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Abstract

Until April 2022, 12 study visits have taken place, featuring 22 best practices and innovations (BP&I) and with a total of 450 participants. Three other study visits are planned in May and June 2022. They have been postponed being able to hold them in-person. This will increase the total number of visits to 15 and will represent an average of three visits per hub. The maximum number of BP&I presented per visit has been respected. Below, there is a summary per BP&I of each visit, including the target audience, the number of attendees, the challenge addressed, a summary of the BP&I visited/presented and the conclusions.

Deviations

Three of the expected study visits could not be hosted before the submission of this deliverable because they have been postponed to May and June 2022 due to the covid-19 restrictions to hold them in-person. The programme of these visits is provided when available.

1. Introduction

To support collaboration inside the value-chain, the ROSEWOOD4.0 consortium organised study visits to selected best practices. The study visits aimed to support inter-regional knowledge transfer, enhance practitioners' exchanges and contribute to individual and organisational capacity building.

2. Methodology

Two to three study visits per hub were planned, with a minimum of 20 attendees in each one. Initially, all study visits were expected to take place in-person. However, due to uncertainty related to the covid-19 situation, the hubs were free to choose if the visit would be online, hybrid or in-person.

To achieve an inter-regional knowledge exchange, the hubs were encouraged to organise study visits featuring best practices and innovations (BP&I) of interest for practitioners from other hubs. To avoid dispersion within a study visit, the organisers were requested to feature a maximum of three BP&I per study visit and, if possible, the two or three BP&I should propose solutions for the same problem.

3. Results

Until April 2022, 12 study visits have taken place, featuring 22 BP&I and with a total of 450 participants (**Table 1**). Three other study visits are planned in May and June 2022. They have been postponed being able to hold them in-person. This will increase the total number of visits to 15 and will represent an average of three visits per hub. The maximum number of BP&I presented per visit has been respected. Below, there is a summary per BP&I of each visit, including the target audience, the number of attendees, the challenge addressed, a summary of the BP&I visited/presented and the conclusions.

Table 1. Summary of the study visits.

Hub	Country	BP&I presented (n)	Attendees (n)
NE	Finland (1 st visit)	2	38
	Finland (2 nd visit)	3 ^a	To be held in-person on 3-4 May 2022
	Norway	2	48
	Sweden	2	48
CWE	Germany	3	19
	France	2	15
	Austria	3 ^a	To be held in-person on 17-18 May 2022
CEE	Poland	1	65
	Romania	1	20
SWE	Spain	3	112
	Italy	3	6
	Portugal	Programme not available yet	To be held in-person in May/June 2022
SEE	Slovenia	1	38

Hub	Country	BP&I presented (n)	Attendees (n)
	Croatia (1 st visit)	1	20
	Croatia (2 nd visit)	1	21
	TOTAL	28	450

^a These study visits include presentations and visits of other best practices and innovations not collected by ROSEWOOD4.0 but connected to the topic of the project.

The attendees of the study visits comprised different types of stakeholders related to the forest sector. Most of the attendees represented forest managers, forest owners' associations, providers transversal services (ICT companies, trans-sectorial clusters, development agencies, etc.), forestry work companies and research organisations & academia.

Analysing the challenges addressed, we realised that the priorities differ among hubs. NE hub gave priority to "Enhance economic and environmental performance of forest supply chains" and was the only hub to address the challenge "Raise public awareness, social acceptance and political support for forestry". SWE also gave priority to "Enhance economic and environmental performance of forest supply chains" and secondly addressed "Activate private owners and cooperative forest management". CWE hub covered mainly "Enhance economic and environmental performance of forest supply chains" and "Improve forest resilience and adaption to climate change". There are no trends for SEE and CEE hubs because they only visited three and two BP&I, respectively (

Table 2).

Table 2. Addressed challenges per hub.

Challenges ^a	Hubs and number of times that a challenge is addressed in BP&I					Total
	CEE	CWE	NE	SEE	SWE	
Activate private owners and cooperative forest management		2	1	1	2	6
Enhance economic and environmental performance of forest supply chains	1	3	4		4	12
Ensure a well-trained workforce through attractive skills development and education			1			1
Grow the forest-based bioeconomy through circular use and value-added products			1	1		2
Improve forest resilience and adaption to climate change	1	3		1		5
Improve infrastructures and capacity of public actors						0
Raise public awareness, social acceptance and political support for forestry			2			2
Total	2	8	9	3	6	28

^a As listed in the *Knowledge platform for regional forest innovation*, <https://www.forestinnovationhubs.rosewood-network.eu/en>.

Finally, the most transversal challenges have been “Activate private owners and cooperative forest management” (six times) and “Enhance economic and environmental performance of forest supply chains” (12 times), both handled in four of the six hubs. On the other hand, the less addressed challenges have been “Ensure a well-trained workforce through attractive skills development and education” (once) and “Raise public awareness, social acceptance and political support for forestry” (twice), and only in the NE hub.

For Data Protection reasons, the lists of participants of the different study visits have not been included in this report, but SIG (ROSEWOOD4.0 coordinator) can make them available for the Commission Services upon request.

3.1 NE Hub

Study visit Finland (1st visit)

Finnish Forest Association

Transferring BP&I	Finnish Forest Association https://smy.fi/
Date & format	15 September 2021, online visit
Target audience	Foresters, forestry organisations, researchers, ROSEWOOD4.0-network and other stakeholders
Number of attendees	38
Challenge addressed	Raise public awareness, social acceptance and political support for forestry
Summary of the visit	Due to Covid-19 restrictions, the study visit was organised as an online seminar. First, the chair of the study visit, Dr. Kari Mäkitalo from Natural Resources Institute Finland (Luke) briefly presented the ROSEWOOD4.0 project and the purpose of its study visits. Then Mrs. Kirsi Joensuu, the Executive Director of the Finnish Forest Association (FFA), presented the history and ways of working of the Association. According to Mrs. Joensuu, FFA was established in 1877, being the second oldest continuously functioning forest organisation in Finland after Metsähallitus, the Finnish state-owned forest enterprise. The main reason for establishing FFA was the poor and non-productive condition of Finnish forests, and FFA was tasked with disseminating expertise and advice to landowners. FFA has enhanced the foundation of many important organisations in the forest sector, e.g. the Finnish Forest Research Institute (Metla) in 1917. Nowadays FFA acts and communicates in the interphase between the forest sector and the society in large. The main target groups are teachers, youth, decision makers, journalists, and the Finnish public, for which FFA organises events, courses, competitions, and campaigns, and publishes different kind of dissemination materials. One important dissemination channel is the online magazine forest.fi which tells news from Finnish forests and the forest sector both in Finnish and in English. FFA has 49 member organisations, and its financing is based on projects.

