This summary-report describes the results of a pre-project that has the aim of establishing the basic technical knowledge to evaluate whether remote surveillance of the rotor blades of large off-shore wind turbines has technical and economical potential. A cost-benefit analysis was developed, showing that it is economically attractive to use sensors embedded in the blade. Specific technical requirements were defined for the sensors capability to detect the most important damage types in wind turbine blades. Three different sensor types were selected for use in laboratory experiments and full-scale tests of a wind turbine blade developing damage: 1) detection of stress wave emission by acoustic emission, 2) measurement of modal shape changes by accelerometers and 3) measurement of crack opening of adhesive joint by a fibre optics microbend displacement transducer that was developed in the project. All types of sensor approaches were found to work satisfactory. The techniques were found to complement each other: Acoustic emission has the capability of detecting very small damages and can be used for locating the spatial position and size of evolving damages. The fibre optics displacement transducer was found to work well for detecting adhesive failure. Modelling work shows that damage in a wind turbine blade causes a significant change in the modal shape when the damage is in the order of 0.5-1 m. Rough estimates of the prices of complete sensor systems were made. The system based on acoustic emission was the most expensive and the one based on accelerometers was the cheapest. NDT methods (ultrasound scanning and X-ray inspection) were found to be useful for verification of hidden damage. Details of the work are described in annexes.