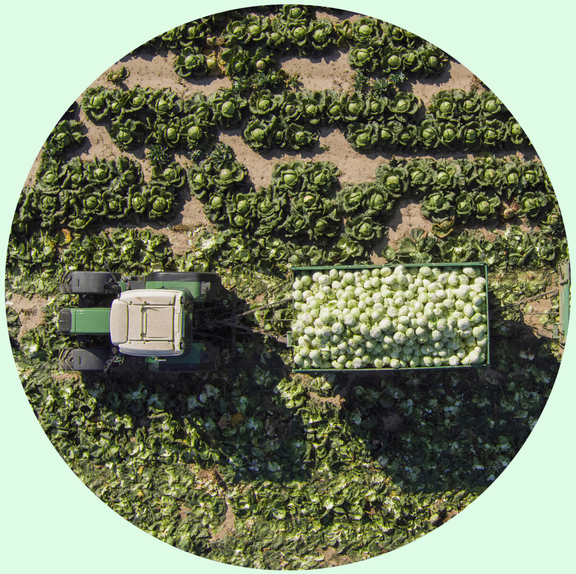
IBM Environmental Intelligence Suite: Vegetation Management

Make better vegetation management decisions by combining weather, satellite and IoT data with intelligent prioritization and reporting capabilities



The challenge

Vegetation-related outages are among the most prevalent factors affecting system reliability and customer satisfaction for utilities.

Traditional approaches to vegetation management can be expensive and labor-intensive, relying primarily on manual inspections and static records of the last time an area was maintained. But the variety of contributing growth factors, such as tree species, weather conditions, soil moisture, health and herbicide applications, might create difficulties in tracking the development of trees in your territory without exhausting your resources.

Vegetation leaders must balance system reliability with the cost for service. This process includes effectively determining the risk of vegetation to utility assets, prioritizing and executing mitigation plans, and monitoring the state of vegetation between cycle trims to precisely identify the location and proximity of lines to hazard and danger trees.

In a highly regulated industry, compliance is critical. It requires constant vegetation monitoring across the entire service territory at adequate granularity, execution of adapted vegetation management tasks and potentially reporting on related activities.

With the IBM® Environmental Intelligence Suite Vegetation Management solution, it’s possible to overcome the biggest challenges of vegetation management: unpredictability and uncertainty.

IBM Environmental Intelligence Suite Vegetation Management combines AI and analytics to help address the high costs and inefficiencies associated with vegetation management.

By combining complex weather data with high-resolution satellite imagery, leaders have the insight they need to identify tree species and determine their growth rates while optimizing vegetation management activities. They'll be better equipped to handle budget allocation, work planning, regulatory reporting, and hazard monitoring and auditing, along with the tool to inject this intelligence into their existing vegetation management workflows.

Actionable insights for vegetation management

IBM Environmental Intelligence Suite Vegetation Management combines AI and analytics to help address the high costs and inefficiencies associated with vegetation management by providing greater visibility into the current state of your service territory.

Delivered through the cloud, this solution is designed to:

- Reduce vegetation-related outages by automatically identifying potential hazards so you can allocate resources to areas most likely to impact grid reliability.
- Enhance monitoring to identify unexpected growth rates and refine trimming cycles to focus on areas that need it most.
- Improve contracting processes through deeper insights into how much trimming and maintenance work is required and when it should be done.
- Audit your vegetation management programs by monitoring plants that have been trimmed or treated with herbicide applications.

Our vegetation management is built on the IBM Environmental Intelligence Suite and the IBM Geospatial Analytics application.

Key capabilities

– Make better, more informed, data-driven decisions—at a faster pace.

– Monitor vegetation and identify areas where vegetation and trees may pose a threat.

– Calculate scores and KPIs to highlight potential hazard areas and facilitate assessment of the vegetation situation of entire corridors or individual corridor segments.

– Define and prioritize vegetation actions that must be performed using multiple information sources.

