ROSEWOOD

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Central Hub Roadmap for Targeted Transfer of Best Practices and Innovations

Authors	Moritz Dreher (BFH), Martin Ziesak (BFH), Larissa Rudolph (ProHolzBW), Uwe André Kohler (ProHolzBW), Franziska Reich (ProHolz BW), Jan Bulmer (ProHolzBW), Ute Bachmann-Gigl (BitComp), Ludwig Lehner (BitComp), Elisabeth Gerhardt (BMNT), Hubert Siegel (BMNT), Tabea Link (S2i), Anthony Salingre (S2i), Daniel Ketzer (S2i);

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1   ROADMAPS ON HUB LEVEL

1.1   INTERREGIONAL ROADMAP FOR THE CENTRAL HUB

1.1.1 DESCRIPTION OF THE HUB REGION

The Central Hub is one of the four ROSEWOOD–Wood mobilisation regional Hubs, which covers the area of Austria, Switzerland and Southern Germany, namely the Federal states Baden-Wuerttemberg and Bavaria. In the Central Hub, the project partners consist of *proHolz Baden-Württemberg GmbH*, *BITCOMP* and *BWC Consulting* in Germany, *Bundesministerium für Nachhaltigkeit und Tourismus* in Austria, and *Berner Fachhochschule für Agrar-, Forst- und Lebensmittelwissenschaften* in Switzerland. Austria, Switzerland and Germany have a long tradition in forest management and regulations which are in service for over 100 years. There is a tight connection of forestry to historical and cultural developments, as well as a strong dependency for a sufficient livelihood and ecological stability. This connection is still very prominent, what influences public and politic decision-making largely. A rising awareness of the regional governments has developed over the potential of wood that might feed and drive the upcoming bioeconomy. Nevertheless, each region has different geological, geographical and political circumstances, which are important for understanding the chain of custody at the actual status.

Geographically, the Central Hub regions are quite heterogeneous. While Southern Germany is characterised by plain areas, high plateau and lower to mid-range mountains, forest areas in Switzerland and Austria are mostly characteristics by alpine spaces. The geographical situation has a strong effect on climate, biodiversity, silviculture and harvesting. In the Alps, forest stands also play a major role as protection against avalanches, landslides, floods and rock falls. In Austria, authorities defined 30 % of the forests as stands with protection functions against natural hazards. Further, climate change is one of the major challenges for forestry nowadays. Especially Switzerland has a strong focus on developing a forest adapted to climate change with high share of hardwood species in lower areas and softwood in higher regions. However, every region is actually working on new approaches in silviculture to adapt to the changing climate. For all regions, small plot sizes and fragmentation are typical particularly in private forests, which range between 29 and 82 % of the forest area in the different countries. Due to the ageing population and hence an ageing of the forest owners, many forests are getting more and more scattered during heritage processes. These circumstances lead to a rising number of small-scale forest owners with a decreasing interest in managing, which negatively impacts the forest management and its profitability.

Geological, geographical and mainly historical and political circumstances led to diversities within the wood and forestry sector. One of the basic diversities on national levels are the forest ownership structures, which are important to understand the actual status of forestry and the impact on economic stability and quality. In **Switzerland**, 71 % of forests are publicly owned forests, with 29 % being private properties. The public forests are allocated to several stakeholders: 7 % of the public forest area is owned by the Swiss federal state, 42 % are owned by political communities, 39 % is owned by civic communities and 12% is owned by other public stakeholders. In **Austria**, the situation is inverse. With a forest coverage of 48 % (4.0 mio. ha), 82% of these forests are owned by private forest owners, of which 54 % are small-scale forest owners. The federal government owns 15 % and municipalities own only 3 %. Austria has an annual growth of 30 mio. m³ of roundwood and harvests around 17 mio. m³ per year. Similar to Switzerland, the biggest share of the harvested wood is spruce and used for construction purposes. Austria and Switzerland have many forest-covered alpine areas, for which the protection functions are crucial and their management is of major concern no matter if it is profitable or not. About 30 % of the Austrian forests are designated as stands with protection functions against natural

