

# Wind Energy 2020

**An integrated project**

for

**Framework Programme 6**

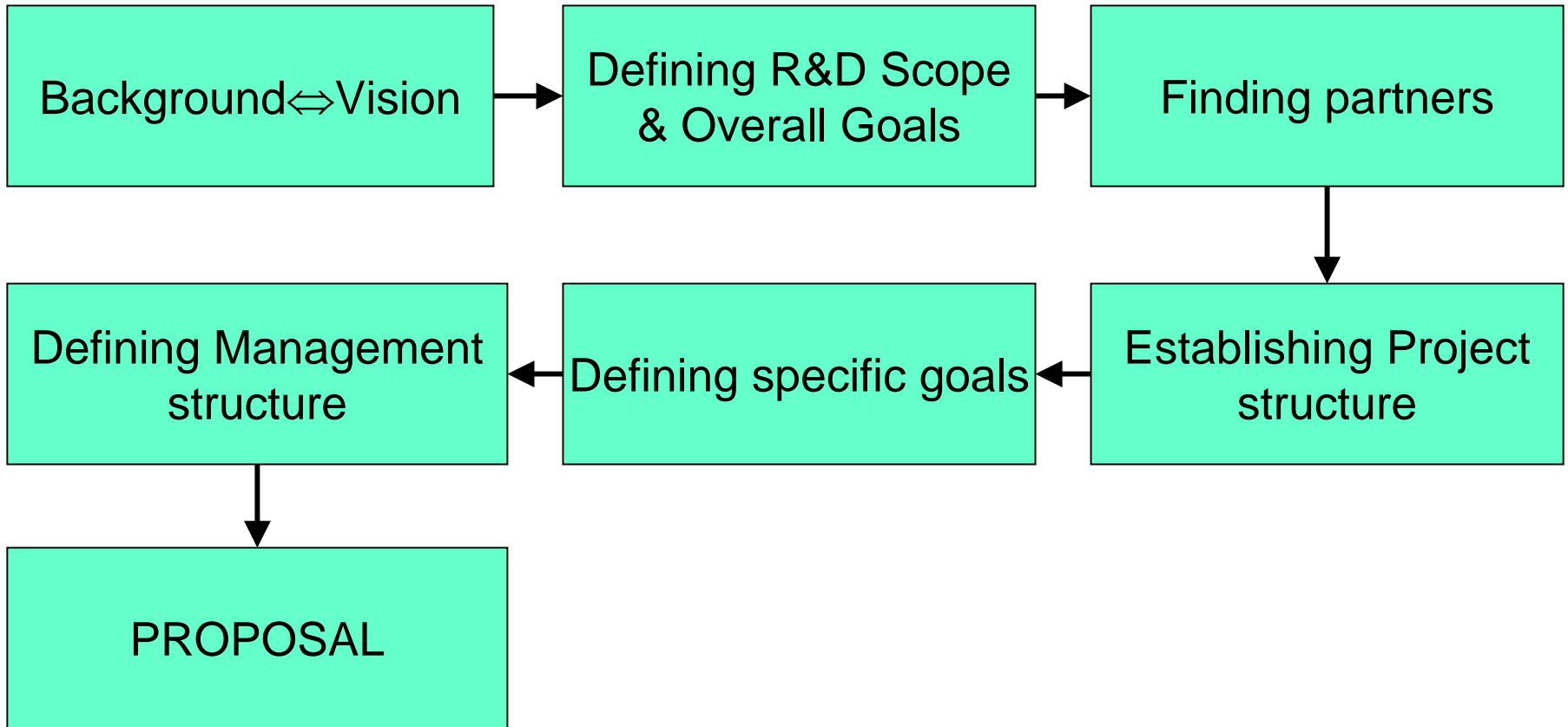