– Optimize the planning of vegetation-related tasks.

– Gain insights to inform the contracting and bidding process with a better understanding of what's needed where and why.

– Enrich cycle-based vegetation management planning methods with condition-based approaches.

– Inform the audit process using the remote inspection sensing techniques.

– Integrate irrefutable evidence about the utility's vegetation actions in regulatory reporting.

– Overcome the burden of scattered information with data integration capabilities, unifying user interfaces and management dashboard views.

How does it work?

Our vegetation management is built on the IBM Environmental Intelligence Suite and its IBM Geospatial Analytics application, formerly known as IBM PAIRS Geoscope. This cloud-based platform ingests up to 10 terabytes of satellite, drone, flight and weather data every day to create a catalog of geospatial-temporal information. Users provide a geospatial file with a view of their infrastructure. To create an additional layer of analysis, users can set desired buffer zones between assets and vegetation.

The solution applies AI and analytics to this data to identify potential outage threats so you can take action. These technologies enable utility companies to automatically monitor vegetation growth and maintenance needs across hundreds of miles of transmission and distribution lines. These geospatial-temporal insights can also help improve overall grid reliability, wildfire prevention, and storm management and assessment.

These insights help you better understand your territory by providing:

– The current state of vegetation across your territory, including average and max tree height

– Summaries of vegetation encroachment in defined buffer zones around assets

– Location and height of trees that may pose a threat to your service

– Trees that present a fallen risk (hazard trees)

– Tree species identification (add-on)

– Customizable scoring to help identify focus trimming efforts

Get more with one solution

Define and manipulate business objects as needed: Vegetation managers can work at the level of corridors, corridor segments and singular trees to view related aggregated information and KPIs, enabling them to drill down to the minutia or pan out for the big picture.

Integrate insights with high-resolution imagery and proprietary models: Get high-resolution vegetation data, such as tree coverage, canopy height and growth rates. Switch your background map view from geographical to satellite for alternative contextual information.

Identify critical areas and prioritize work with scoring models: A data scientist can create and run scoring models that can be used to visually highlight corridor situations on maps and prioritize areas to handle.

Generate recommended actions to support creation of work packages: Scoring models suggest recommended actions by combining the available data sets. These models help vegetation managers spend less time defining actions and more time concentrating on complex decisions.

.

Get integrated views with a management dashboard: User-friendly dashboards provide summarized views of areas under consideration, including KPIs, scores, and recommended actions. Export views to facilitate comparison across vegetation management projects.

Select and group actions and corridor segments with grid views: Actions and corridor segments can be ordered, filtered and grouped based on scores and KPIs. Prepared lists can be exported and infused into subsequent steps in the vegetation management workflow, for example, bidding and contracting.

Why IBM?

This solution uses IBM’s rich analytics and AI expertise, as well as a large variety of weather data, to cover the vegetation management process end to end, from generating robust vegetation insights that help decision-making, planning and operations support to auditing. Modular in approach, the application can include components that address specific parts of the vegetation management value chain based on client requirements and the existing solution landscape. Clients can also rely on deep industry expertise thanks to IBM’s large utility client base, as well as a collaborative and agile software development approach that involves a proactive collection and consideration of client needs.

Help reduce outages in your territory with AI-driven insights

Schedule a demo →

© Copyright IBM Corporation 2023

IBM Corporation
New Orchard Road
Armonk, NY 10504

Produced in the United States of America
April 2023

IBM and the IBM logo are trademarks or registered trademarks of International Business Machines Corporation, in the United States and/or other countries. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on ibm.com/trademark.

This document is current as of the initial date of publication and may be changed by IBM at any time. Not all offerings are available in every country in which IBM operates.

THE INFORMATION IN THIS DOCUMENT IS PROVIDED “AS IS” WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, INCLUDING WITHOUT ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND ANY WARRANTY OR CONDITION OF NON-INFRINGEMENT. IBM products are warranted according to the terms and conditions of the agreements under which they are provided.