hazards within the Forest Development Plan set by the forestry authorities. Wood industry in Austria is an important sector in terms of revenue, only exceeded by tourism. Therefore, the population is closer connected to the forests and are familiar with the needs and positive aspects of an active forest management. The influences on the political as well as the public developments are high. Compared to Switzerland and Germany, the economic management of forests has a higher acceptance in society. Switzerland has an annual growth of 10 mio. m³ of roundwood and harvests around 4.5 mio. m³ per year, the highest share has spruce which is mainly used for construction interests. Residues of the wood processing are used in an increasing share for the wood pellets production. The wood heating sector in Switzerland shows a persistent growth during the last decade and is supported by government funding, especially for the heating network sector, where mainly wood chips from hardwood (mostly beech) are used. There are many funding instruments in the Swiss forest sector for increasing digitalisation, mechanisation and silviculture with the objective to reduce costs during forest management. At the same time, this targets at achieving a perspective to the full use of the growing wood potential, which shall support climate change mitigation and simultaneously guarantee sustainable forest structures. Switzerland has a strong focus on developing a climate change adapted forest with high share of hardwood species in lower areas and softwood in higher regions. As Switzerland is characterised by alpine spaces, this has a strong effect on biodiversity, silviculture, harvesting and the overall cost structure in forest management actions. Forest stands also play a major role as protection forests against avalanches, landslides, floods and rock falls. Strict management regulations are therefore applied since a long time.

Germany has a forest coverage of 30 % (11.4 mio. ha), while the Federal states **Bavaria** and **Baden-Wuerttemberg** have a forest coverage of 37% (2.6 mio. ha) and 38 % (1.3 mio. ha), respectively. Germany has an annual growth of 120 mio. m³ of roundwood and harvests around 75 mio. m³ per year, with spruce being the most common species. Well developed multifunctional forest management principles meet the public claims concerning social, economic and ecological use. Southern Germany is known for its knowhow in silviculture and wood usage, e.g. Bavaria as well as Baden-Wuerttemberg have the highest percentage of wooden building rate. In Bavaria, 54% of the forest area are owned by private forest owners, 33% is owned by the Federal state Bavaria and the German state, 13% is owned by municipalities and cities. A distinctive characteristic is the high amount of private forest owners (around 700'000). Many, highly professionalised forest owner associations support private forest owners in the management. Already back in 2005, the former unified forest office structure was separated into a body, being responsible only for the management of the state forest (BaySF) and a separate body, being responsible for public tasks on forest administration. In the neighboring state **Baden-Wuerttemberg,** 36 % of forests are privately-owned, while 24 % are owned by the Federal state of Baden-Wuerttemberg and German state, 40 % are owned by municipalities and cities. The southwest of Germany is characterised by a high share of municipalities and cities owning forests, which leads to a high dynamism in implementing a multifunctional forest with a high percentage of hard wood species. Right now, Baden-Wuerttemberg is in the process of a cartel trail, which triggered a restructuring process of the governmental forest organisation, also having influence on future structures being responsible for private forest owners. Against this background, the fragmentation of properties, especially in the private sector, is one major obstacle to establish a professional forestry management and to augment the forest potential: many of the private owners are not interested in managing and understanding forest needs and structures.

Closely linked to the forest management, the wood-based industries in Germany, Switzerland and particularly in Austria are playing an important role for the national and regional economy. The general economic frameworks and the value chain are similar in the three countries. The chain of custody is highly developed in mechanisation and machinery. Effective processing methods and outstanding providers, service and logistic structures are established along the value-chain. The tradition in silviculture in Central Europe is tightly connected to its historical and cultural developments. Because of their forest cover between 30 % and nearly 50 %, the Central Hub regions have a high wood mobilisation potential (**Table 1**). Although some decisions of the past have led to

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unfavourable developments, the availability of natural resources is still of high important today. In this context, the economically oriented management of forests in Austria tends to have a higher acceptance in society than in Switzerland or Germany and represents a good foundation for sustainable wood mobilisation. These well-developed multifunctional forest management principles meet the public demands concerning social, economic and ecological use. This way, sustainable forestry management is embedded in the legal framework of forest laws and the regional governments and gets increased attention by the transition towards a bio-based economy.

Table 1: Overview of forest coverage and annual fellings in the Central European Hub

Region	Forest surface (ha)	Percent forest	Annual fellings (m^3)
Austria	4.0 mio.	48 %	25.9 mio.
Bavaria	2.6 mio.	37 %	75 mio.
Baden-Württemberg	1.3 mio.	38 %	
Switzerland	1.3 mio.	32 %	4.5 mio.

