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CANADIAN FOREST SERVICE

SPOTLIGHT

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The Increased Use of Technology in the Operations of Canada's Forest Sector

Canada's forest sector is increasingly relying on technology to help it better plan, manage, and harvest the country's vast forest resources.

Whether it is aerial, terrestrial or computerized tools, various technologies are transforming the operations of the sector.

In the Air

Aerial light detection and ranging (LiDAR) technology, for instance, provides foresters with detailed information on the state and condition of available forest resources.

While its use is not new to the operations of the forest sector, aerial LiDAR has helped foresters precisely measure important tree characteristics and assess the value of trees at the stand level. This has provided them with a more accurate picture of forest inventory.

Aerial LiDAR

Today, Canada's national forest research institute, FPInnovations, is looking to link aerial LiDAR surveys with on-the-ground tree measurement technology to enable the forest sector to estimate more precisely the height, volume, diameter and taper of specific trees.

More recently, it has also started doing research on the costs, accuracy and possible use of unmanned aerial vehicles (UAVs) in forest operations. UAVs could help the sector collect forestry data of large areas in real time and at a lower cost. It could also help improve the sector's short term planning and environmental monitoring abilities, including conducting compliance surveys and regeneration assessments.

…and on the Ground

Besides aerial technologies, the forest sector is also capitalizing on on-the-ground technologies to carry out its operations.

For example, FPInnovations is conducting research on land-based LiDAR which can scan entire stands of trees and quickly collect detailed data on each tree.

This technology can also be used to assess road geometry and support road engineering which helps optimize the construction, maintenance, and rehabilitation of resource roads. This can directly benefit the forest sector since transportation expenditures are some of its largest operating costs.

Meanwhile, combining different forms of technology can provide a cheaper way to assess the safety of resource roads than the traditional method of conducting road surveys manually.

Road Safety Inspections, for example, is a car mounted system which combines video imagery and LiDAR technologies. Developed by FPInnovations, it provides independent, methodical, and standardized inspections of resource roads at a lower cost than manual surveys.

Canada

Technology which measures the safety of resource roads. Photo courtesy of FPInnovations

Wider Adoption of Precision Tools

The forest sector also directly benefits from the availability of a number of precision tools that support its operations. *FPSuite*, for instance, is a software suite which includes computerized measurement, monitoring, modeling, and optimization tools for the sector.

Developed by FPInnovations, *FPSuite* provides forestry operators with useful data on key indicators ranging from production volume and equipment performance to wood volume distribution by tree species. It can also predict revenues and costs tied to harvesting, transportation, and silviculture under various scenarios. Such information is vital to the operations of the forest sector.

Sustained Federal Support

The federal government is committed to supporting innovation in Canada's forest sector. Since 2007, it has invested $256 million in the Transformative Technologies Program to advance the development, adaptation, and deployment of innovative products, processes, and technologies for the sector. This investment has transformed the sector's operations. It has also improved its overall competitiveness by maximizing the value it derives from Canada's diverse fibre basket and optimizing fibre production.

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