

A close-up photograph of a white wind turbine blade root, showing a sensor array mounted on the leading edge. The background is a blurred view of the turbine's nacelle and other blades. The entire image has a blue color overlay.

AUTOMATE EROSION DETECTION USING BLADE DATA

Main factors for leading edge erosion
RISØ – 22nd of February 2018

PROBLEMS AND CHALLENGES



EROSION,
LIGHTENING STRIKES AND
FATIGUE

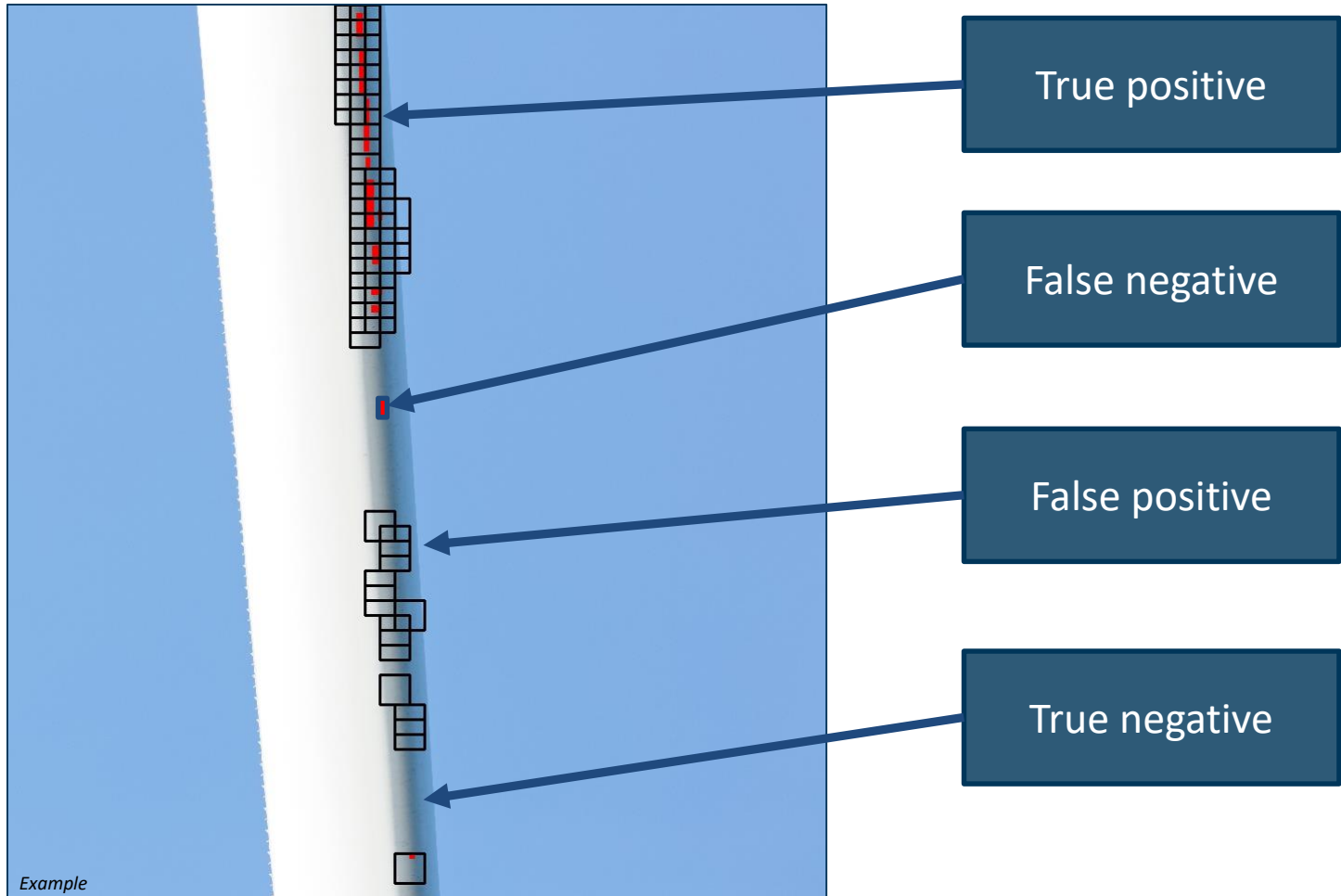


BIG DATA AMOUNTS
GENERATED

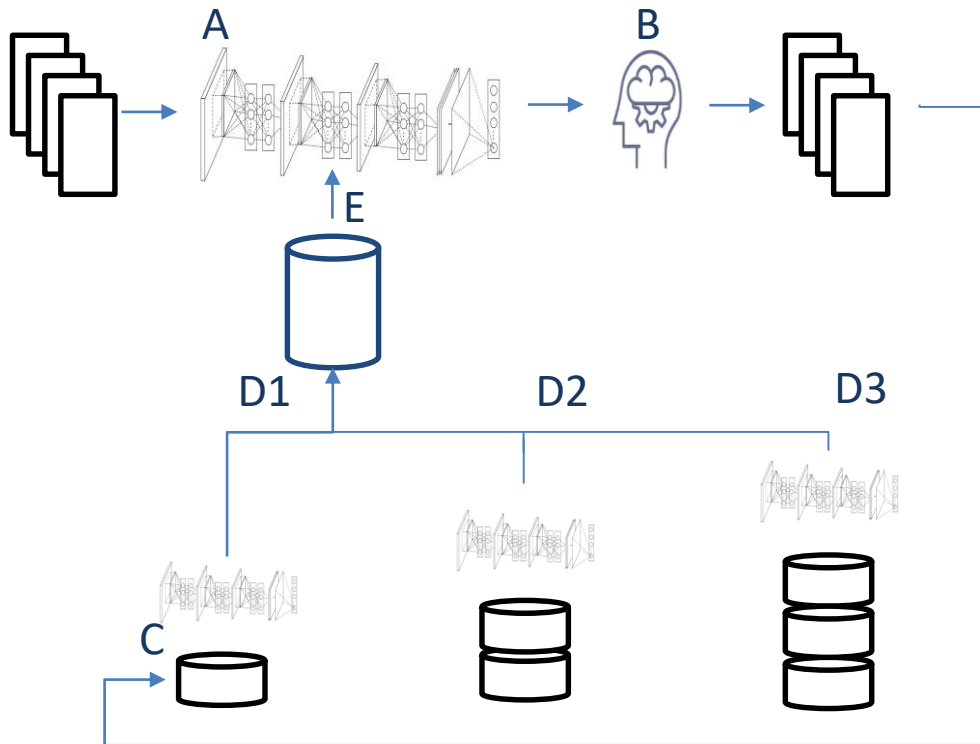


LIMITED BLADE
EXPERTISE AVAILIABLE

CONCEPT OF MACHINE LEARNING



A.I Learning system



- A. Images are **augmented** by current A.I. system
- B. Augmentation **validated** to generate reports
- C. Validated **data grows** training data
- D. Increasingly **sophisticated** models are developed
 1. binary classification on crop
 2. multi-label classification
 3. image segmentation, multi-label
- E. **Continuous deployment** via hold-out benchmark

PREDICTION BETWEEN DIFFERENT LEVELS OF EROSION



EROSION PAINT



EROSION FILLER



EROSION
SURFACE MAT



EROSION
LAMINATE



EROSION
CORE



Improve OPEX, Control Erosion Development



Uniform your inspection data to understand your erosion conditions and development rates

