

KNOWLEDGE AND TECHNOLOGIES FOR EFFECTIVE WOOD PROCUREMENT

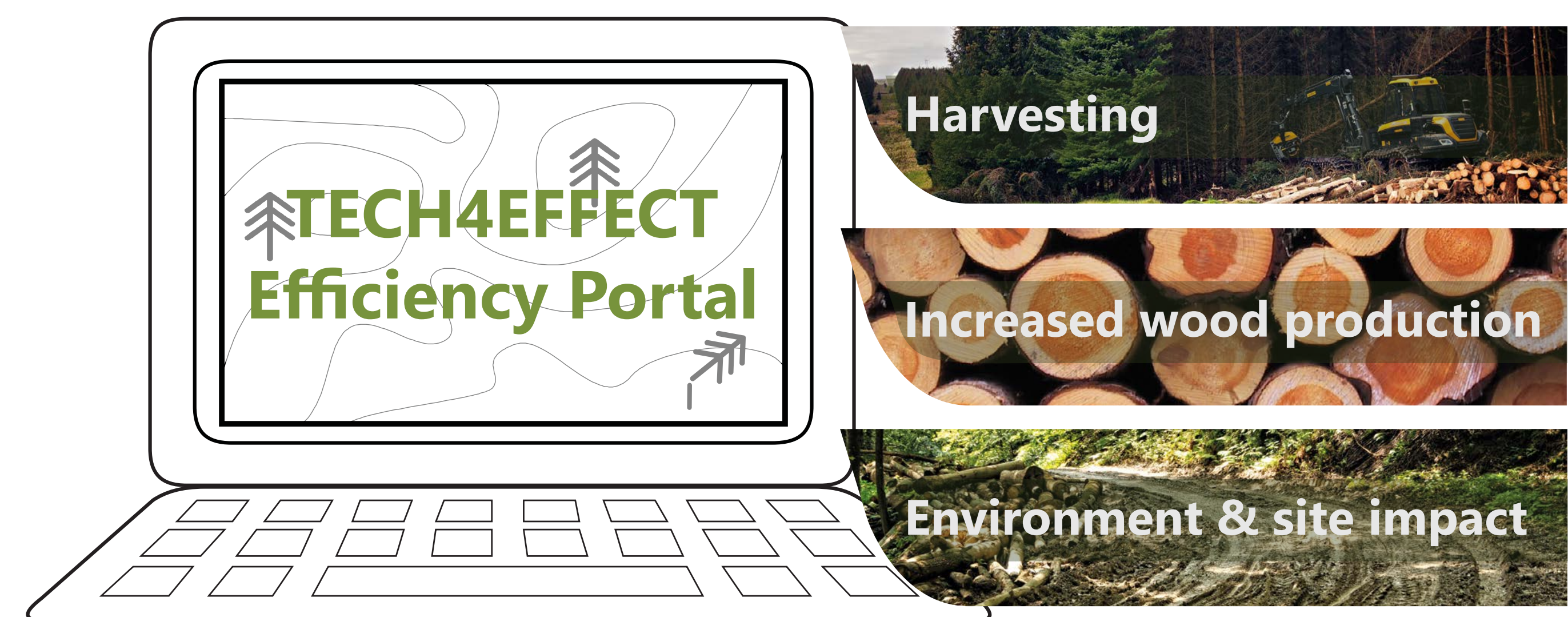


Objective

To improve the **efficiency** of European **forest management** by enabling a **data-driven knowledge-based** revolution of the European forest sector while also providing key incremental improvements in **technology**.

Approach

TECH4EFFECT combines efforts for increased wood production and advanced harvesting with **environmental** and **socio-economic** impact. In addition to advances in each area they contribute to the TECH4EFFECT Efficiency Portal. The portal will allow machine operators, contractors and forest owners to compare their operations to **benchmark** values and receive advice for improvements.



Increased wood production

The bioeconomy needs growing amounts of biomass.

To increase wood production, efficient silvicultural practices will be analysed in case study areas, including business processes. Possibilities for mechanization will be identified and a decision support tool for motor-manual operations developed. Forest growth simulations will show the impact of different silvicultural systems.

Advanced harvesting

Harvesting is the most cost and fuel intensive part. Increased efficiency here offers most leverage on economic accessibility of larger volumes of wood.

To enhance accessibility of wood resources, assessment of forest road conditions and maintenance planning will be improved. Fully mechanized harvesting systems will be supported by traction winches in steep terrain. Improved dataflow and information enables value-optimized manual bucking and live controlling of cable yarding operations through an advanced, sensor based approach. Harvesting machinery will be trimmed to fuel savings, while maintaining high productivity.

Site impact

Environmental performance must become an integral part of performance evaluation.

Improved information and planning based on topography and hydrological conditions will reduce site impact and increase year round accessibility. Drones and other technologies will be employed for monitoring, including an automated sinkage detection tool and measuring and recoding of wheel rutting. In field trials, an 8-wheel and a 10-wheel forwarder will be compared.

