DIGITAL ASSISTANCE IN THE MAINTENANCE OF OFFSHORE WIND PARKS

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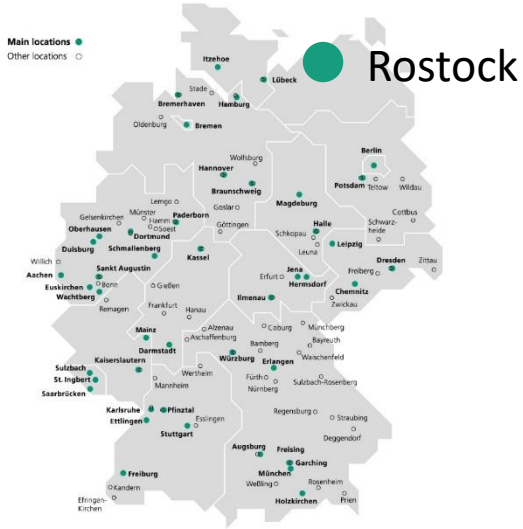
- Production and manufacturing-oriented tasks of the industry
- Concepts and innovations for ship and steel construction, energy and environmental technology, rail and commercial vehicle construction as well as machine and plant construction
- Cooperation agreement with the University of Rostock
- Membership of Fraunhofer Transport Alliance, Fraunhofer Production Group, various research associations and networks
- In Rostock since 2005, independent institute from 2020



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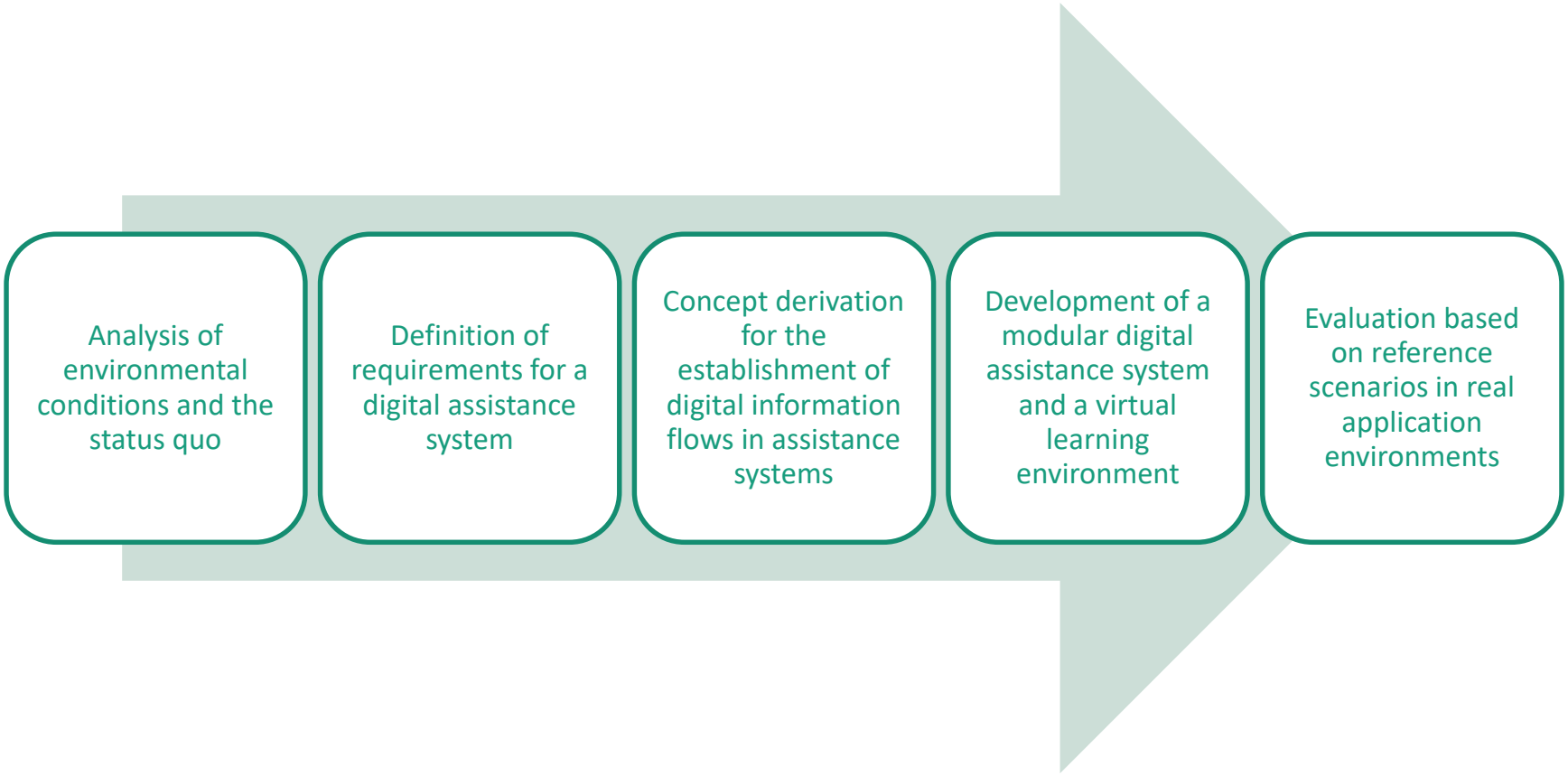
Motivation