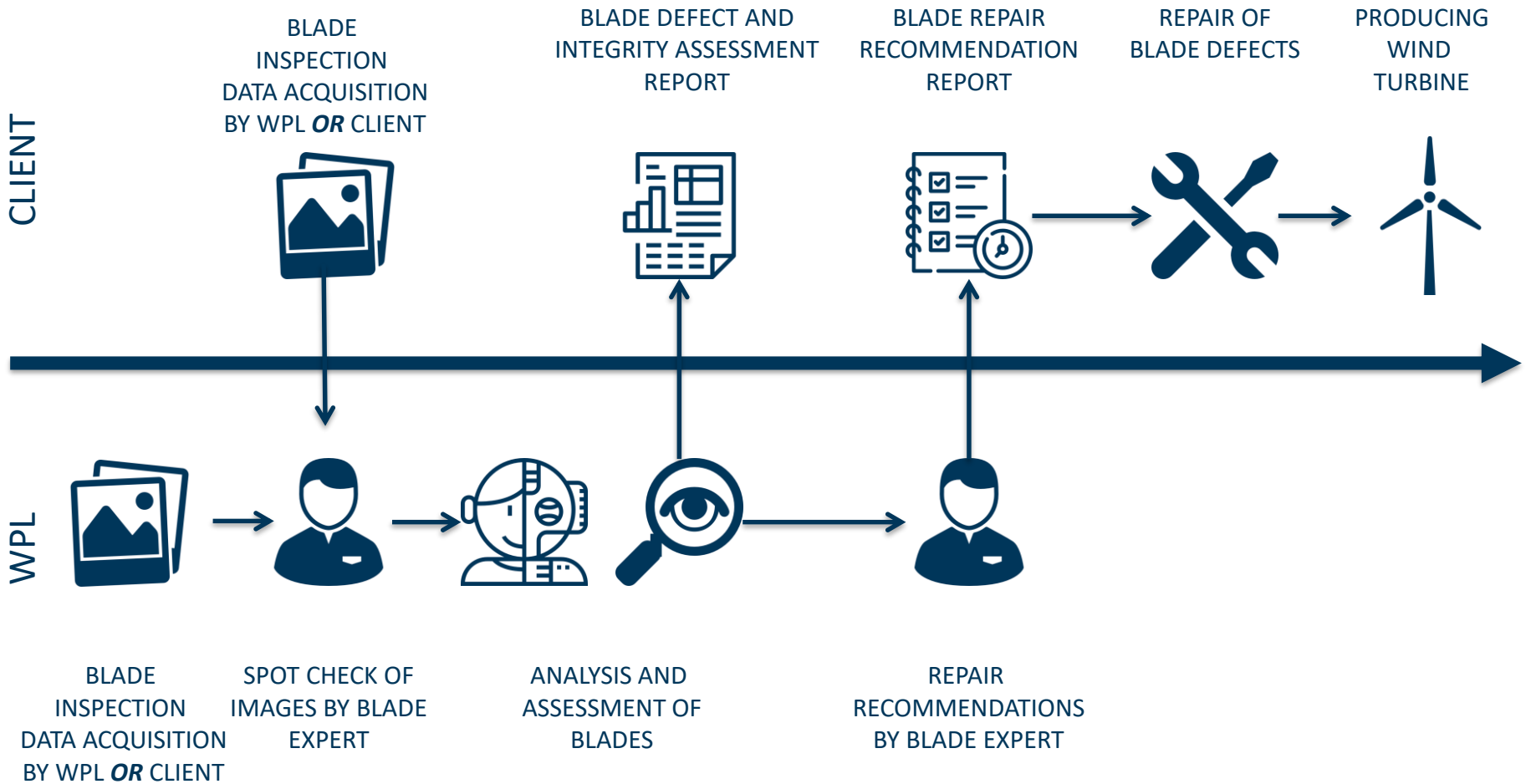


Use your data to develop and maintenance strategy that gives you control of erosion development and lower your opex cost



Avoid surface erosion becoming structural, increasing your OPEX costs

PROCESS





CONTACT INFORMATION

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