**EWEA**

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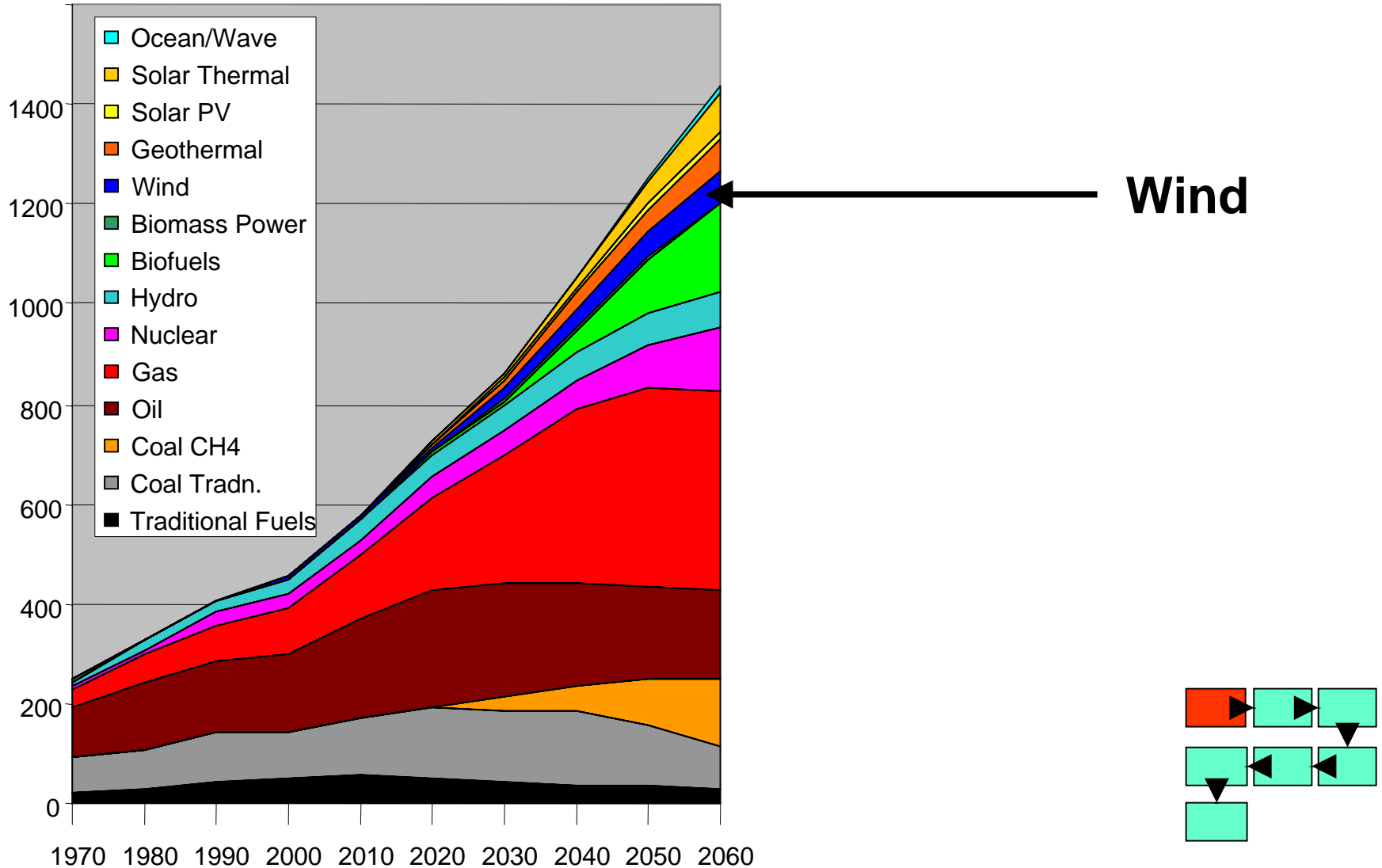
October 2004