Conclusions	Social acceptance of forestry is a hot topic at the moment because of planned EU politics concerning forests, biodiversity and climate change. The Finnish Forest Association disseminates knowledge on practical forestry to authorities but also to the big audience. FFA is determined to develop initiatives to renew the practices to be more ecological. Forests' potential for renewable products and the fight against climate change can be used in communication to increase acceptance.
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Forest Finland

Transferring BP&I	Forest Finland https://metsiensuomi.fi/
Date & format	15 September 2021, online visit
Target audience	Foresters, forestry organisations, researchers, ROSEWOOD4.0-network and other stakeholders
Number of attendees	38
Challenge addressed	Raise public awareness, social acceptance and political support for forestry
Summary of the visit	Due to Covid-19 restrictions, the study visit was organised as an online seminar. Dr. Kari Mäkitalo from Natural Resources Institute Finland (Luke) and ROSEWOOD4.0 project acted as the chair of the seminar. Mrs. Kirsi Joensuu, the Executive Director of the Finnish Forest Association, presented the concept of the Forest Finland Campaign (FFC), organised by the Finnish Forest Association. The concept of FFC is based on the observation that almost everything Finns do is related to forests. The principal aim of FFC is to awaken emotions related to forests and secondly to update Finns' perception of what modern forest use compromises. FFC started in 2020 and it will last until the end of 2023. The target group is adult Finns. Most of the material can be found also in English. Mr. Kai Lintunen, Head of International Communication, presented the measures of FFC: web pages, roadshow, seed disc campaign, TV campaign, radio campaign, outdoor advertising, social media/influencers, cross marketing and various cooperation campaigns. The survey of the effectiveness of FFC showed that the campaign was estimated very positive: reliable, convincing, interesting, informative, non-irritating. FFC contacted the targets 74 million times in 2020 and 92 million times in 2021. This means that every Finn was reached 16 - 20 times on average.
Conclusions	The audience was very interested in the Forest Finland Campaign, this resulted in lively discussions after the presentation. The Forest Finland Campaign has a great potential to be benchmarked in the ROSEWOOD4.0-Network and in Europe in general. The experiences of the Forest Finland Campaign are already used in the Sustainable Wood for Sustainable World campaign, of FAO.

An article with further information related to this study visit in Finland can be found on the [project website](#).

Study visit Finland (2nd visit, full programme)

Monday 2 May 2022

Travel and check-in

19h-22h Dinner

Tuesday 3 May 2022

9h-17h Science Centre Pilke

9h-10h Introduction of wood-based Pilke house

10h-11h Introduction of METSÄHALLITUS, FINNISH FOREST CENTRE and NATURAL RESOURCES INSTITUTE FINLAND

11h-12h Exhibition

12h Lunch, tea & coffee

13h BP&I presented

Metsään

BiomassAtlas

15h-17h Arctic Centre and Arktikum Science Centre and Museum

19h-22h Dinner

Wednesday 4 May 2022

9h-15h **Lapland Education Centre:** Europe's largest simulation learning environment for forest machine training (Simulators)

Lunch, tea & coffee

Visiting at harvesting site near Rovaniemi

16h-18h Santa Claus Village

Thursday 5 May 2022

Checkout and travel back

Metsään

Transferring BP&I	Metasään https://www.metsakeskus.fi/en/node/736
Date & format	3 May 2022, in-person

Target audience	Foresters, forestry organisations, forestry teachers
Challenge addressed	Activate private owners and cooperative forest management

BiomassAtlas

Transferring BP&I	BiomassAtlas https://www.luke.fi/biomassa-atlas/en/
Date & format	3 May 2022, in-person
Target audience	Foresters, forestry organisations, forestry teachers
Challenge addressed	Enhance economic and environmental performance of forest supply chains

Lapland Education Centre

Transferring BP&I	Science Centre Pilke Lapland Education Centre: https://redu.fi/en
Date & format	4 May 2022, in-person
Target audience	Foresters, forestry organisations, forestry teachers
Challenge addressed	Ensure a well-trained workforce through attractive skills development and education Raise public awareness, social acceptance and political support for forestry

Study visit Norway

FeltGIS

Transferring BP&I	FeltGIS https://www.feltgis.no
Date & format	21 May 2021, hybrid visit, Elverum, Norway
Target audience	Experts on digital solutions
Number of attendees	48
Challenge addressed	Enhance economic and environmental performance of forest supply chains
Summary of the visit	Due to Covid-19 restrictions, the study visit was organised as an online seminar. Gunnar Hellerstrom, from Paper Province, hosted the event which included best

	<p>practices from both Sweden and Norway, two from each country. As an introduction to the study visit seminar, a short film showing the value chain from forest to sawmill was introduced. The film included a visualisation of FeltGis functions in practice. Isak Hasselvold, CEO of FeltGis, presented FeltBox and FeltLog at a technical level. The product is simple to install, simple to use and can be fitted to all forestry machines regardless of producer. The system uses internet access via the smartphone to communicate data between units. Hasselvold also explained the value of establishing a functional dataflow between the harvester and the forwarder to ensure easy access to the forest operations for all collaborators (forest owner, head of machine company, buyers and sellers of the timber, etc). FeltGis makes the workday for the forest worker easier, the production more efficient and lets the forest machine operator focus on what is important. After the presentation, Isak Hasselvold answered questions from the audience. Contact information to the presenter was distributed to all study visit participants.</p>
Conclusions	<p>After the study visit, FeltGis was invited to present at Forexpo in Southern France, September 2021. FeltGis and Nexum will start discussing how to cooperate in the future. Hybrid events make it easier for those willing to participate but by excluding face-to-face contact the threshold for contacting the presenters after an event seems to be higher.</p>

X-ray scanning of timber

Transferring BP&I	<p>X-ray scanning of timber</p> <p>https://www.moelven.com/no/aktuelt-og-nyheter/nyhetsarkiv/2018/norges-forste-sagbruk-med-rontgensyn/</p>
Date & format	21 May 2021, hybrid visit, Elverum, Norway
Target audience	Experts on digital solutions
Number of attendees	48
Challenge addressed	Enhance economic and environmental performance of forest supply chains
Summary of the visit	<p>Due to Covid-19 restrictions, the study visit was organised as an online seminar. Gunnar Hellerstrom, from Paper Province, hosted the event which included best practices from both Sweden and Norway, two from each country. As an introduction to the study visit seminar a short film showing the value chain from forest to sawmill was introduced. Johan Oja, technology manager at Norra Timber describes CT scanning in saw lines and what to potentially gain from this practice by choosing the best product out of every log. To optimise every log, you need to know what's inside it to make the right decision and CT scanning provides the necessary information to do so. Johan Oja deliberates around the topic of "sawmill production on demand" as a future scenario for sawmills. If CT data from each log was to be traced back to the origin to predict the potential quality for specific geographical locations, this would give the buyer more predictability</p>

	when matching supply and demand. Mr. Oja answered questions from the audience after the presentation. Contact information to the presenter was distributed to all study visit participants.
Conclusions	Hybrid events make it easier for those willing to participate but by excluding face to face contact, the threshold for making contact with the presenters after an event seems to be higher.