- Short maintenance windows lead to enormous time pressure
- A variety of information is required to carry out the complex tasks and their documentation
- Current information flows are characterized by a number of media discontinuities
- The work is carried out under harsh environmental conditions
- The staff is well trained, but must be able to react flexibly to situations that arise

Proceeding



Analysis of environmental factors for a digital assistance system

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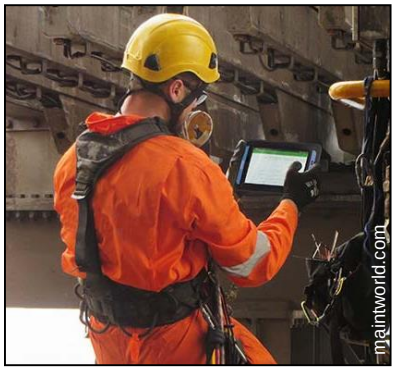

Interaction possibilities with digital terminal devices

vs

Interaction restrictions due to the work task

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Analysis of environmental factors for a digital assistance system

Identification of information demands

Estimation of the data volume

Possibilities of data transmission

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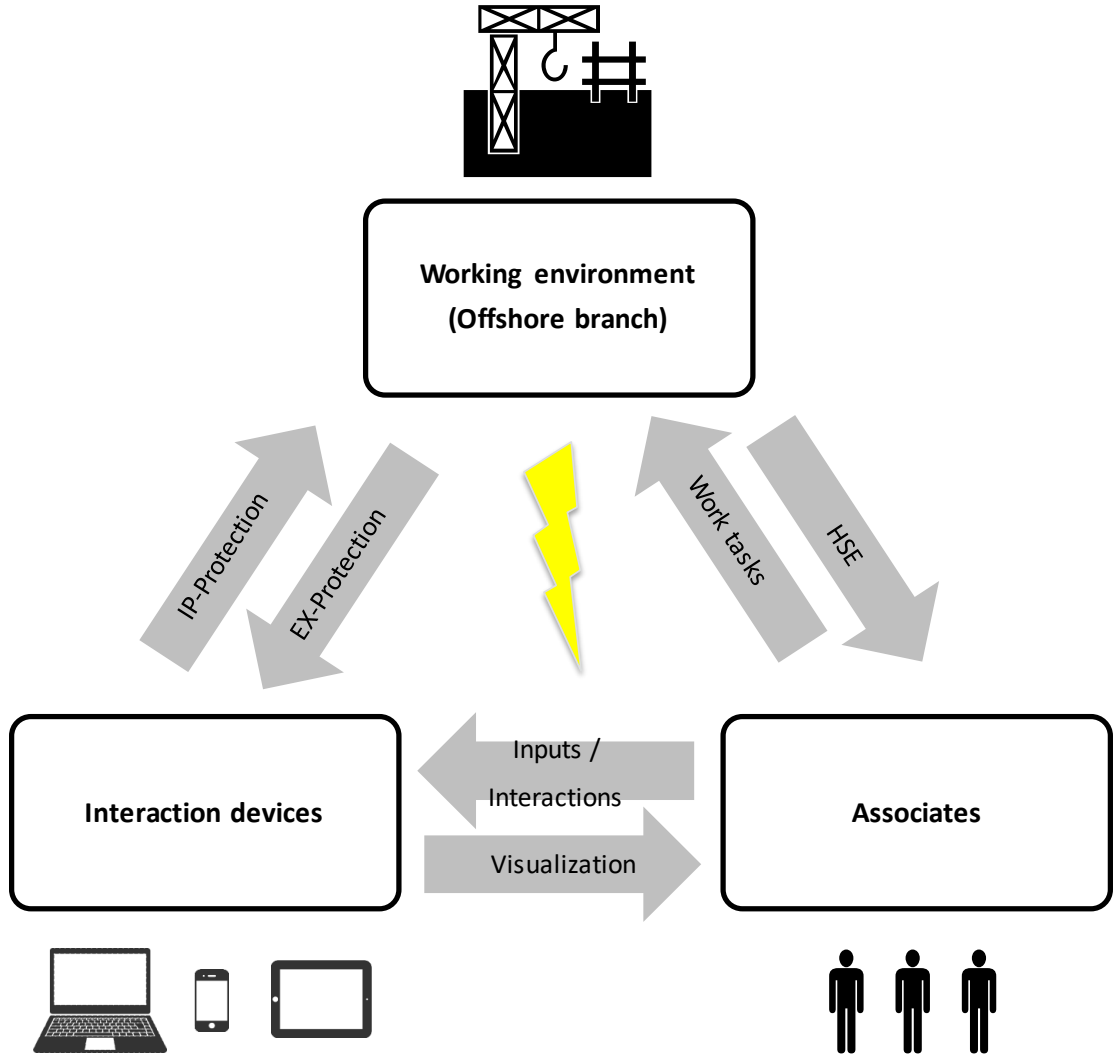