# Process of preparing the IP



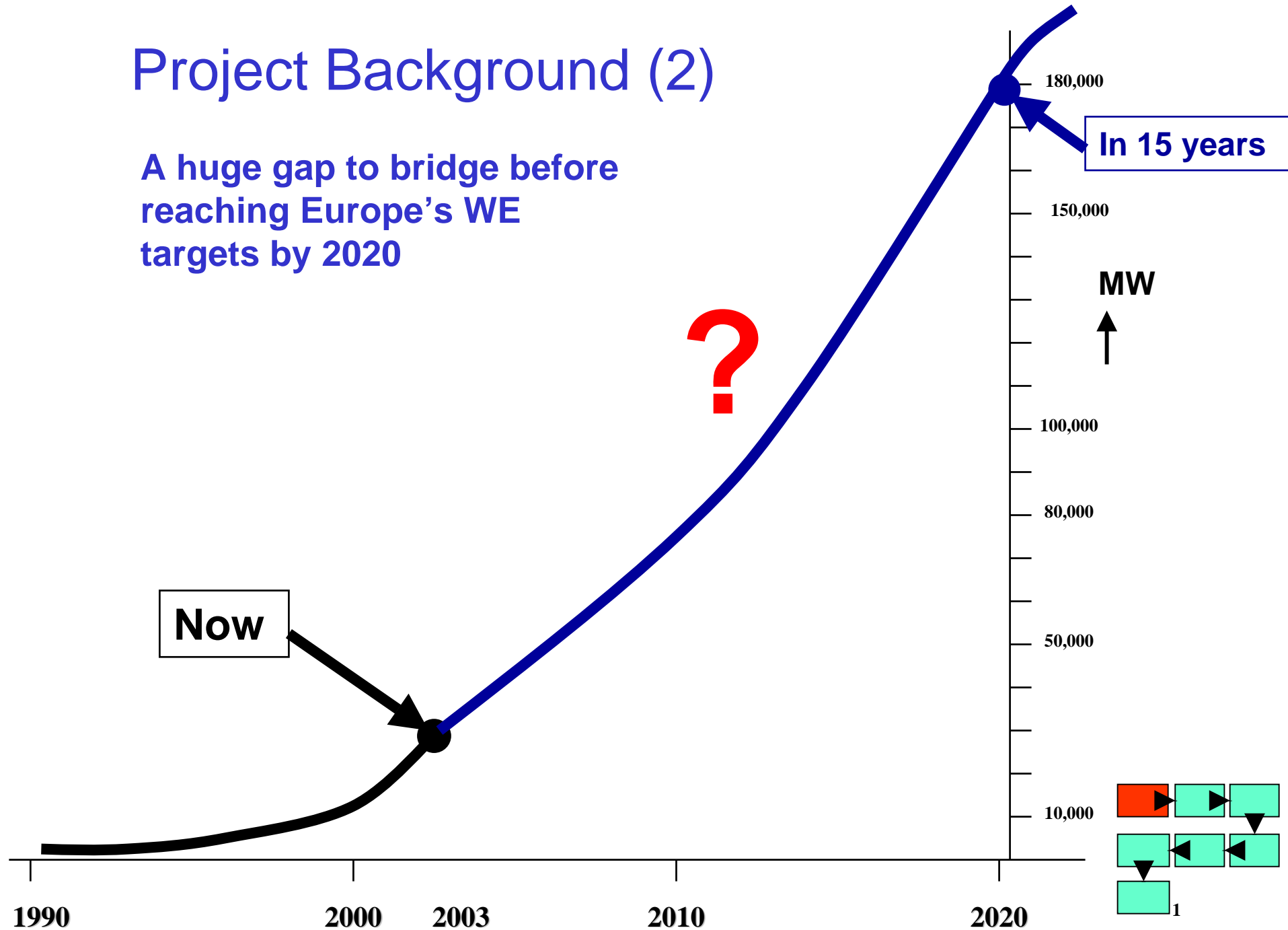
# Project Background (1)

## *Spirit of the Coming Age (Shell scenario)*



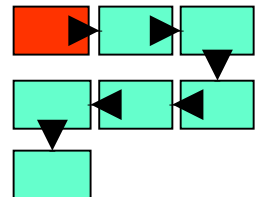
# Project Background (2)

