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LIST OF ABBREVIATIONS

CN = Collaborative network(s)

DTP = Danube Transnational Programme

FBIs = Forest-based industries

FORESDA = Project "Forest-based cross-sectoral value chains fostering innovation and competitiveness in the Danube region"

HMS = Home market sales

IDW = Project ID:WOOD “Clustering knowledge, Innovation and Design in the SEE WOOD sector”

IP = Innovation project(s)

JSA - Joint swot analysis

LIAPs = Project output 3.2 Local innovation action plan(s)

MH = Methodology handbook

PP = Project partner(s)

PC/R= Project countries/region(s)

RIS = Regional innovation system(s)

R&D&I = Research, development, and innovation

TS = Transnational Strategy (Project output 3.1 Transnational strategy on Cross-sectoral Level)

WB panels = Wood-based panels

TSP = Transnational Sustainability Plan

TTO/KTO = Technology transfer office/Knowledge transfer office

WP = Work package

EXECUTIVE SUMMARY

The Transnational Strategy on Cross-sectoral Level (O.3.1) is focused on improving the framework conditions for forest-based cross-sectoral value chains, and addresses the identified needs for further development and an increase of R&D&I activities with respect to the regional innovation systems. The TS is a result of the first year FORESDA project activities, which were related to the regional mapping, SWOT analysis and selection of needs regarding forest-based sectors and regional innovation environments in the project regions (Germany, Slovenia, Austria, Hungary, Croatia, Romania, Bulgaria, Serbia, Bosnia and Herzegovina). This strategy contributes explicitly to foster cross-sectoral, transnational innovation activities with respect to the other project activities: set-up of pilot innovation environments (WP4), the establishment of collaborative networks (WP5) and capacity building activities (WP6) addressing the needs identified in the TS. Taking into account the input from the regions, the PPs develop and jointly commit to this 5 years strategy. In addition, the TS addresses the real market need as a result of the several validation workshops that project partners organized in their regions, gathering relevant stakeholders from forest-based industries and regional innovation systems.

1. INTRODUCTION

1.1 BACKGROUND - FBI SECTOR PROFILE

Forests and other wooded land occupy over 44% of the EU's surface and represent 5% of the world's forests. In the last 50 years, both their area and the standing timber volume (growing stock) have continued to grow. Nowadays, they gain almost 700,000 ha annually.

The EU forest-based industries consist of four major sectors: woodworking, furniture, pulp and paper manufacturing and converting, and printing. They represent about 7% of EU manufacturing GDP. In 2011, they had a combined production value of €460 billion, with a total added value of €135 billion on a turnover of €485 billion. Forest-based industries provide nearly 3.5 million jobs across over 400 thousand companies, most of which are small and medium-sized or micro-enterprises. Raw material used by the forest-based industries provides income to around 16 million forest owners in the EU, and about 70% of the wood in the EU is used in construction and furnishings. FBIs are probably most important industries for the development of rural areas because they help maintain employment and wealth generation in rural areas. At the same time, the FBIs have expertise in wood and wood fibre, which is a natural renewable bio-based resource with carbon storage properties, and currently therefore at the forefront of developing a low-carbon bio-economy.

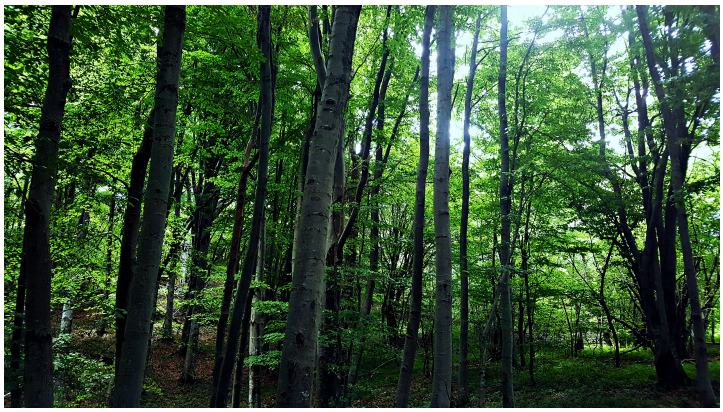
Forest-based industries furthermore have the potential to become an important tool in the development of the sustainable and competitive bio-economy in the Danube area, which stretches from the Black Forest (Germany) to the Black Sea (Romania-Ukraine-Moldova) and is home of roughly 120 million inhabitants, covering approximately 800.000 km^2.