Study visit Sweden

AVATAR

Transferring BP&I	AVATAR http://www.avatar.uni-goettingen.de/
Date & format	21 May 2021, hybrid visit, Karlstad, Sweden
Target audience	Experts on digital solutions
Number of attendees	48
Challenge addressed	Enhance economic and environmental performance of forest supply chains
Summary of the visit	Due to Covid-19 restrictions, the study visit was organised as an online seminar. Gunnar Hellerstrom, from Paper Province, hosted the event which included best practices from both Sweden and Norway, two from each country. In the introduction to the study visit seminar a short film showing the value chain from forest to sawmill was introduced. The science project AVATAR is a cooperation between Sweden, Norway and Germany for automatic detection of work elements and disadvantageous work practices in mechanised forestry utilising digital sensors in forestry machines. Martin Englund talks about the development of algorithms describing work patterns, representing the projects' Work Package 1. Sensor data from the forestry machine makes up the basis for work elements detection where data are sorted into work elements. The work elements are used for work practice analysis to develop a digital coach system to feed back to the forestry operator for learning purposes. Englund talked about the theoretic aspect of the solution giving the participants an in-depth understanding of the concept and possibilities for the future. A short, animated video was introduced to visualise the Avatar concept. After the presentation Englund answered questions from the participants. Contact information to the presenter was distributed to all study visit participants.
Conclusions	The AVATAR technology is established but the project will eventually terminate. Hybrid events make it easier for those willing to participate but by excluding face to face contact the threshold for contacting the presenters after an event seems to be higher.

DigiWood

Transferring BP&I	DigiWood https://www.moelven.com/se/det-digitala-sagverket/
Date & format	21 May 2021, hybrid visit, Karlstad, Sweden
Target audience	Experts on digital solutions
Number of attendees	48
Challenge addressed	Grow the forest-based bioeconomy through circular use and value-added products
Summary of the visit	Due to Covid-19 restrictions, the study visit was organised as an online seminar. Gunnar Hellerstrom, from Paper Province, hosted the event which included best practices from both Sweden and Norway, two from each country. In the introduction to the study visit seminar, a short film showing the value chain from forest to sawmill was introduced. Michael Jacobsson (DigiWood) underlines that DigiWood is an independent platform for indexation and integration of data. DigiWood supports integration from different sources such as scanners, x-ray, control systems and others. DigiWood is integrated at two sites and integrates data from 10-12 different suppliers. DigiWood can track a log, a board or a package through the process, with no limitations. The benefits of using the DigiWood system is explained and exemplified by Jacobsson. He also presents Moelven Valåsen AB as a business case and describes the process to integrate the DigiWood platform at the site and the use of x-ray "fingerprint" data from each log as an identifier. A short video of the DigiWood concept was introduced at the end of the presentation. Michael Jacobsson concluded by answering questions from the audience. Contact information to the presenter was distributed to all study visit participants.
Conclusions	Hybrid events make it easier for those willing to participate but by excluding face to face contact the threshold for contacting the presenters after an event seems to be higher. DigiWood and FeltGis will start discussing how to cooperate in the future.

3.2 CWE Hub

Study visit Germany

KWH4.0

Transferring BP&I	KWH4.0 https://www.kwh40.de/
Date & format	16 September 2020, in-person visit, Arnsberg, Germany

Target audience	Forestry practitioners, forestry education, insurance
Number of attendees	19
Challenge addressed	Enhance economic and environmental performance of forest supply chains
Summary of the visit	The Center of Excellence for Forestry 4.0 (KWH4.0) is developing Industry 4.0 digitalisation concepts for the forest and wood cluster. New, intelligent and decentral acting machines, devices, services and people, will enable the cluster to optimise its complex value-added networks, develop new business models and meet current challenges of ecology, economy and climate change. Existing approaches address the complexity of structures and processes, and the conflicting demands on forest management only insufficiently. To "smartify" the forest and wood cluster, existing competencies from industry, science and administration must be bundled. The goal of KWH4.0 is to create a know-how base and infrastructures, and to implement forest and wood 4.0 components via innovative Smart Forest Labs. The Smart Forest Labs serve as experimental forestry laboratories in which developed components, systems and processes are tested, standardisation advanced, concepts disseminated, and actors trained. Developed concepts and standards are continuously published as practical recommendations, a first version of the communication infrastructure S3I (Internet of Things application) has been established. In addition, there is an increasingly smart fleet: forestry machines have been upgraded to retrieve digital information (GPS position, fuel consumption, production data, etc.) and at the same time networked via alternative radio standards with machines in regions where mobile communication is not possible.
Conclusions	KWH4.0 builds an innovation hub and test lab for IT and forestry and also offers smart data infrastructures. The innovation potential was acknowledged by the practitioners but considered as detached from their daily work due to heavy IT focus.

FOVEA

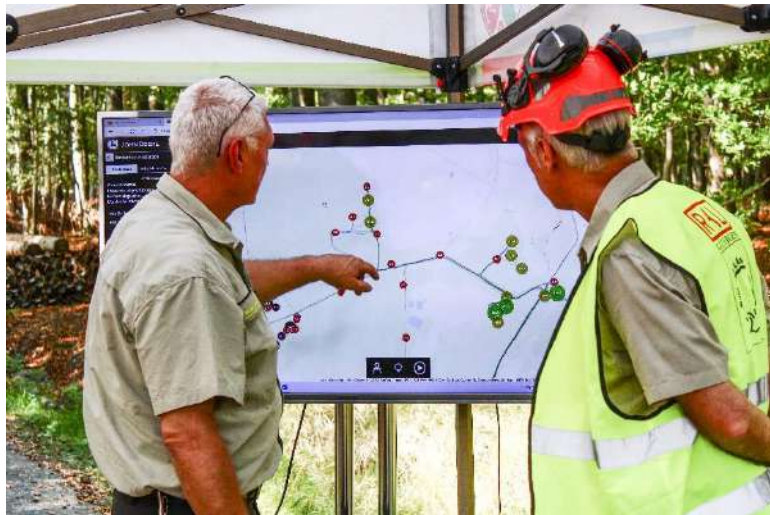
Transferring BP&I	FOVEA https://fovea.eu/forst_management_system
Date & format	16 September 2020, in-person visit, Arnsberg, Germany
Target audience	Forestry practitioners, forestry education, insurance
Number of attendees	19
Challenge addressed	Enhance economic and environmental performance of forest supply chains
Summary of the	FOVEA allows to measure wooden piles with the "iFOVEA Pro" app. During the study visit, the application was demonstrated in the field with a tablet, an internet

visit	connection was not necessary. The adaptation of measurement methods was demonstrated. Furthermore, the attendees were shown how the online management of the measured data with the Forest Management System (FMS) works. In addition to an extensive wood inventory, the system offers a map function and options for invoicing and automatic calculation of wood prices.
Conclusions	As a conclusion, FOVEA provides a ready-to-use application to measure static wood piles. The main user group are private forest owners. The use cases of the application are limited.