A huge gap to bridge before reaching Europe's WE targets by 2020



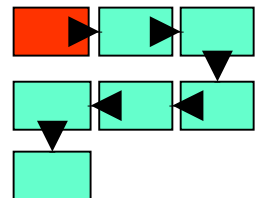
# Project Background (3)

- **Recognition of potential of wind energy and that wind energy is a crucial RET to meet energy needs of future generations**
- **Potential for improvement (cost, reliability) and thus utilise WE technology's potential for EU's technical and scientific development (Lisbon objectives)**
- **Formation of a European Wind Energy Platform (recommends R&D priorities to DG RTD)**
- **Proposal builds on previous EU R&D activities (specify)**



# Vision for IP

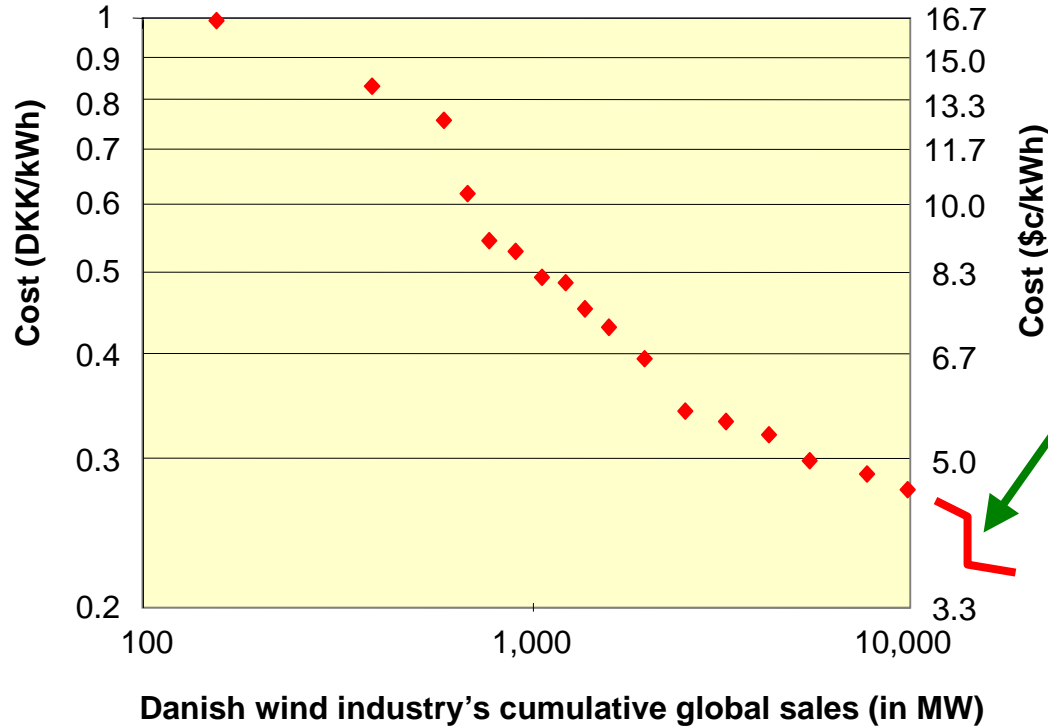
- **The project will significantly contribute meeting the goal for implementation of wind power in large scale – for making wind power a truly mature technology.**
- **R&D will in the long run contribute to reducing wind power cost of energy significantly**
- **Cross-over to other sectors (aerospace, offshore industry etc...)**



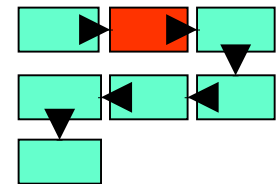
# Goal: WE learning curve

**Wind: 12% cost reduction (in \$/kWh)  
for each time capacity increases by factor 2**

**Wind experience curve for wind turbines  
sold by Danish manufacturers (1984 – 2000)**



Technology frog  
leap needed  
= goal of IP

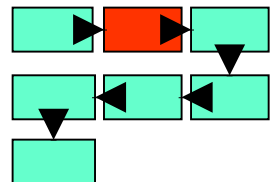


# Overall goals

- Use wind energy potential to meet EU's RE targets
- Maintain Wind Energy in RES portfolio
- Secure and extend position of Europe's WE industry on world market share
- Create jobs
- Contribute to economic development (utilise synergy between EU's & national energy policies and regional economic incentives)
- Reduce cost and increase value so WE can compete on the basis of market cost without subsidies (Include learning curve)

In green: EU goals.

