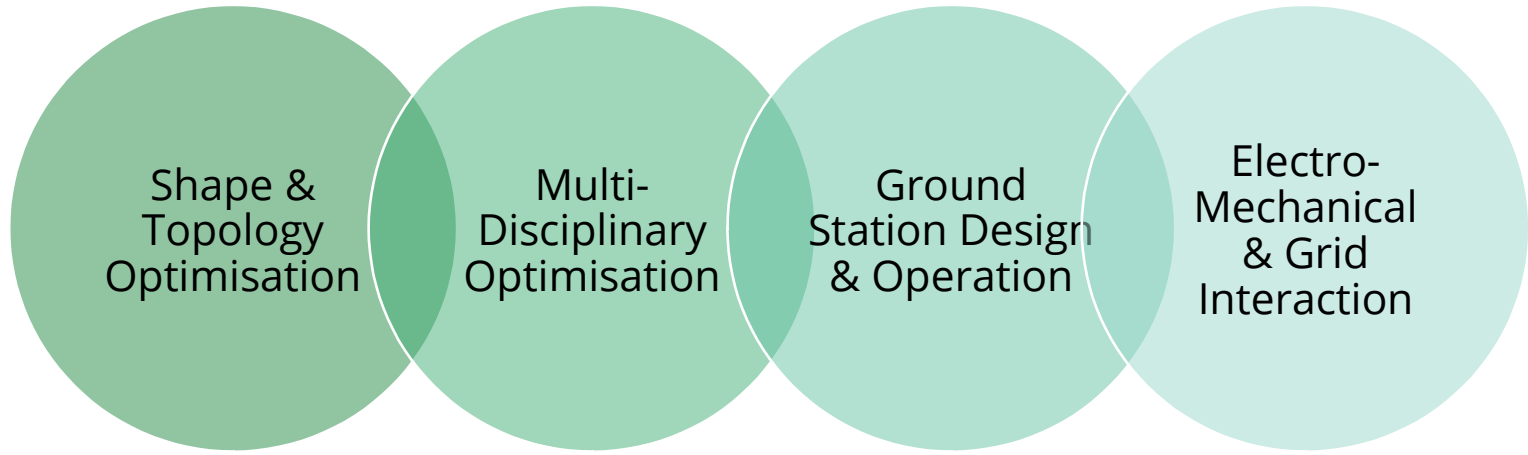


Rachel Leuthold

Ashwin Candade

Mahdi Ebrahimi
Salari

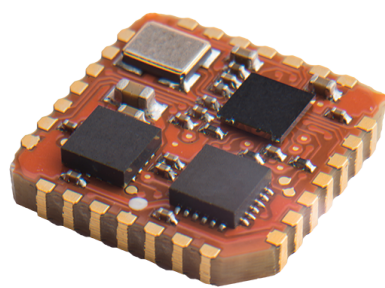
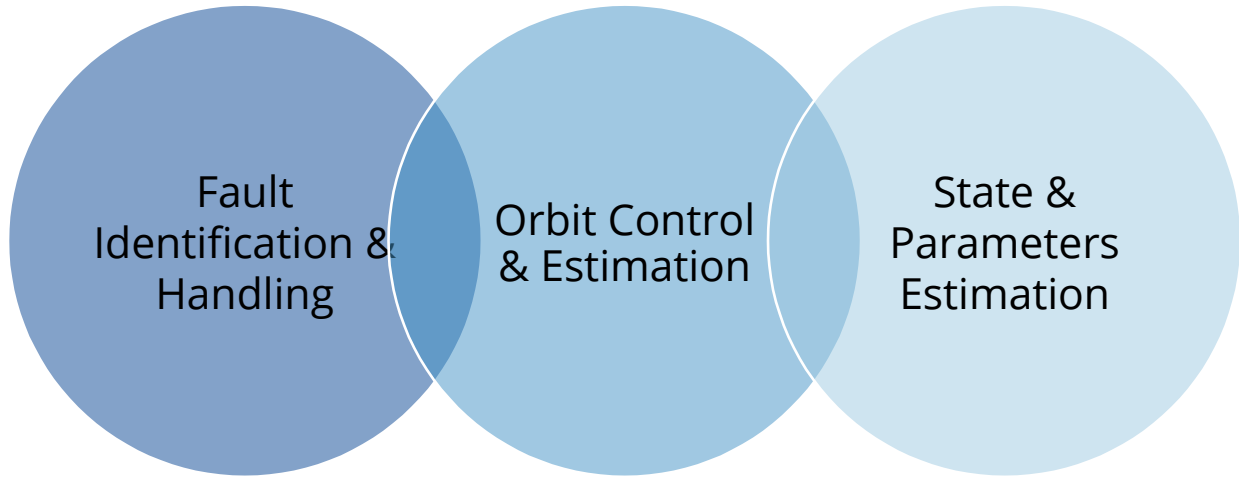
Elena Malz