LogBuch

Transferring BP&I	LogBuch https://www.stihl.de/de/technologie/smart-products-technologien/smarter-forst#logbuch
Date & format	16 September 2020, in-person visit, Arnsberg, Germany
Target audience	Forestry practitioners, forestry education, insurance
Number of attendees	19
Challenge addressed	Enhance economic and environmental performance of forest supply chains
Summary of the visit	The best practice innovation LogBuch was demonstrated indoors. The LogBuch application enables data aggregation in the forest, evaluation of the data and further processing. The combination of voice recording and Bluetooth allows hands-free location detection of trees with simultaneous recording of information about the tree, such as safety instructions or planification of working procedures. The expected cut volume can be determined, and assortments planned. Foresters and harvester operators both receive detailed information (cross-linking with third party systems is supported). The application is used for preparation of timber harvesting, establishment of a digital "inventory", area mapping (also planting) by connecting recorded corner points, mapping of skid trails by the line function (harvest control or certification basis), remote navigation via Google Maps. Additional features are support for hunting organisations, traffic safety measure, recording of habitat trees, etc.
Conclusions	The LogBuch application digitises daily work processes of foresters very well. As a result, the study visit participants demonstrated a lot of interest in the application.

Further information related to this study visit is available on the [project website](#). Below, some pictures of this study visit can be found.



Study visit France

La forêt bouge

Transferring BP&I	La forêt bouge https://www.forestinnovationhubs.rosewood-network.eu/en/content/la-foret-bouge-forest-moving
Date & format	22-24 September 2021, in-person visit, Mimizan, France
Target audience	Private and public forest owners, forest owner associations, forest service providers, timber traders, machine producers
Number of attendees	15
Challenge addressed	Activate private owners and cooperative forest management
Summary of the visit	One of the CWE study visits took place within the FOREXPO exhibition, the largest forest trade fair in France, held every 4 years. The FOREXPO fair was an exceptional opportunity to get an overview of innovations and best practices available in France and other countries, e.g., Spain. The ROSEWOOD4.0 partner CNPF operated an open-air booth demonstrating their advisory services and tools for private forest owners. At the booth, two ROSEWOOD4.0 BP&I were demonstrated to the visitors. One of them was “La forêt bouge” - a holistic web-based platform for private forest owners. The platform covers all challenges that come with forest ownership ranging from legal information and documents, GIS-based services, online advisory support, directory of forest providers, and a timber marketplace for small private forest owners. Furthermore, a number of innovations were directly demonstrated and introduced at the forest fair, e.g., business model for forest insurance against calamities, broad range of remote sensing applications on forest stand level, novel solutions for forest plant production or the protection of nurseries against frost and other detrimental weather effects. The ROSEWOOD4.0 partners were accompanied by a professional translator to improve communication with interested attendees.
Conclusions	The ROSEWOOD4.0 team and experts agreed that the hands-on experience at the FOREXPO and the CNPF booth was of high relevance to get a better picture of the BP&I and how the French forest owners perceive the value of the offered advisory services and tools. The interaction with French forest owners at the booth as well as the numerous talks with the fair exhibitors opened new opportunities to be followed-up and included into the ROSEWOOD4.0 database and network.

Climafor

Transferring BP&I	Climafor https://www.cnpf.fr/n/diagnostic-carbone-territorial/n:2492
Date & format	22-24 September 2021, in-person visit, Mimizan, France

Target audience	Private and public forest owners, forest owner associations, forest service providers, timber traders, machine producers
Number of attendees	15
Challenge addressed	Improve forest resilience and adaption to climate change
Summary of the visit	One of the CWE study visits took place within the FOREXPO exhibition, the largest forest trade fair in France, held every 4 years. The FOREXPO fair was an exceptional opportunity to get an overview of innovations and best practices available in France and other countries, e.g., Spain. The ROSEWOOD4.0 partner CNPF operated an open-air booth demonstrating their advisory services and tools for private forest owners. At the booth, two ROSEWOOD4.0 BP&I were demonstrated to the visitors. One of them was Climafor – a method and a software under development that allows the comparison of carbon balances from two silvicultural itineraries. Climafor deals with the policy framework for carbon markets in France. The topic was also addressed by a representative of the government of Castilla y Leon (Spain), who reported on the current scheme and experiences in Spain. The ROSEWOOD4.0 partners were accompanied by a professional translator to improve communication with interested attendees.
Conclusions	The ROSEWOOD4.0 team and experts agreed that the hands-on experience at the FOREXPO and the CNPF booth was of high relevance to get a better picture of the BP&I and how the French forest owners perceive the value of the offered advisory services and tools. The interaction with French forest owners at the booth as well as the numerous talks with the fair exhibitors opened new opportunities to be followed-up and included into the ROSEWOOD4.0 database and network.

An article related to this study visit with further information is available on the [project website](#). Additionally, a related video can be found on the [ROSEWOOD4.0 YouTube channel](#). Furthermore, a picture of this study visit is showed below.



Study visit Austria, jointly organized by CWE Hub and SEE Hub

The full programme for this study visit is showed below.

JOINT STUDY VISIT CWE HUB & SEE HUB 17TH – 18TH MAY, 2022 (STYRIA, AUSTRIA)



17th of May

07:15 – 08:00
08:00 – 11:00

Bus transfer to Frohnleiten
Forestry visits around Graz/Leoben/Frohnleiten
(Forestry and forestry technology, Festmeter, Forsite,
Holzmod Regio Climate fit Forest, biomass centre)

11:30 – 12:30

Lunch break

13:30 – 15:00

Visit MM Holz sawmill and new plant in construction in Leoben

15:30 – 16:30

Wood innovation centre Zeltweg, Presentation of Naturwärme St. Lambercht - Biomass heating and energy

17:00 – 18:00

Bus transfer to Graz Hotel

18:30 – 20:00

Dinner and networking event with input presentations in Graz
(Fast Pichl, Ossiach and Traunkirchen, MontanUni)

18th of May

08:00 – 09:00

Bus transfer to Weiz

09:00 – 11:30

Visit Welzer Parkett, presenting WoodCAR project

11:30 – 13:00

Visit Holzbau Strobl Holzbau (use of robotics for wall prefab)

13:00 – 14:00

Lunch break


14:00 – 15:00

Bus transfer to Graz

15:00 – 16:30

Visit of wooden buildings Q7 Graz



 This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 062601.

Festmeter

Transferring BP&I	Festmeter https://www.festmeter.at/
Date & format	17 May 2022, in-person

Target audience	
Challenge addressed	Improve forest resilience and adaption to climate change

FORSITE

Transferring BP&I	FORSITE https://forschung.boku.ac.at
Date & format	17 May 2022, in-person
Target audience	
Challenge addressed	Improve forest resilience and adaption to climate change

HolzMobRegio

Transferring BP&I	HolzMobRegio https://www.waldverband-stmk.at/holzmobregio/
Date & format	17 May 2022, in-person
Target audience	
Challenge addressed	Activate private owners and cooperative forest management