Analysis of environmental factors for a digital assistance system



Definition of requirements for a mobile assistance system for the maintenance of offshore wind farms

Offshore Wind Solutions
Mecklenburg Vorpommern

Requirements for a mobile assistance system for use in the operation and maintenance of offshore wind farms in the German Baltic Sea region

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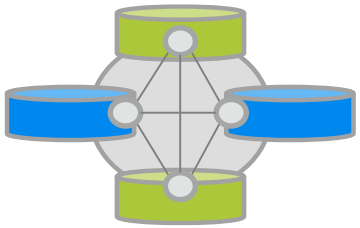
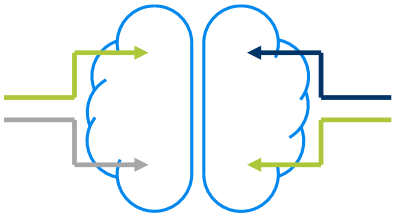
Definition of requirements for a mobile assistance system for the maintenance of offshore wind farms

Performance



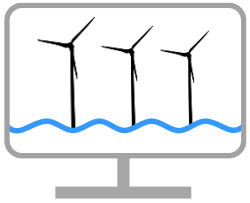
Communication



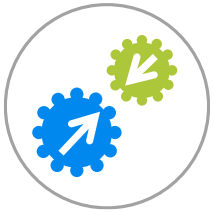
Information flow

Protection against the environment

Interaction



User Interface



Integration to equipment

HSE

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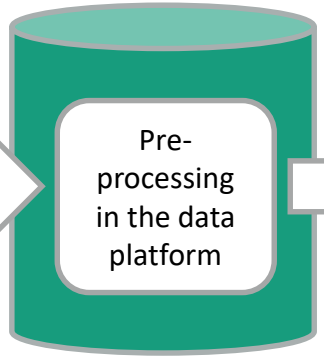
Concept and design of the demand-oriented digital information flows and system configuration

