EPRI DATA ANALYTICS CASE

Leveraging Imagery to Assess Wooden Distribution Pole and Crossarm Health

The Data Challenge

Electric utilities are challenged in maintaining an accurate health assessment of their installed distribution poles and crossarms as a part of their practices to manage the aging electrical distribution system infrastructure. As a result, wooden poles and crossarms may deteriorate beyond an acceptable level, creating a substandard condition that may contribute to a pole/crossarm failure when stressed under normal or dynamic loading conditions such as a storm event.

Solution Overview

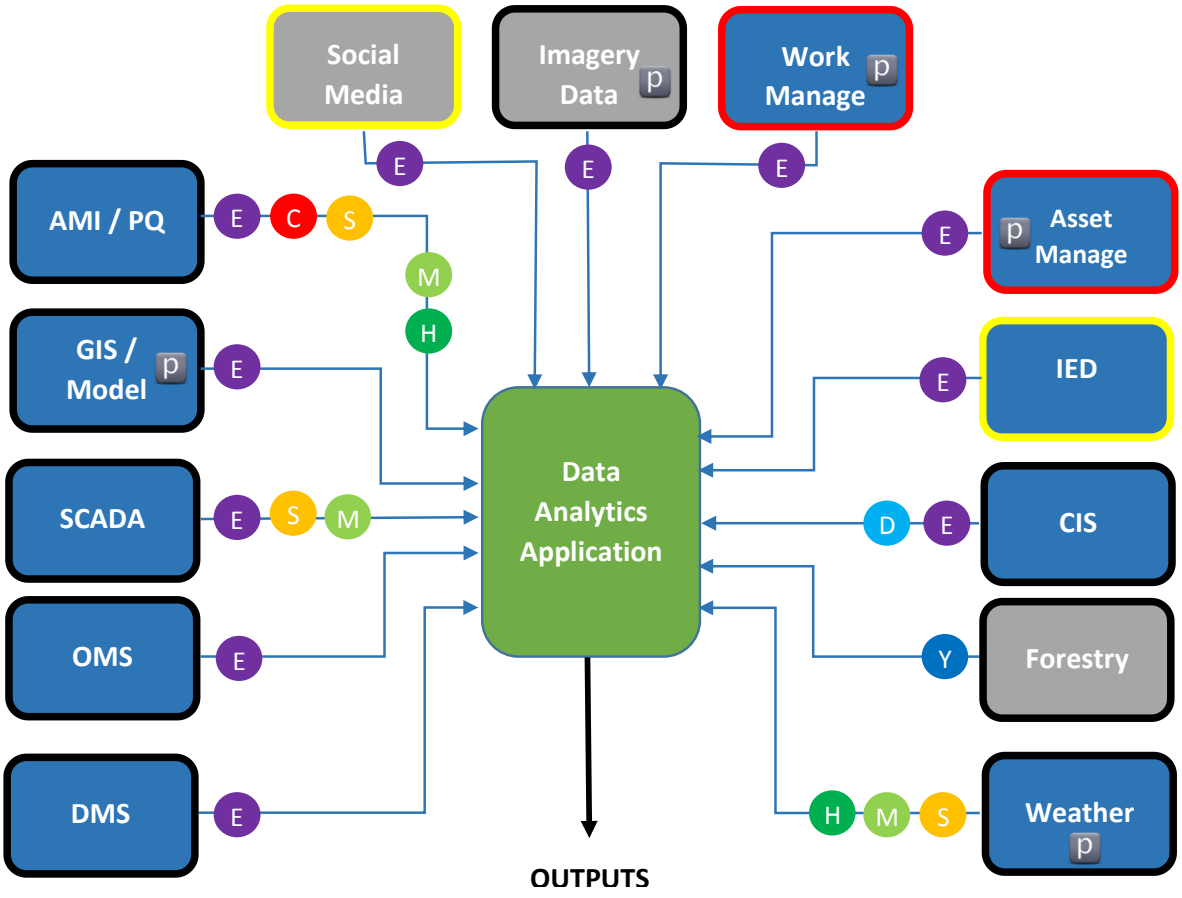
By leveraging ground-based imagery, detection and condition algorithms are utilized to assess and log pole and crossarm health to allow a utility to identify and track substandard conditions to determine whether corrective action is warranted. Output from the detection and condition algorithms may be provided in a geospatial visualization application and/or an exception report to be leveraged by a distribution engineer for follow-up action.

Potential Methods for Solving the Problem

Through the development of asset identification and detection algorithms (health-condition algorithms), ground-based imagery is leveraged to cull the in-service pole and crossarm population for substandard conditions, the result of which would trigger a closer inspection of imagery by an engineer or a follow-up inspection in the field by a serviceman or contractor. Along with the algorithms for determining the health of assets, forming the analytics engine of this solution, a health index scale and set of visual indicators that are markers for degradation in pole health must be developed and is expected to be supplied to the potential solution providers by EPRI. Additionally, a representative selection of ground-based imagery may be supplied to the solution provider by EPRI upon request. Output from the analytics engine will provide for geospatial visualization and/or an exception report for follow-up action by the utility.

Available Data Sets

The data sets highlighted in the following figure are available in the EPRI Data Repository to solve this data analytics case.



Classifications of Data:

- Traditional Data Set
- New Data Set
- Structured Data
- Un-structured Data
- Format of Data Varies

Frequency of Measurement

- C — Cycles
- S — Seconds
- M — Minutes
- H — Hours
- D — Days
- Y — Months to Years
- E — Event Driven

p **Denotes a primary data set used to solve this data analytics case.**