3.3 CEE Hub

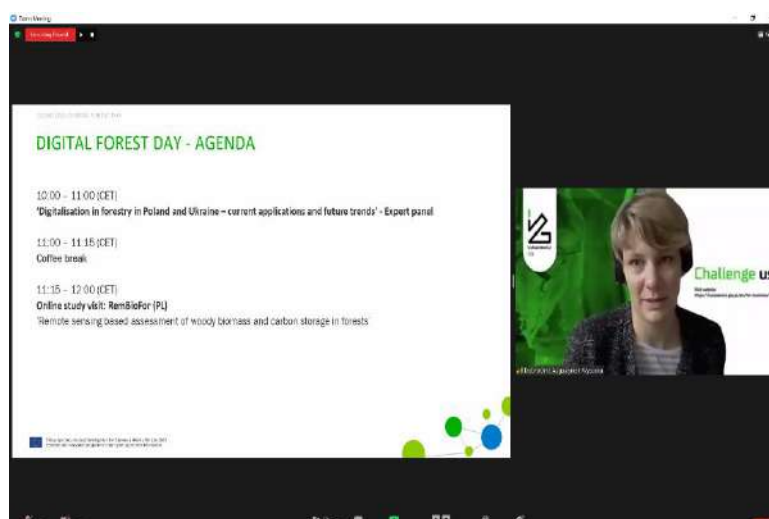
Study visit Poland

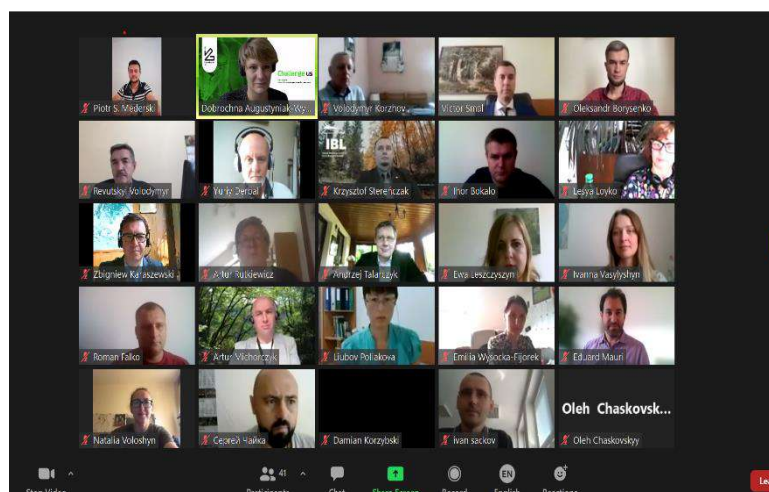
RemBioFor

Transferring BP&I	RemBioFor - Remote sensing based assessment of woody biomass and carbon storage in forests http://rembiofor.pl/en/
Date & format	13 September 2021, online visit, Poland
Target audience	Foresters, forestry and industry associations, wood sector and IT companies, researchers, policymakers, other forestry stakeholders
Number of attendees	65
Challenge addressed	Improve forest resilience and adaption to climate change

Summary of the visit	<p>The virtual study visit to the RemBioFor project was organised together with an additional dissemination event (expert panel on digitalisation in forestry in Poland and Ukraine) as Digital Forest Day. The study visit started with a short presentation regarding the ROSEWOOD4.0 project. Furthermore, RemBioFor was presented by two invited speakers: Krzysztof Stereńczak, Associate Professor and Deputy Director for Research and Science at the Forest Research Institute (Project Coordinator) and Zbigniew Karaszewski, PhD at Łukasiewicz Research Network - Wood Technology Institute. RemBioFor is a research project financed by the National Centre for Research and Development and State Forests. The aim of the project was to work out the complex method of defining selected forest stand descriptions as well as aboveground biomass and carbon sequestration, based on the use of remote sensing for the purposes of forest management planning. During the presentations, the main goals were presented, field data collection was explained together with detailed description of work carried out on model forest stands and a close look at methods of estimation of the growing stock volume was provided.</p>
Conclusions	<p>ALS technology is suitable for determining many parameters of a forest stand. The method is now implemented in State Forests in Poland. The demonstration inspired a lively discussion with the audience on the aspects related to using aerial laser scanning in mountain areas, accuracy of the data and available methods and technologies.</p>

On the project website, an [article](#) related to this study visit can be found. Below some screenshots of this online study visit are showed.





Study visit Romania

SUMAL 2.0

Transferring BP&I	SUMAL 2.0 – Digital Wood Tracking http://www.mmediu.ro/categorie/sumal-2-0/321
Date & format	30 September 2021, online visit, Romania
Target audience	Forest owners, wood processors, stakeholders of the wood industry
Number of attendees	20
Challenge addressed	Enhance economic and environmental performance of forest supply chains
Summary of the visit	In order to contribute to the de-bureaucratization of the wood sector, the Romanian Ministry of Environment, Water and Forests developed SUMAL 2.0. The existence of this application improves traceability of wood and discourages illegal logging. In addition, it offers a series of advantages, like the possibility to track wood transport in real-time and to see on a daily basis the whole volume of wood material in the warehouses. Thanks to the good collaboration with the Ministry of Environment, Water and Forests, on the 30th of September 2021, the stakeholders of the Central East Hub had the opportunity to participate online, due to the pandemic situation at the presentation of SUMAL 2.0. Mrs. Andrea SULYOK-PÁL, communication expert at the PRO WOOD Cluster introduced the RW4.0 project and the CEE Hub, followed by a presentation of SUMAL 2.0, by mr. Levente PORZSOLT, counsellor at the Ministry of Environment, Water and Forest. The presentations were followed by a video of the best practice and a session of questions & answers.
Conclusions	The initiate of implementation of this application is welcome, although there is need to do some adjustments in order to adapt the application to the real requirements of the sector. The representative of the Ministry assured the participants of a transparent dialogue to strengthen collaboration.

3.4 SWE Hub

Study visit Spain

SOMACYL

Transferring BP&I	SOMACYL - Public Company of Infrastructures and Environment of Castilla y León https://somacyl.es/
Date & format	15 June 2021, hybrid visit, León, Spain
Target audience	Forest managers, forestry work companies

Number of attendees	14+98 (in-person + online)
Challenge addressed	Activate private owners and cooperative forest management
Summary of the visit	<p>The aim of the study visit was to show poplar cultivation and management techniques and to present the opportunities it offers. The participation of SOMACYL best practice, was very important as it is the public company of infrastructures of the region, and the knowledge of their specialists, experts, and responsible managers of the poplar plantations in Castilla y León was necessary in this event where two other practices were presented. It was organised in the district of El Bierzo, where forest owners are very active and showed interest in learning new tools and applying new knowledge in their forests.</p> <p>In particular, in the case of SOMACYL the purpose was to explain the management of land for poplar wood production in the region, with the special participation of the expert advisor of the project, Álvaro Picardo (JCyL), and with an extra intervention of Alberto González Ronda (INCA Medio) explaining the digital management of poplar plantations by SOMACYL.</p> <p>The attendees visited poplar plantations, forest harvesting and local sawmills as part of the study visit.</p>
Conclusions	<p>SOMACYL is the Public Company of Infrastructures and Environment of Castilla y León, all information received from them is very useful, attendees listened to all details of the latest findings and innovations in the sector with poplar species. Forest owners had the chance to find out and talk directly to the experts to understand which is the best species of poplar for their plantations depending on the characteristics, and how to manage them better.</p>