Information request of the assistance system

Selection of information from the data platform



Preprocessing of the information

Presentation of information with the assistance system

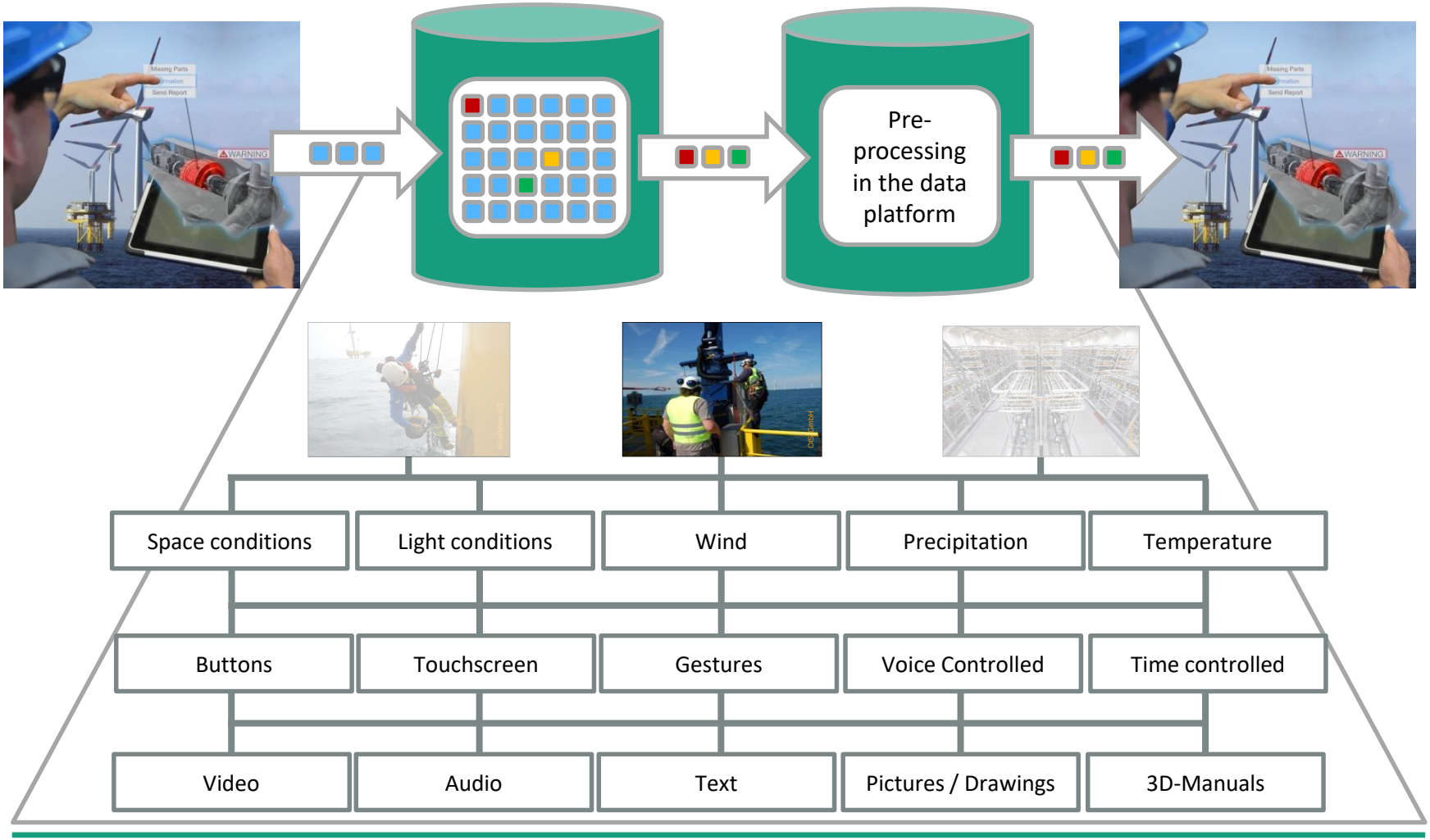
- Device type
- Use case
- Requested information bundle
- Requested information processing