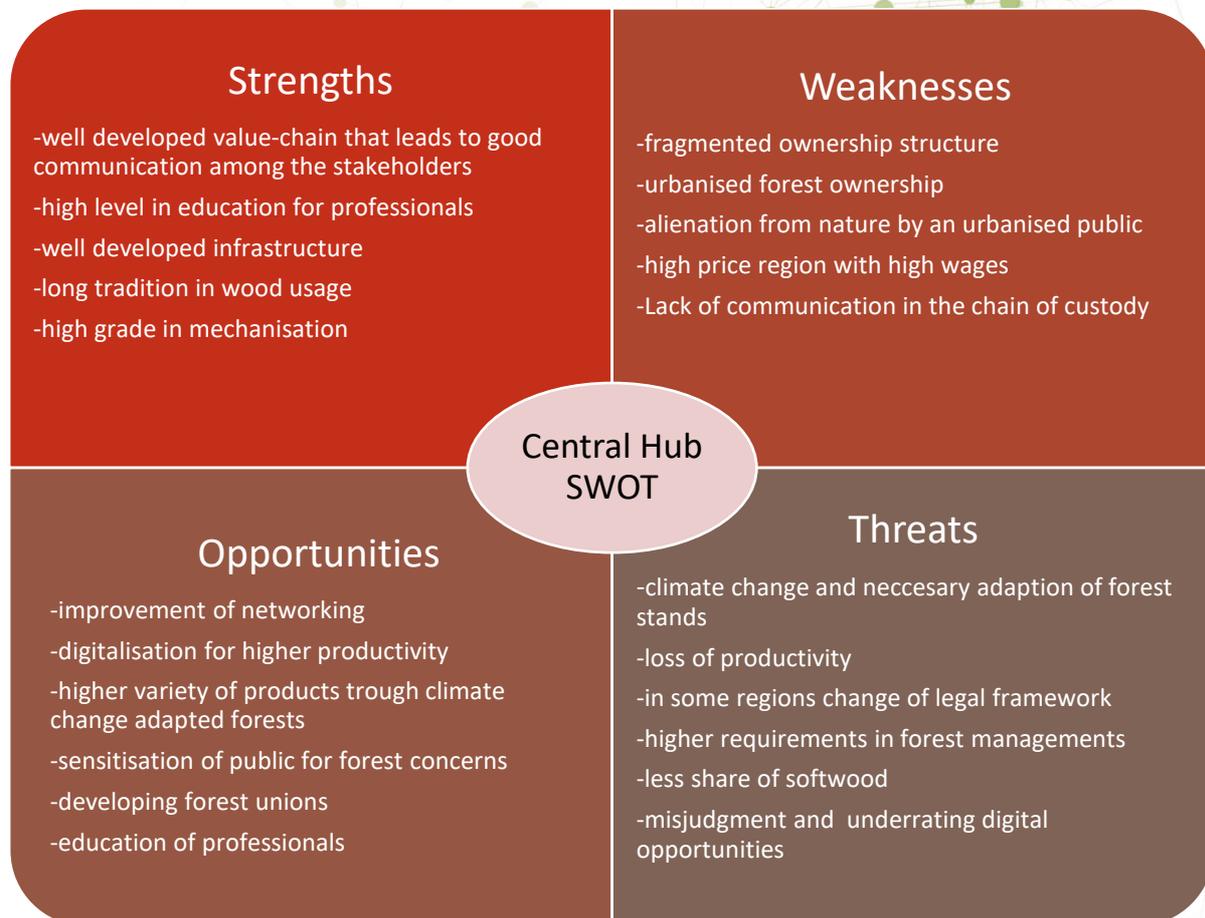### 1.1.2   MAIN FINDINGS

1.1.2.1   SWOT ANALYSIS

In the Central Hub, each of the three regions was analysed in local SWOT-analyses. The project partners have then discussed the findings and merged it into one SWOT for the Central Europe Hub. For this regional perspective, the main categories are displayed in **Figure 1**. The high quality infrastructure of the forestry sector is an important strength of the Central Hub region with its highly functional supply chain, which triggers and fosters communication of all stakeholders. Moreover, the Central Hub holds excellent knowledge of forest management and a well-developed round-wood market, which is an opportunity for the future development of the forestry sector. Well-trained professionals manage forests of any type of ownership professionally and sustainably. To compensate for high wages, it is necessary to maintain high productivity and excellent product quality. Due to the high harvesting prices and wages, reinforced by an ongoing alienation of urbanised forest owners, the Central Hub faces weaknesses in societal matters like communication, public interest and knowledge transfer. Due to the fragmented ownership with many private, small-scale forestry owners, some of the potential of the forests remains unused. This can further be detected by the lack of communication between the different sectors of the chain of custody.