FAFCYLE

Transferring BP&I	<p>FAFCYLE - Good practices for private forestry market mobilisation. Collective auctions of owners through forest associations</p> <p>https://www.fafcyle.es/</p>
Date & format	15 June 2021, hybrid visit, León, Spain
Target audience	Forest managers, forestry work companies
Number of attendees	14+98 (in-person + online)
Challenge addressed	Activate private owners and cooperative forest management
Summary of the visit	<p>The aim of the study visit was to show poplar cultivation and management techniques and to present the opportunities it offers. The goals achieved in the study visit were:</p> <ul style="list-style-type: none"> • presentation of identified best practices and innovations identified in Spain

	<p>(concerning the poplar sector), to a wide audience;</p> <ul style="list-style-type: none"> • presentation of new experiences, especially from the other Rosewood Hubs; • stimulate future cooperation & business opportunities for the involved SMEs: exploring new partnerships among the project partners and stakeholders. <p>In the case of FACYLE we had the participation of Olga González from FACYLE, the non-profit organisation that represents the forest owners of Castilla y León (Spain) with the objective of looking after their interests. Her speech was about mobilisation of the private forestry market: Collective auctions of landowners through forestry associations with FACYLE.</p> <p>All attendees visited poplar plantations, forest harvesting and local sawmills as part of the study visit.</p>
Conclusions	<p>FACYLE is a very well-known organisation in Castilla y León, they make a great effort in participating in events like this one, in dissemination of activities and communication with forest owners. After the coronavirus restrictions, forest owners were grateful to meet in-person and listen to the latest news and the collective auctions of FACYLE.</p>

ChoperApp

Transferring BP&I	<p>ChoperApp - LiDAR volume estimation of poplar forests</p> <p>https://lidarchoperas.agrestaweb.org/</p>
Date & format	15 June 2021, hybrid visit, León, Spain
Target audience	Forest managers, forestry work companies
Number of attendees	14+98 (in-person + online)
Challenge addressed	Enhance economic and environmental performance of forest supply chains
Summary of the visit	<p>Forest owners are becoming more aware of the need to apply new technologies in forest management. The activity was planned to promote entrepreneurship and new business models around poplar farming, aimed at public and private forest owners, and also companies in the timber sector, forestry and environmental consultancy professionals, and even universities and research centres. Students, university professors and most of all, private forest owners attended the event. Especially the forest owners enjoyed the ChoperApp presentation.</p> <p>The participation of the expert advisor of the project, David García (Agresta) was highly appreciated. He explained the interest and the use of ChoperApp: LiDAR volume estimation of poplar forests. The main result is a detailed tree-by-tree analysis of a poplar plantation from raw LiDAR data and a simple application to delimit a perimeter on which to evaluate and extract this information. This was very interesting and the debate after the study visit was very participative.</p> <p>All attendees visited poplar plantations, forest harvesting and local sawmills as</p>

	part of the study visit.
Conclusions	There's a growing interest in mobile applications that ease the forest management and the knowledge for forest owners. Nevertheless, new technology devices are difficult to use for older forest owners, which is the majority in the region, but they appreciated the easy-to-use tools like ChoperApp.

Further information regarding this study visit, as well as the different presentations, are available on the [project website](#).

Study visit Italy

The Italian RW4.0 partner AIEL organised a three-day event where three BP&I were visited. Two of the BP&I are from the RW4.0 database, the third BP&I (Consorzio Forestale Due Parchi) was detected by the Italian partner as a potential solution to a SWE Hub's gap (detected in the Roadmap) and consequently included in the study visits. Two BP&I could only be visited in-person while the third one was organised as a hybrid visit.

LogistiCIPlus

Transferring BP&I	LogistiCIPlus - Advanced logistics applied to the biomass sector http://logisticiplus.it/
Date & format	8-10 October 2021, in-person, Eastern Alps, Italy
Target audience	Entrepreneur, forest operators, decision makers and forest owners or representatives of the previous categories.
Number of attendees	6
Challenge addressed	Enhance economic and environmental performance of forest supply chains
Summary of the visit	<p>The main objective of this field trip is to highlight different approaches to deal with the weaknesses identified in the SWE Hub Roadmap, specifically talking about the forest fragmentation, structural lack of sawmills and lack of forest roads paired with the digital solutions and innovations in the sector.</p> <p>LogistiCIPlus. Trentino Rinnovabili: sensor use for logistic efficiency and decreased environmental impact in the biomass sector.</p> <p>The activity aims to give strong support to the companies involved in the project in obtaining a certification capable of guaranteeing traceability, environmental and qualitative sustainability for the biofuels produced through tools to support the management of logistics for obtaining the raw material to produce wood chips, handling, and treatment of the finished product. The goal is to lay the concrete foundations for improving efficiency in the organisation of biomass collection and transformation sites and consequently significantly reduce CO₂ emissions and other climate-altering gases produced during the phases of</p>

	obtaining the raw material, handling, processing, and marketing of woody biofuels. The activities lead to the recruitment and improvement of practices useful to companies to ensure the monitoring of material flows within the construction sites and logistic centres of the company, as well as certified information regarding the environmental impact of the company in producing biofuel.
Conclusions	LogistiCIPlus presentation explained how big the problem of forest roads and forest site logistics is in Italy. Paired with that, the attendees had the chance to see the potential of a short supply chain and small-scale CHP in a small industrial area.

Consorzio Forestale Due Parchi

Transferring BP&I	Consorzio Forestale Due Parchi http://www.consorziodueparchi.it/pages/home.asp
Date & format	8-10 October 2021, in-person, Eastern Alps, Italy
Target audience	Entrepreneur, forest operators, decision makers and forest owners or representatives of the previous categories.
Number of attendees	6
Challenge addressed	Enhance economic and environmental performance of forest supply chains
Summary of the visit	Consorzio Forestale Due Parchi, is a state-of-the-art forestry consortium half private and half public that owns and manages public mountain areas with highly skilled workers. Its core is to manage rural areas, implement natural engineering activities to prevent erosion, to increase the access to forests and remote areas and to create recreative areas for families. Paired with that, the forestry consortium also has a small sawmill that serves three different purposes: commercial sawmill getting timber from the consortium-managed activities; internal to the consortium as the sawmill processes all the timber that is needed in the natural engineering activities and lastly; the sawmill offers a service for small local forest owners where they can bring their own timber and get it cut in whatever type of timber they need. Lastly, with the low-quality material, they produce woodchips for the local district heating plant with a small share of CHP.
Conclusions	Managing rural areas is hard and requires a lot of skills and effort but it's a necessity. Consorzio Forestale Due Parchi is a great example of a multidisciplinary forestry consortium that, with its activities, covers the entire forestry sector.