- Evaluation of device type and use case
- Information selection
- Provision of information

- Szenario-specific pre-processing of information
- Compression of the data packages

- Unpacking of the information bundles
- Szenario-specific processing of the information
- Presentation and out-put of the information

Concept and design of the demand-oriented digital information flows and system configuration



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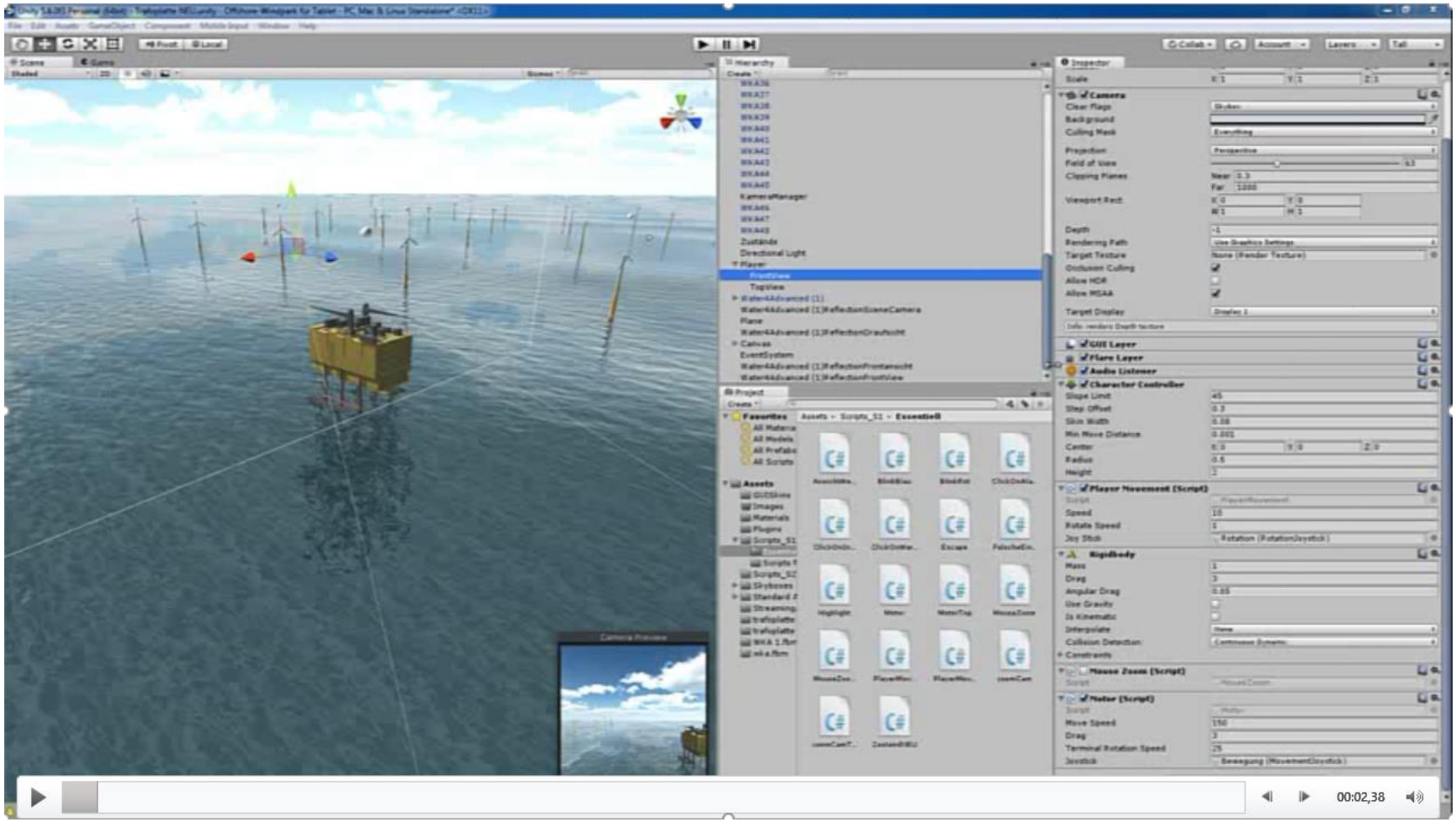
Development of a digital, mobile assistance system for the maintenance of offshore wind farms