Environment and socio-economics

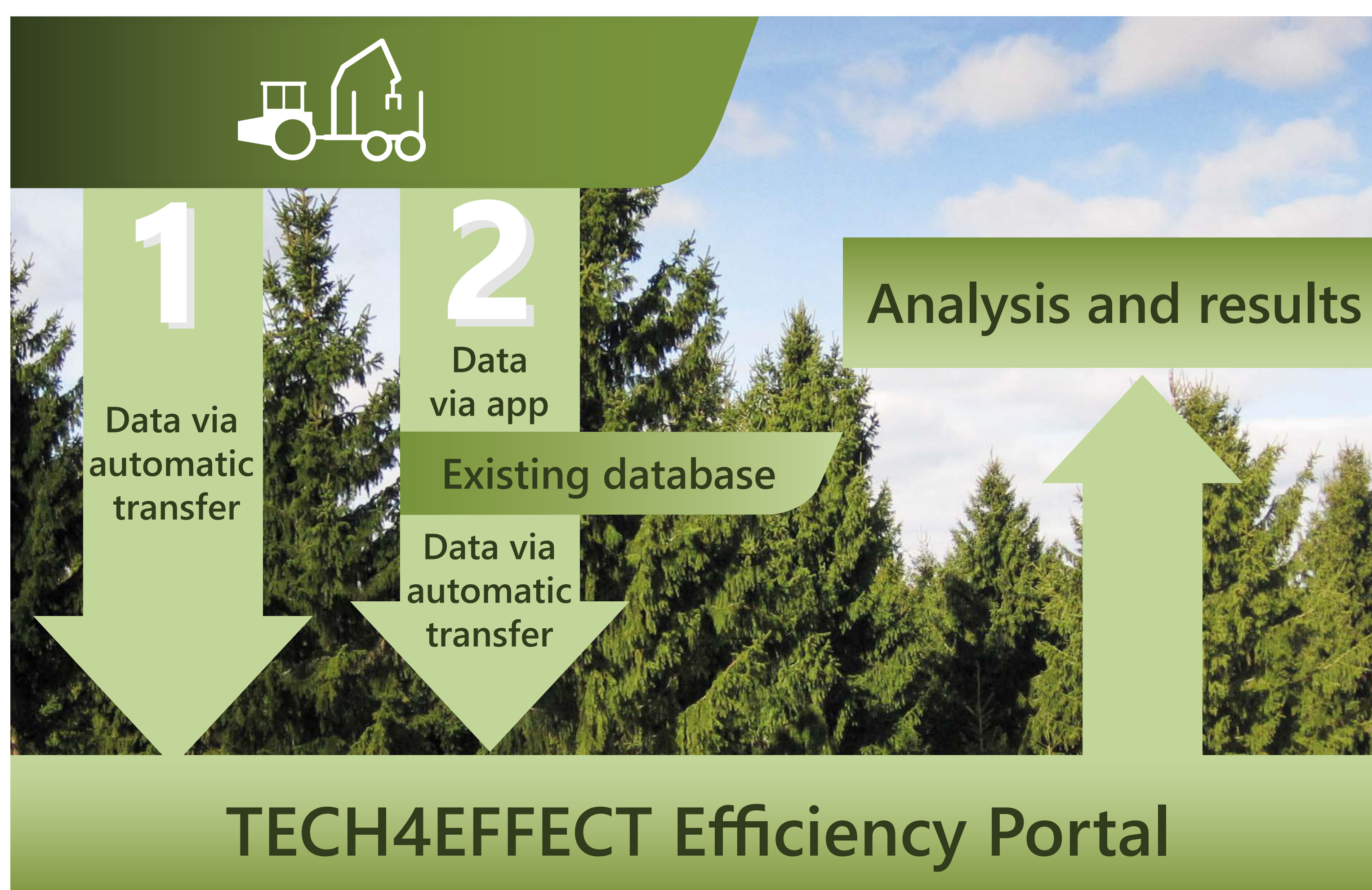
Improved efficiency in forest management will result in an overall improvement of the environmental and socio-economic performance of the full value chain.

New technologies and procedures have a wide range of potential consequences. Thus, the impact of the TECH4EFFECT technologies and procedures on greenhouse gas emissions, energy use, soil, employment and occupational safety will be analysed, as well as costs and benefits. The wider potential of the TECH4EFFECT technologies and procedures, and the possible efficiency gains at the regional and EU scales will be estimated.

TECH4EFFECT Efficiency Portal

The main component is an **interactive benchmarking system** which will be available via **National Efficiency Portals** in Norway, Germany, Italy, Austria and Denmark.

- There will be two options to interact with the Efficiency Portal:
 1. Machine data can be transferred automatically or
 2. Data is collected with an app, fed into an existing database, and from there transferred to the portal.
- In both cases, the underlying benchmarking system will analyse the data and return results to the user.
- ➔ This can improve the individual operator performance through individual follow up and predict performance for a given machine operating condition and identify inefficiencies.



Bio-based Industries Consortium



www.TECH4EFFECT.eu

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