GoldenEye

Transferring BP&I	GoldenEye - Advanced x-ray wood log scanning system for sawmills https://microtec.eu/it/applicazioni/applicazioni/goldeneye300/
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Date & format	8-10 October 2021, hybrid, Eastern Alps, Italy
Target audience	Entrepreneur, forest operators, decision makers and forest owners or representatives of the previous categories.
Number of attendees	20
Challenge addressed	Enhance economic and environmental performance of forest supply chains
Summary of the visit	<p>Starting from the SWOT analysis produced first on the Italian level and subsequently on the SWE Hub's level, several weaknesses have been identified and recognised. In Italy, the Eastern Alps represent one of the areas with the highest vocation for timber and silviculture. Best practices and innovations are most likely to be found here. This field visit strives to show the best ones available.</p> <p>GoldenEye from Microtec. High end X-ray technology applied to optimise resource efficiency and value added in sawmills.</p> <p>Goldeneye 300 Multi-Sensor Quality Scanner reliably recognises wood defects, selects according to strength classes, and classifies the wood precisely. The optimisation results according to parting and sorting, responding to quality requirements. Goldeneye 300 Multi-Sensor Quality Scanner consists of modules with a colour, laser and X-ray scanner to accurately classify wood defects. Goldeneye 300 is connected with the trimming saw and the miter saw to obtain the maximum yield.</p>
Conclusions	The visit at Microtec HQ in Bozen and at a sawmill that uses Microtec technologies gave the audience a clear view of how the new technologies can help sawmills and subsequently the forest sector in increasing the profitability by decreasing the volume of by- and subproducts.

After the implementation of this study visit an [article](#) was prepared with further information. Additionally, a video carried out during the implementation of this study visit is available on the [ROSEWOOD4.0 YouTube channel](#). Some pictures of this in-person study visit can be found below.







Study visit Portugal

To be held in-person in May/June 2022. Programme not available at moment of submitting this deliverable.

3.5 SEE Hub

Study visit Slovenia

RecAPpture

Transferring BP&I	RecAPpture - Mobile application for collection of used wood https://www.m-sora-blog.com/single-post/2019/09/26/Oddajte-odslu%C5%BEenles-v-krog-ponovne-uporabe
Date & format	23 June 2021, hybrid visit, Žiri, Slovenia
Target audience	Wood processing industry, policy decision makers
Number of attendees	38
Challenge addressed	Grow the forest-based bioeconomy through circular use and value-added products
Summary of the visit	The study visit at the M Sora company was organised as a hybrid event. Following people were present in-person: 4 participants from M Sora, 2 experts from Slovenia and 2 project partners from the Slovenian Forestry Institute. The online part of the study visit was hosted via Zoom and also streamed on Facebook. At the beginning, the scope of the event and the ROSEWOOD4.0 project were presented. Then Barbara Šubic, Head of development and research in M Sora, presented the organisation of the company, their sustainable practices, collection and use of recovered wood in their production with special emphasis on the RecAPpture application, and the development of smart windows (sensors and ICT

	systems). She also presented M Sora's efforts to minimise the use of harmful materials and processes. M Sora is a company that connects tradition and innovation. The presentation was followed by a video about digitalisation in the production of wooden windows. Afterwards, a discussion was opened. More details on RecAPpture and follow-up projects were presented and discussed. Participants of the study visit expressed their great impression about the company and their work. In addition, participants raised questions about prices, amount of recovered wood, maintenance of the sensors in the windows, regulations with waste wood management, how to deal with chemical substances in waste wood, competitive markets for waste wood and, functioning of similar applications with other use cases.
Conclusions	Digitalisation is not only important in terms of new technologies and tools, but also in terms of digital competences (online education, online meetings, etc.).

On the [ROSEWOOD4.0 YouTube channel](#) a related video can be found. Also, further information regarding this study visit is available on the [project website](#).

Study visits Croatia

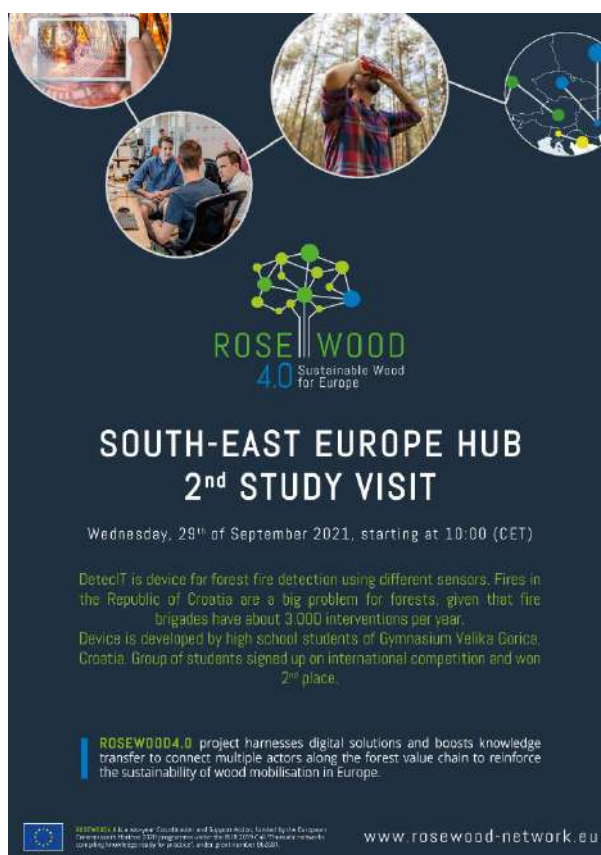
In Croatia, two separate study visits, on different dates, were organised.