In the forestry sector, digitalisation of harvesting and management services was identified as an opportunity to raise productivity. Education and communication to sensitise the wider public and urbanised forest owners is another opportunity. Especially urbanised forest owners without direct spatial or vocational affiliation to their forests might be reached to raise a sustainable mobilisation of roundwood by managing their stands. Furthermore, unmanaged forest stands with a high stock are a threat for the economy, society and ecology because of potential instabilities (e.g. storms, calamities such as pine beetles etc.). The consequences of climate change and thus the threats are difficult to estimate for the forest vitality and stability. Forecasts of climate change impacts show major impairments for forests, which might lead to losses in productivity. To address these impairments, forest stands need expedient management measures in relation to the area. The adaption is necessary to keep the stands healthy and resilient. However, the entire wood product industry still focusses on

softwood that is mostly harvested from monoculture-based spruce stands. To tackle for this weakness, adapting forests to climate change by e.g. increasing the share of hardwood is an urgent need. Monoculture stands have to be transformed to mixed, near-natural and permanent stands. On a long term, this could also become an opportunity in the transition towards a bio-based economy.

Strengths
- well developed value-chain that leads to good communication among the stakeholders
- high level in education for professionals
- well developed infrastructure
- long tradition in wood usage
- high grade in mechanisation

Weaknesses
- fragmented ownership structure
- urbanised forest ownership
- alienation from nature by an urbanised public
- high price region with high wages
- Lack of communication in the chain of custody

Central Hub SWOT

Opportunities
- improvement of networking
- digitalisation for higher productivity
- higher variety of products trough climate change adapted forests
- sensitisation of public for forest concerns
- developing forest unions
- education of professionals

Threats
- climate change and neccesary adaption of forest stands
- loss of productivity
- in some regions change of legal framework
- higher requirements in forest managements
- less share of softwood
- misjudgment and underrating digital opportunities

Figure 1: Overview figure of the Central Hub SWOT analysis

1.1.2.2   BEST PRACTICES AND INNOVATIONS IDENTIFICATION

The Central Hub region is rich in documentation concerning research projects and innovations. Based on the described infrastructure of Austria, Southern Germany and Switzerland, most of the gathered best practices (BP) and innovations (I) include various types of cooperation models, information platforms, digitalisation efforts, and educational activities. The collection of approaches comprises a wide range of approaches, out of which some can be exemplified as follows:

➢ To overcome structural disadvantages and foster communication, cooperation models such as networks and cluster initiatives exist in all of the Central Hub regions. *proHolz Schwarzwald, Holzforum Allgäu, Holzkette Schwarzwald e.V*. or *Initiative RegioHolz* are some relevant BPs that promote a better communication and exchange of information between different actors along the chain of custody. They also target and cover consultation and teaching programmes on forest products and management matters. Some of them receive regional governmental funds and have a proven impact on regional wood mobilisation.

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➢ Marketing events like #*Woodvetia* or the project *Schönbuchturm*, a wooden outlook tower, are representative BPs of regional or local actions to raise the awareness of the public for wooden buildings. In order to foster the regional chain of custody and make it visible for a broad public, authorities chose to finance these lighthouse projects.

➢ Further on, contemporary designed internet platforms like „*Wald wird mobil*" and new media applications are designed to share important information and knowledge- especially for urbanised forest owners and other stakeholders outside of rural structures. They also aim at improving data exchange between forest owners and forest service companies.

➢ Different kinds of forest management Apps *(fairventures, MOTI)* exist. They are programmed to collect data in the forest and/or give management advice. Moreover, these apps are designed to edit, evaluate and share gathered data with other users (e.g. potential service companies) as well as ease up forest procedures. These approaches help to evaluate the sustainability, the effectiveness of management measures and to fulfil the long-term approaches.

➢ A knowledge transfer project, initiated by *FHP-Forst Holz Papier* (forest products association) in Austria, invites cities and communities to information workshops. These workshops focus on sensitisation for forest matters to enable forest owners to take reasonable decisions and to manage theirs stands.