Andrea Zanelli

Peter Listov

Fabian Girrbach



13
Hisham Eldeeb

Jonas Koenemann

Sebastian Rapp

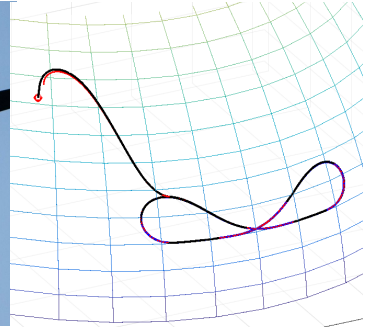
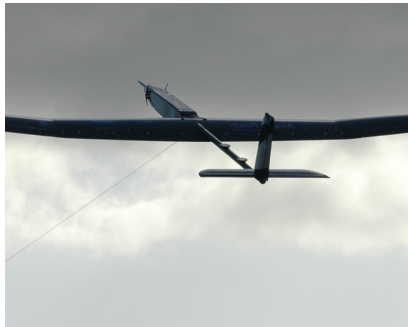
Eva Ahbe

Electrical Drive
System

Horizontal
Launching &
Landing

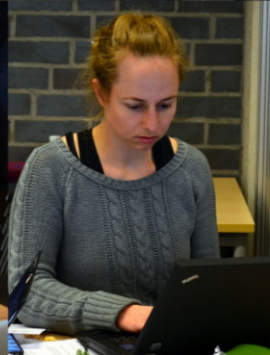
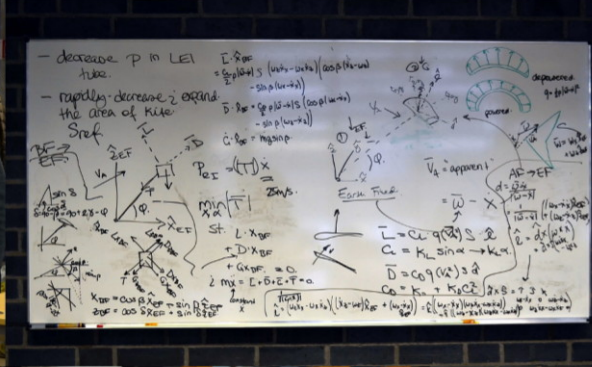
Vertical
Launching &
Landing

Dynamically
Uncertain
Airfoils





AWESCO members: (above) at the midterm project meeting (8 February, 2017), and (below) during a course (3-4 March, 2016)





- Active partner organisations
 - Kitemill (Norway)
 - University of Victoria (Canada)
 - Kitepower (Netherlands)
 - Skysails Power (Germany)
 - Kiteswarms (UK & Germany)

REACH



- Fast Track to Innovation
- Launched end 2015
- Call: H2020-FTIPilot-2015-1
- Coordinator: TU Delft
- Startup: Enevate BV
- Partners: Dromec, Maxon Motor, Genetrix
- Commercial development of 100 kW system
- **3.7 M€** total budget (2016-19)

REACH

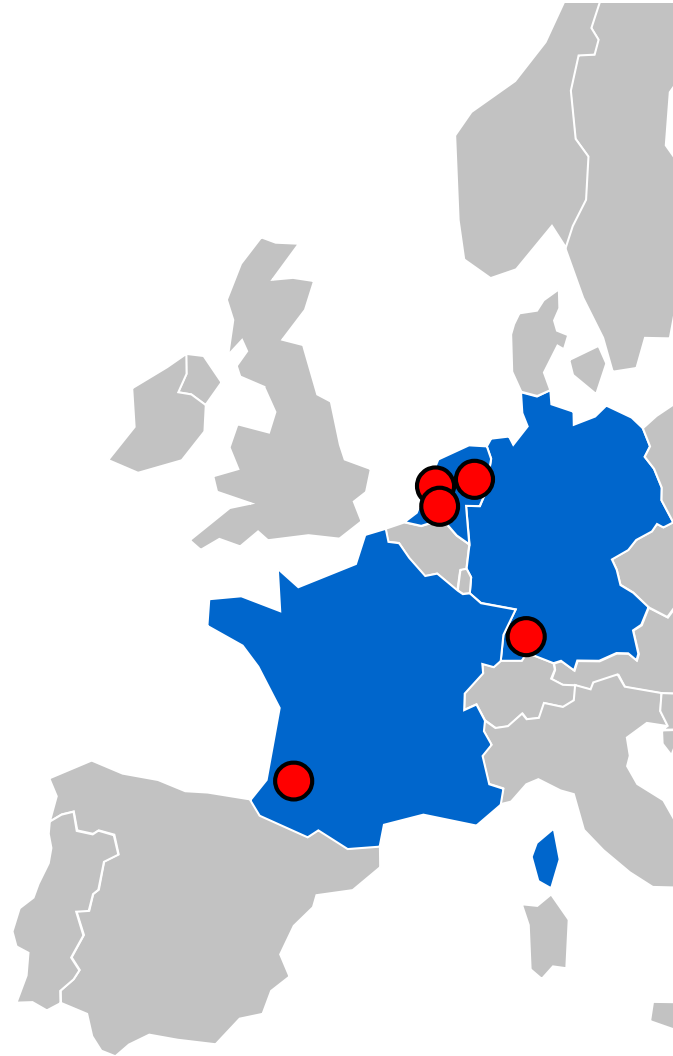
 TU Delft


GENETRIX
- KITEBOARDING -

maxon motor

 airborne wind energy
KITEPOWER

DROMECC
drives en winches



20 kW technology demonstrator