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Development of a digital, mobile assistance system for the maintenance of offshore wind farms

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Augmented Reality as training und assistance technology for the maintenance of offshore wind farms

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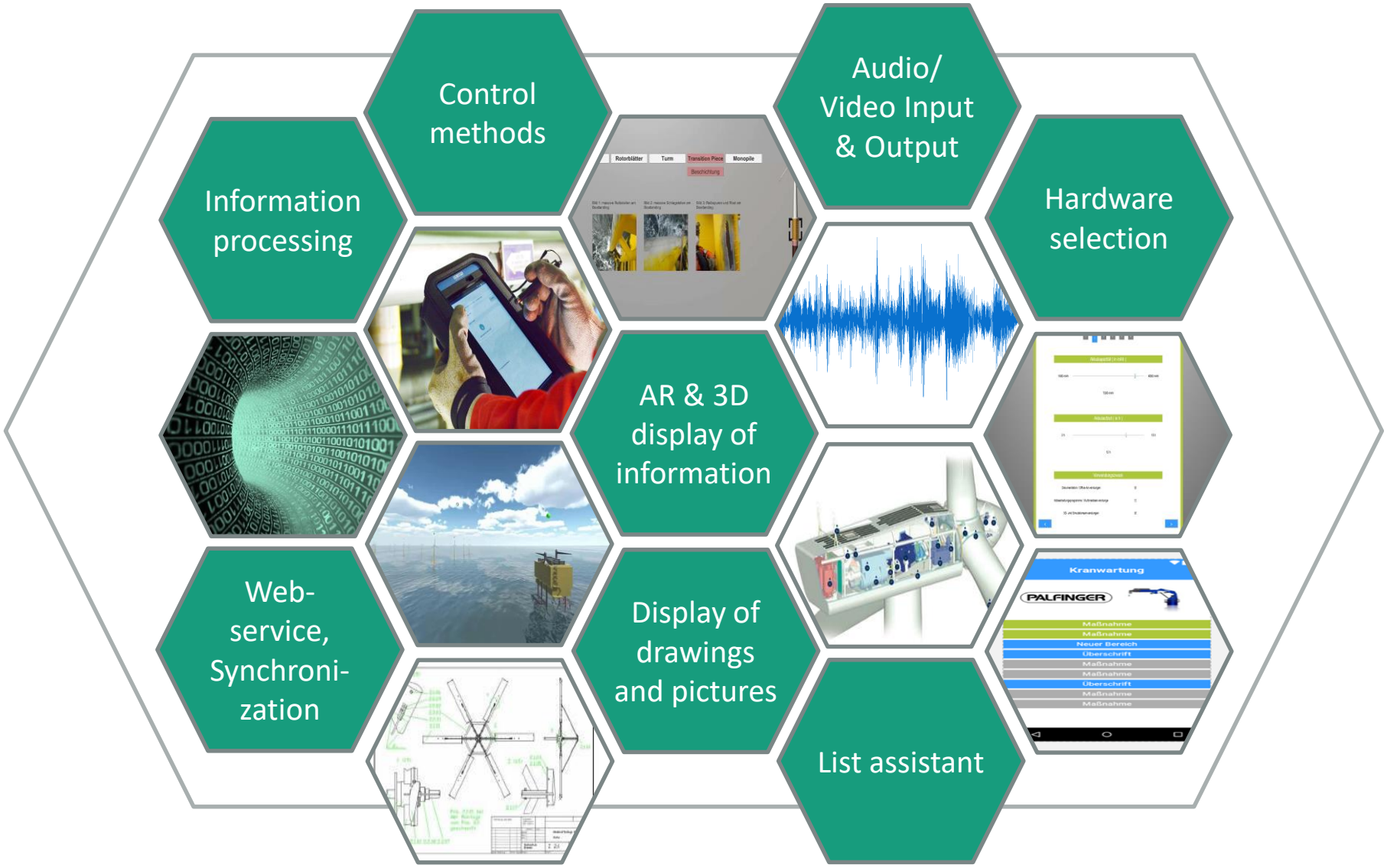
Configuration of the digital assistance system