1.1.2.3   NEEDS ANALYSIS

The ongoing social-economical changes led to an increased diversity amongst private forest owners and their forest management objectives. One of the challenges results from the scattered and heterogeneous ownership structures with small private ownership and urban forest owners (see 1.1.1). These groups of forest owners, representing significant shares of the forest areas, can often not be reached by forest administrations with their traditional programs for counselling or encouragement. In order to create more tailored and effective consultation programs and policies, it is important to understand the individual backgrounds and interests among forest owners. In addition, forest owners would like to receive more or better advice and support on topics such as tending measures and nature conservation, as well as climate protection measures and forest conversion in times of climate change. Thus, the complexity of ownership requires individual answers and concepts adapted to the owners' interests and needs: present different forest management options, provide new kind of services as well as methods of communication, and address information to ease decision-making. Recommendations should be more flexible in terms of new owners' availability (time, location) and management purposes (forest conservation, recreation), use of modern media and technology, and establish new networking strategies. Milieu-based communication provides an opportunity for the forestry sector to build trust also amongst non-traditional owners. Further, politics need to be sensitised for the needs of the chain of custody. Therefore, the cooperation of authorities, associations, and forest owners should be intensified relying on modern communication and digitalization. Maintaining and improving forest infrastructure such as forest roads to contemporary requirements is a traditional field of politics and has to be adapted to changing needs.

1.1.3   DEVELOPMENT TARGETS FOR SUSTAINABLE WOOD MOBILISATION

Looking at the chain of custody, softwood products are still dominating in construction and chemical use. To keep the paper plants and sawmills in the Central Hub region alive, existing softwood stands need to be opened for usage. The largest potential of softwood stands is sitting in small-scale private owned forests. Therefore, the mentioned private forest owners need to be trained for managing their stands properly and supported for unlocking these softwood resources for industrial use. To fully account for the potential of the processes and machinery being highly developed in the sector, the urbanised society, especially urbanised forest owners, need to be sensitised how important wood usage is for regional value-chains and sustainability.

Accounting for the high price levels of the Central Hub region, the productivity needs to be further increased to improve the economic viability of the forestry sector. Therefore, the most promising approaches for the Central Hub were identified in the fields of digitalisation, communication, education and training approaches. Digitalisation holds the opportunity to harmonise and ease up processes in the forest management and the wood industry. Promising approaches are implementing contact and information platforms via internet and providing qualification for urbanised society in order to make them valuable for wood mobilisation.

1.1.4   BEST PRACTICES AND INNOVATIONS PRIORITIZATION FOR THE CENTRAL HUB

To face the weaknesses identified in the SWOT analysis, one of the most promising best practices is the platform "*Wald-wird-mobil.de*". It offers a network with a variety of information and assistance, accompanied by possibilities to exchange knowledge and skills. Through an attractive and target group-oriented website, all types of forest owners are addressed and motivated to sustainably mobilize their forests. This platform shall be further promoted by the government and wood sector related organizations. This way, an increased number of forest owners could be reached to unlock the full potential of this kind of community and networking platform. The best practices KomSilva and MojGozdar have similar targets, namely to improve communication between forest owners, forestry professionals and (public) authorities. Introducing a joint ownershop, e.g. based on projects from Finland or Germany, could help facing the problem of fragmented ownership and the lack of professional knowledge among private forest owners. Interested private owners can rely on several mobile or web-based applications (Metsään.fi, MOTTI software, Mobile Timber Cruise (MOTI), Fairventures, WoodChainManager), which are providing guidance and monitoring tools for private forest property management. All apps present a specific focus according to a thematic decision, a sustainability potential or simply a kind of wood. There are also differences in user-friendliness and accessibility – the easier the app usage is, the higher the frequency will be in a traditional domain like forestry.

Looking at the variety of approaches, it becomes evident that heterogeneity should be turned into an advantage, capable to respond to individual problems of forests owners, professionals and non-professionals. Hence, the roadmapping process concluded that a selection of three main action areas (digitalisation, education and networking) are relevant for implementation in the Central Hub. As described in the SWOT-section already, digitalisation projects offer the potential of strengthening the Central Hub region. The approaches identified from other regions are easy to adapt on an international scale, may support professionals and non-professionals in a thematically widespread field. With a proper implementation, an appropriate support and benefit for all groups of stakeholders can be expected.

