

Techno-forestry

Technology is used across the forest industry to increase efficiencies, improve supply chains and logistics, assist in work practices and in health and safety.

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A recently heralded innovation is the Einride T-log autonomous logging truck, which is a fully electric and autonomous logging truck. Not only does it have driverless capabilities, the driver's compartment has been removed altogether. Emitting no greenhouse gases or toxic nitrogen oxides, the T-log is an environmentally and health friendly alternative to diesel powered trucks. Equipped with cameras, lidars and radars, it has 360-degree awareness of its surroundings – no blind spots, no dead angles. This truck is being road tested at present and is expected to be on the market in 2020.



The driverless Einride T-log

Less futuristic are the many possibilities for the use of remote control devices that can be employed within the timber harvesting and haulage sector. The use of remote control technology to operate machinery on steep sites could potentially remove forestry workers from hazardous areas and prevent accidents and fatalities.

The use of GPS systems is now commonplace and many foresters use handheld GPS devices or use the GPS on their

mobile phone on a daily basis. GPS tracking can also be a useful tool to aid in the health and safety of lone workers.

One of the most exciting developments in remote sensing is the European Space Agency's Copernicus Programme. Copernicus' six Sentinel satellites collect comprehensive pictures of our land, ocean, climate change and other data to understand the health of our planet. Recently this data has become available to the public at no cost and has huge potential for forest management and monitoring.

Technology in forestry can also be used to manage timber sales and to facilitate the gathering of large amounts of data. On-board computers on harvesters, which record data and automatically import these into the accounting system are becoming more widely available as there is an increasing number of software solutions on the market for smarter and more efficient recording and measuring of timber.

The capacity we now have to gather large amounts of data leads to the next step in potentially using the data currently available within the wider sector. Forestry, as an industry, is under-utilising the data we gather from on-board computers on harvesters and other forestry equipment. There is a need to collate and share such data for further analysis and to help improve communications and logistics within the supply chain.

The possibilities for further use of drones in forestry is also extensive. They can be used to achieve a detailed inventory of the forest down to single tree GPS addresses, which can then be used to monitor individual tree growth at regular intervals or monitor for distress due to pests or diseases, etc.

Also, there are an increasing number of mobile phone apps available to assist forest workers in their day-to-day work. A selection of specialised apps are listed in the Tools & Gadgets section on www.forestry.ie

Another reason for increased focus on technology is a projected decline in the available forestry workforce. A recent study in Germany showed a continuous decline in their available forestry workforce and it projected that by 2030 there will be a 15% shortage of forestry workers in Germany. Currently over 35% of German forestry workers are over 50 years of age. The next generation of forestry workers are likely to be more acquainted with technology, which should facilitate the further integration of technology in wider forestry practices.



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