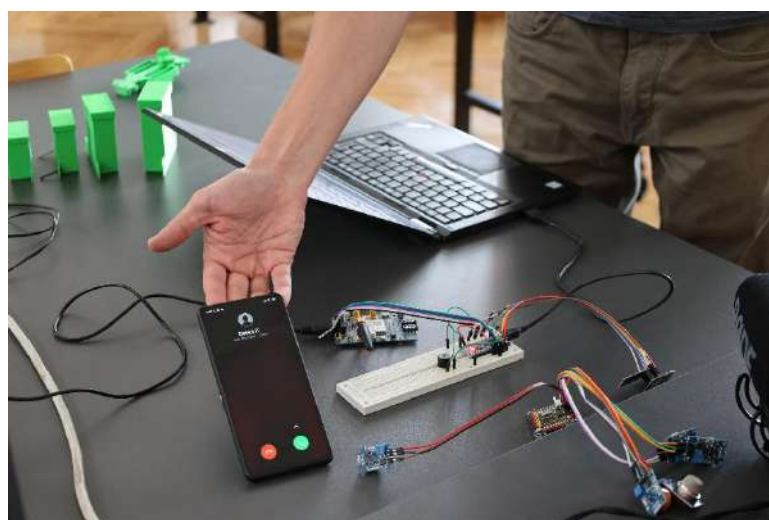
First study visit: DetectIT

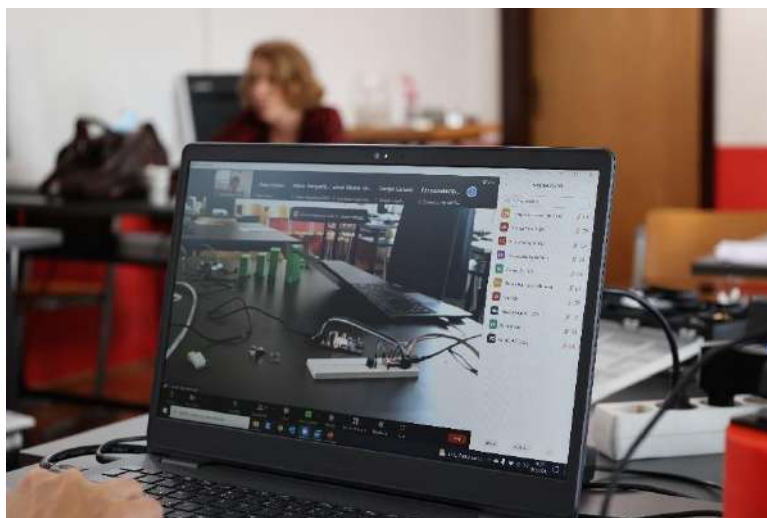
Transferring BP&I	DetectIT - Save our forests http://gimnazija-velika-gorica.skole.hr
Date & format	29 September 2021, hybrid visit, Zagreb, Croatia
Target audience	Forest managers, forest owners, forest workers, policy decision makers
Number of attendees	20
Challenge addressed	Improve forest resilience and adaption to climate change
Summary of the visit	<p>South-Eastern Europe Hubs' first study visit in Croatia was organised on 29th of September 2021, online via Zoom and in-person at Gymnasium Velika Gorica, in Velika Gorica, Croatia.</p> <p>This study visit was an opportunity for CEKOM to present the ROSEWOOD4.0 project and project activities with emphasis on Best Practice Innovations of the South-Eastern Europe Hub. After a presentation of the ROSEWOOD4.0 project and its activities, a video about "DetectIT – A device for forest fire detection" was shown.</p> <p>Kristina Lučić briefly presented the development of the DetectIT device and Marko Knežević demonstrated how the device works.</p> <p>At the closure of the study visit, the second Croatian study visit to the Croatian</p>

	Ministry of Agriculture on 13th of October was announced.
Conclusions	The study visit participants concluded that DetectIT, a digital fire detection device is useful for forest protection but improvements in battery capacity and maintenance are necessary for implementation in forests.

A dedicated poster and some impressions of the first study visit in Croatia can be found below. Additionally, a related video is available on the [ROSEWOOD4.0 YouTube channel](#) as well as an article with additional information on the [project website](#).





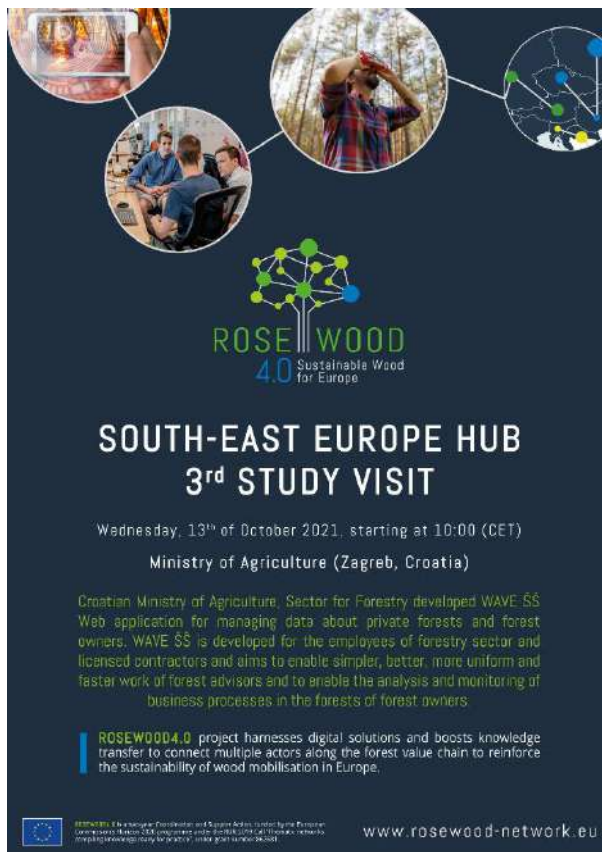


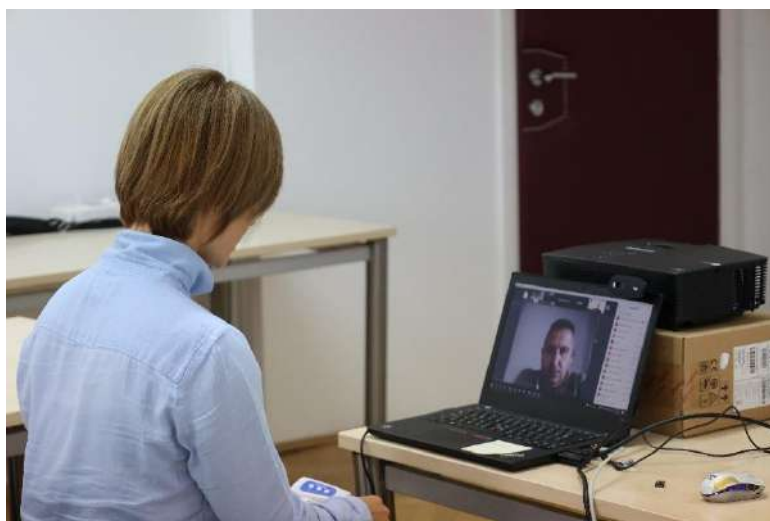
Second study visit: WAVE ŠŠ

Transferring BP&I	WAVE ŠŠ - Web application for managing data about forests and forest owners https://www.savjetodavna.hr/wp-content/uploads/publikacije/4Bilten1862018l.pdf
Date & format	13 October 2021, hybrid visit, Zagreb, Croatia
Target audience	Employees of forestry sector and licensed contractors
Number of attendees	21
Challenge addressed	Activate private owners and cooperative forest management
Summary of the visit	<p>South-Eastern Europe Hub's second study visit in Croatia was organised as a hybrid event on 13th of October 2021, online via Zoom and in-person at the Ministry of Agriculture, Forestry Sector in Zagreb, Croatia.</p> <p>The study visit was opened with a welcoming speech of the Competence Centre Ltd. and the Department for improvement of forests, Administration of forests, hunting and wood industry of Ministry of Agriculture.</p> <p>The ROSEWOOD4.0 project and its activities were presented with emphasis on Best Practice Innovations of the South-Eastern Europe Hub. Afterwards, a video about the Best Practice "WAVE ŠŠ – Web application for managing data about private forests and forest owners" was shown.</p> <p>Goran Smolčec explained how forest owners, foresters and employees of the Ministry for Agriculture use the web application through the presentation of application modules and their content: timber farming operation module, module of accompanying documents, Christmas-trees module, forest damage module.</p>
Conclusions	Digital solutions improve and simplify everyday work of foresters, forest owners

	and institutions like the Ministry of Agriculture.
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A dedicated poster prepared for the promotion of this second study visit in Croatia and some pictures taken during its implementation are shown below. Additionally, a video is available on the [ROSEWOOD4.0 YouTube channel](#) as well as a related article on the [project website](#).





4. Conclusions

The objectives have been achieved and only in three visits the target number of 20 attendees was not met.

After each study visit, an announcement was made in social media (<https://twitter.com/networkrosewood> and <https://www.linkedin.com/in/rosewood-network>) and the news section of ROSEWOOD4.0 website (https://rosewood-network.eu/news_media/news/), for communication purposes, in English and also in the national language of the country hosting the visit (when provided).