1.1.5   IMPLEMENTATION OF THE ROADMAP

For the implementation process, there is a strong need for interconnected and trusting partners along the entire chain of custody (for example contractors, forest officials, wood industry, and the governmental forest services). Embedding all stakeholders into the project along the chain of custody is crucial for a successful implementation of projects. Especially for tackling complex, long-term projects, involving all actors with an efficient communication is a must for ensuring that everyone addresses the same targets. A time-efficient and high quality project implementation and follow-up is an essential process to ensure an efficient knowledge transfer process. This includes transmission, absorption, understanding and most importantly, use of the new knowledge. There are various ways to support these processes and they should be accompanied and triggered by suitable actions.

Firstly, educational events with networking opportunities are door openers to start an exchange between professionals. To attract those professionals in mind, these events need to have appealing and relevant contents, along with a practical relevance for a variety of stakeholders. Despite these rather general approaches, specific

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expert settings with target group specific objectives are required as well. Consequently, it is necessary to keep the demands of the target groups in mind and, at the same time, offer them the opportunity to widen their perspective. Against this background, ROSEWOOD targets at improving the education and financial support programmes in a Wood2Excellence approach. This way, education schemes will be adapted to regional needs and changes in the wood industry. In this context, the regional Hubs in ROSEWOOD are facilitating the networking and communication between European regions, forest owners, companies and public authorities in the regions, as well as of all stakeholders along the value-chain.

Secondly, the selected best practices for strengthening the Central Hub should be assessed in detail within the network. During this process, (additional) innovative ideas can develop while reflecting and debating the best practices. Thus, business idea creation workshop complement the knowledge transfer process to identify and develop new ideas for tackling the needs with new approaches as well. In the context of ROSEWOOD, developers are brought together in business idea creation workshops.

Thirdly, for the implementation of the best practice transfer, a promising concept could be to offer workshops with a more practical concept. Workshops like "hackathons" for programmers or "Venture Weekends" for business ideas may serve as platforms for unfolding creativity for the wood sector. In the same way, companies along the wood value-chains can benefit from B2B-events, site-visits, and presentations from other regions.

Finally, the forestry sector in the Central Hub regions is often facing the threat of misleading information. The urbanised public fears an overexploitation of forest resources. Hence, it is quite difficult to argue for increasing harvests. Against this background, authorities should play an active role as service and knowledge providers and should promote a better communication on forestry topics. In order to unlock potentials of private forest owners, they must be provided with forestry knowledge and skills for forestry management. This way, they are prepared for educated decision and the necessity to increase more wood in a sustainable manner. Therefore, the must learn about environmentally friendly procedures.

In the ROSEWOOD project, a number of workshops and events will further steer the knowledge transfer and the establishment of innovative approaches. In the upcoming period, another business idea creation workshop is planned for October 1st in Stuttgart. A B2B event in October shall provide the opportunity for the stakeholders to get in contact and/ or strengthen their relationships. Further, innovative best practices will be presented to the public and to stakeholders. With the "road-to-excellence" concept, which involves high-level policy makers, stakeholders will be obtain information about possible funding schemes, regulations, and support programmes from other European regions. Thus, the knowledge transfer between European regions, if mindfully planned and successfully implemented, will steer the development towards a forest-based bioeconomy in Europe.

1.1.6   CONCLUSION AND OUTLOOK

The roadmapping process covered different approaches and methods for assessing and processing best practices and innovations, the existing frameworks and needs of the forest sector. In the process of screening and evaluating the best practices in the expert panel, the Central Hub partners found a high potential of implementing workshops for knowledge transfer. Even though there is a big variety of networks and cooperations already in place, the Central Hub faces challenges and difficulties induced by its forest-owner structures. Large numbers of forest owners are not managing their forests actively, as they are "urban-forest owners". Thus, large potentials of wood potentials remain unused. This situation can also be found in other European regions, e.g. in Finland. Thus, exchanging and transferring knowledge and best practices provides important potentials for unlocking sustainable wood potentials and provide added-value to the regions. Together with the forest experts, a list of best practices on cooperation, education, digitalisation and platforms/ apps were selected that proved successful in other regions. Digital solutions and platforms offer opportunities to strengthen

the Central Hub. Therefore, it is necessary to intensify and facilitate the knowledge transfer into the chain of custody to stimulate existing dynamics. This way, the ROSEWOOD network encourages the uptake of new approaches and promising ideas from other European regions, but also promotes and supports the provision of best practices and innovations for other regions through the web-portal. During the next months, a series of workshops is planned for intensifying the knowledge creation, exchange and transfer in the Central Hub. Hereby, the extended networks of regional and cross-sectoral stakeholders give rise to the opportunities of the knowledge transfer process initiated by ROSEWOOD.

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