

BayWa r.e. Operation Services S.r.l. Opportunities and challenges for utility scale Photovoltaics

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Investment in innovation for enhanced O&M service

- O&M is labor intensive → Innovation should work on **automation and performance improvement**
- **Digitalization:** support to improve processes, customer interaction and performance management.
- **Applied research:** dedicated R&D team (4 researchers) in Rome. Main research activities:
 - Development of **Performance Analysis Tools**, based on *machine learning algorithms*, to be operated in parallel to the *monitoring systems*
 - Improvement of the effectiveness and reliability of drone inspections, including the use of innovative hardware (**IR cameras and mini-drones**) to be made available to *our technicians on site* in order to update the data on modules state of health platform
 - Initial evaluation of **virtual reality** to improve on site technical activities. A first pilot test has not been very successful, but we will investigate this field more in the future
- BayWa r.e. is part of a **Horizon 2020** project named **TRUST-PV** with other 19 Europewide institutions

TRUST-PV will demonstrate increase in performance and reliability of PV components (e.g. module O&M friendly design, inverter enabled O&M solutions, aftermarket coatings, extended testing beyond standard) and PV systems (e.g. more accurate yield models and assessment, data-driven mitigation measures from monitoring and advanced field inspection, reliability of novel system concepts such as floating PV) in large portfolios of distributed and/or utility scale PV.

- BayWa r.e.'s role in TRUST-PV:
 - Coordinate one Working Package on **advanced field inspections**
 - Support **on site demonstration** of all the innovation developed by the partners
 - development of a path of **circular economy** which enhances disposed components/material recovery for further use in the industry, to support **progressive steps of plant repowering**, aimed at increasing their production and lifetime without requiring additional land



services



repowering



plan inspection



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