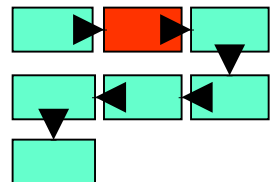
In black: specific goals for the wind industry



# Specific goals

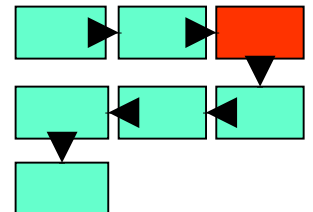
- **Develop methods, new materials, models which are needed by the industry to realise the 2020 wind turbine for large wind farms**  
(Example: Aeroelastic codes which can handle extreme deflections of blades are needed to design light super very large wind turbines)
- **Verification of models and theories by means of experiments is included in the project**

The IP does not include the specific design, construction and testing of a prototype! It develops all the (verified) tools



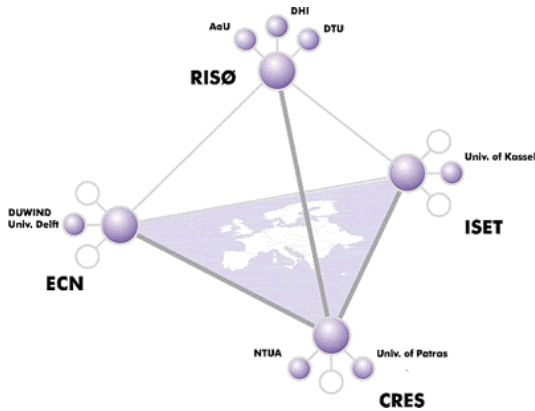
# Partners requirements

- **Top track record in relevant project areas**
- **Significant market position**
- **Willingness to share results & experience**
- **Potential of contributing to the technical & scientific position of the EU**
- .....