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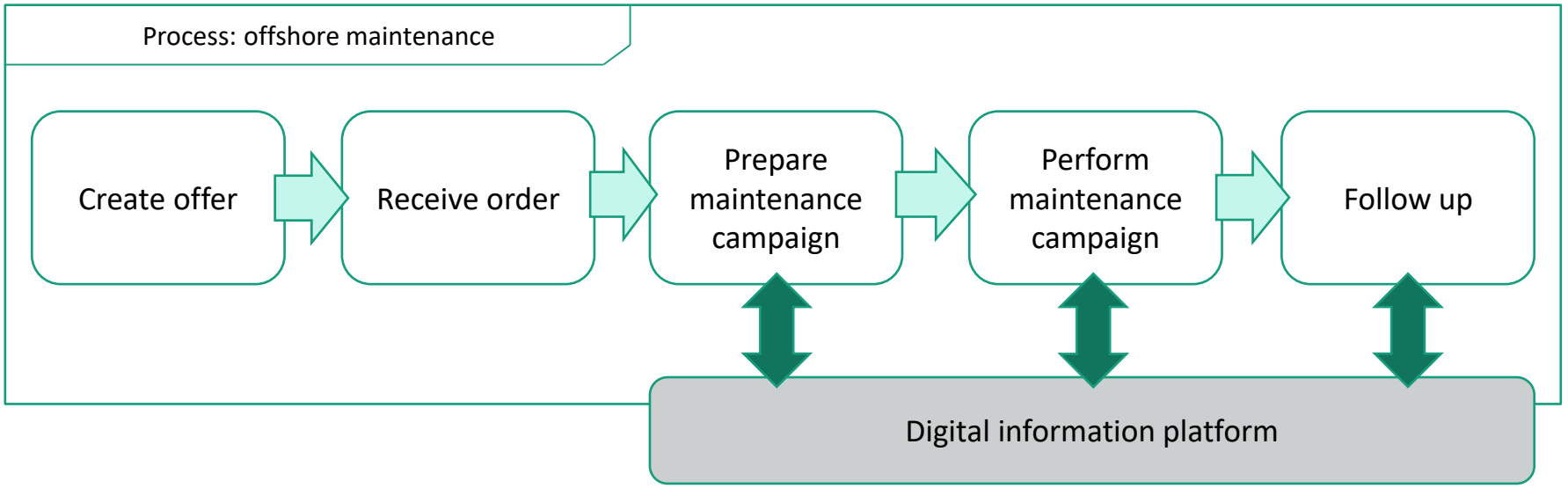
Benefits of the digital assistance system for the maintenance of offshore wind farms



- Access to maintenance and repair history of equipment and systems
- Consideration of and coordination with other activities
- Digital support before, during and after maintenance with demand-specific 3D data and models
- Elimination of media discontinuities through digitization and networking

THANK YOU! TUSEN TAKK! VIELEN DANK!

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