# Partners

## EAWE



## (EWEA)

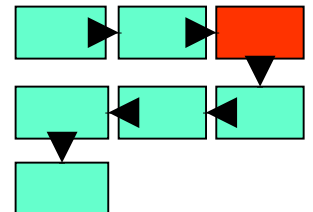
### Companies

- A
- B
- C
- D
- E
- F
- G

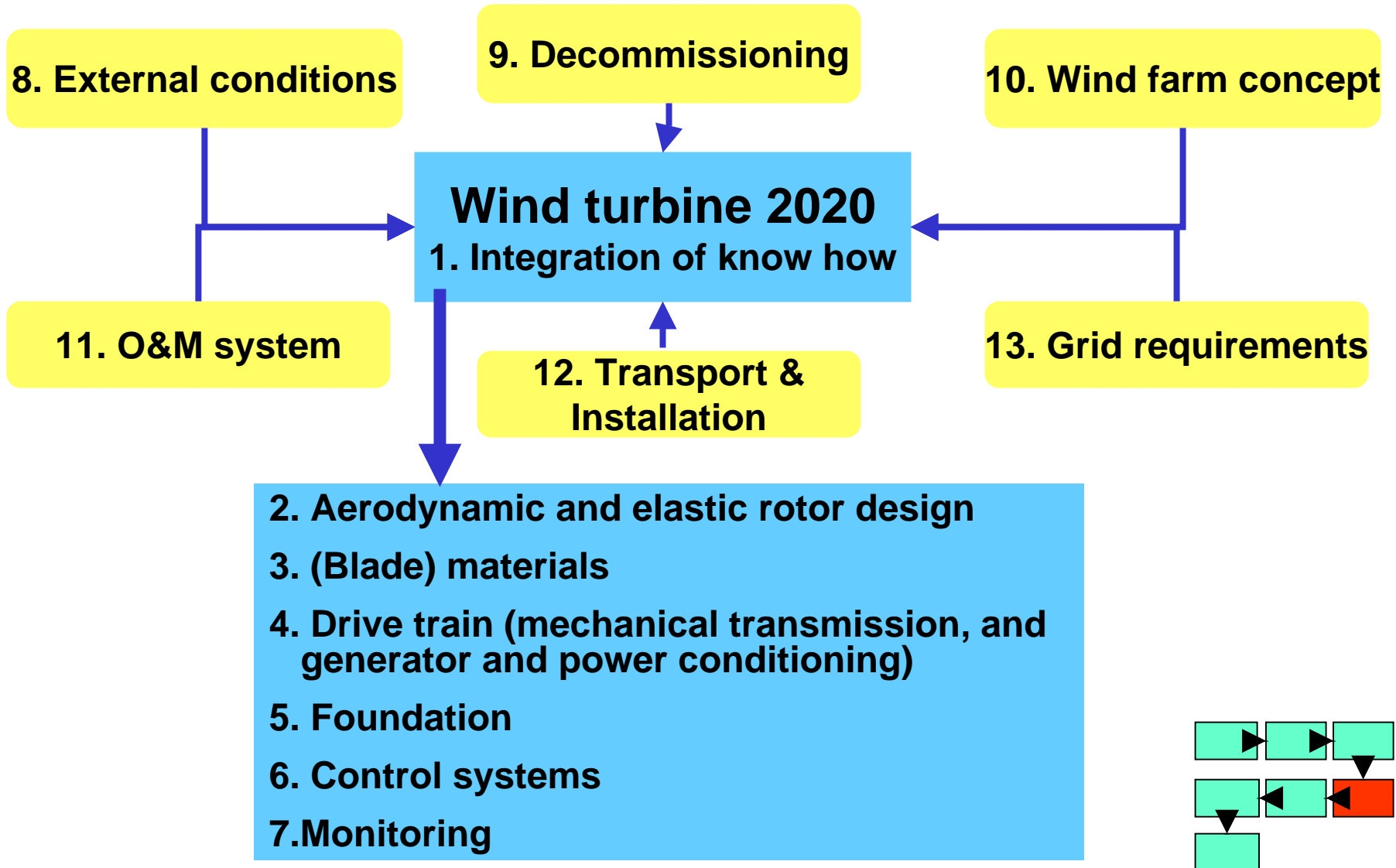
## Existing networks

### Optimat blades

.....  
.....

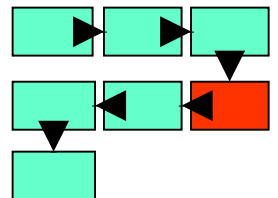


# Project structure (1)



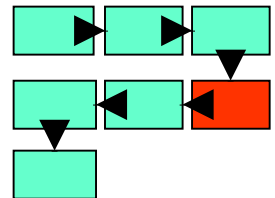
# Project structure (2)

- **Maximal 13 workpackages (WP)**
- **If WP appears too small, it will be merged with another one**
- **R&D is targeted on the wind turbine proper**
- **R&D results from periferal areas (yellow in previous slide) serve as input for R&D on wind turbine concept**
- **Project duration 5 years**

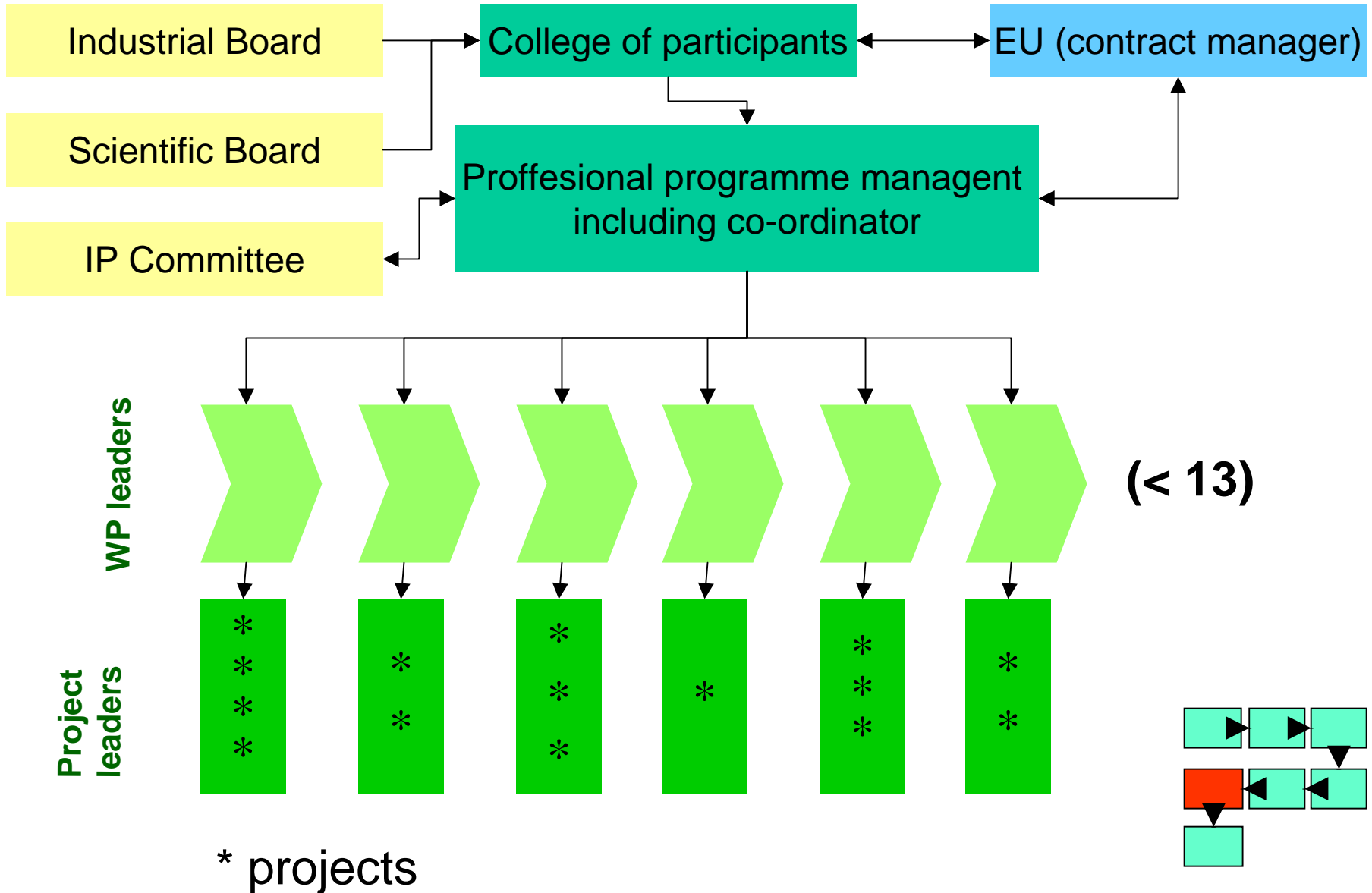


# Examples of specific tasks:

- **Components (blades, gears, generators etc)**
- **Aerodynamics/aeroelasticity** Long term fundamental research to develop the basis for development on the longer term. Theory and verification with measurements
- **Load and safety** Develop the design methods with respect to load cases; develop a dynamic analysis concept
- **External conditions** Wind design conditions in flat terrain, offshore and complex terrain). Theory and verification with measurements
- **Metrology.** Reduce measurement uncertainty. Measurements and verification; Also performance measurements and design verification with Laser, soda, etc
- **And other issues....**



# Management structure



# Proposal is being prepared:

- **Professional proposal preparation team is formed**
- **Budget for the IP proposal**
- **Decision on key for cost sharing of preparation between participants**
- **Establishment of working process, including nomination of WP leaders**
- **Time schedule**