FORESDA project gathered almost all of the Danube region countries (all but Czech Republic, Slovakia, Ukraine, and Moldova), and the conducted researches show that on a macro-regional level, the competitiveness of the forest-based sector is at the moment significantly determined by a low level of innovation culture, especially in the South-Eastern regions, low level of internationalization of SMEs, poor national and transnational coordination at the institutional level, and difficulties in commercializing of

Danube Area. *The catchment area of the Danube has a population of roughly 120 million and covers approximately 800.000 km², extending over 14 states, among them nine EU-member states (Germany, Austria, Czech Republic, Slovakia, Hungary, Slovenia, Croatia, Bulgaria and Romania) and five countries which are not EU-members (Serbia, Montenegro, Bosnia and Herzegovina, Ukraine, and Moldova) Picture source: http://www.danube-region.eu)*

research results. Furthermore, the impact of climate changes, growing competition for wood resources, demanding consumer groups, changes in the production processes and a lack of qualified workforce, also cannot be ignored when creating a new development paradigm for forest-based industries.

The transformation of traditional forest-based industries into sustainable manufacturing areas by an innovative cross-sectoral and transnational approach cannot be performed without the development of supporting cross-sectoral collaborative networks. In the same time, building up of necessary supportive capacities in clusters, intermediaries, education and research organizations and policymakers is an essential part in the process of increasing of effectiveness of collaborative research and innovation activities, and a capital activity if aiming to create a durable transnational approach and strategy for the development of the forest-based sector.



***EU is Rich in Forests**. While forests occur in all major EU regions, they are more concentrated in mountainous areas and in northern EU countries. EU forests are varied, usually having mixtures of both coniferous and deciduous species. The ownership of these forests varies between countries but they are on average 40% publically owned by state or local authorities and 60% privately owned by individuals, companies, or churches.*
(Picture source: Croatian Wood Cluster)

1.2 Objectives and Expected Results

The core objectives of the Transnational Strategy are related to the most important FORESDA specific objectives, which mainly focus on the fostering of cross-sectoral, transnational innovation and strengthening of ecosystems. These objectives will be achieved by setting up activities, which will enable a strong interaction between the traditional forest sector with other sectors (ICT, creative industries…). Another focus of the FORESDA objectives is on building up of the necessary supporting capacities of the main stakeholders – particularly clusters, education and research institutions and policymakers – by ensuring a transfer, take-up, and development of methodological knowledge, tools and an appropriate support portfolio for the development of cross-

sectoral value chains. The main objectives of the FORESDA Transnational Strategy can be summarized as follows:

- To open up, broaden and further develop the FBI sectors' research and innovation system and in particular to develop new sources of innovation and to strengthen the networking capability of the participating actors and organisations;
- To increase the efficiency and orientation to results of the FBI sector regional innovation system by implementing innovative forms of knowledge transfer and incorporating to a greater extent the needs of society, business, and public administration into the research and innovation system;
- To move towards strategic thinking for innovation-oriented regional development and cross-sectoral activities;
- To develop a broader understanding of the concept of innovation, different from technology transfer, and put this higher on the policy agenda;
- To support clarifying of the scene of innovation support infrastructure and to develop actions to rationalise, better define and augment the visibility of this infrastructure;
- To develop mechanisms and incentives to create a regional dialogue in fragmented regions (in geographic, institutional and cultural senses);
- To encourage the increase of absorptive capacities of regional policy-makers and policy implementers towards new ideas and new practices in innovation policy;
- To achieve a deeper understanding of the regional innovation system and its role in the cross-sectoral collaboration;
- Boosting up innovative and sustainable cross-sectoral collaboration of FBI sectors inside and outside the value chain.

Expected impacts of the Transnational Strategy go beyond a period of five years because of the planned transferability and durability of the project outputs, which is especially emphasized through the Local Innovatio Action Plans (O.3.2) for improved

technology transfer and innovation processes in SMEs of the forest-based sector defined for each project region, which should be in coherence with the Transnational Strategy, then the LIAPs will be defined for the duration of the project, with clear operational objectives. However, most of the actions are expected to be durable by nature, i.e. if the implementation during the project is successful they are expected to be continued by the project partners or relevant regional stakeholders as part of their activity portfolio. Furthermore, the replicability of the project outputs will also contribute to the impacts of this Strategy, then the methodological approach for the development of the Transnational Strategy, and Local Innovation Action Plans will be documented as part of the strategic process and re-usable for any region with similar needs for boosting of the regional innovation systems.

Therefore, the expected impacts are as follows:

Industry 4.0 and Forest-based Industries

Industry 4.0 introduces what has been called the "smart factory," in which cyber-physical systems monitor the physical processes of the factory and make decentralized decisions. The physical systems become the Internet of Things, communicating and cooperating both with each other and with humans in real time via the wireless web.

For a factory or system to be considered Industry 4.0, it must include:

- *Interoperability — machines, devices, sensors, and people that connect and communicate with one another.*
- *Information transparency — the systems create a virtual copy of the physical world through sensor data in order to contextualize information.*
- *Technical assistance — both the ability of the systems to support humans in making decisions and solving problems and the ability to assist humans with tasks that are too difficult or unsafe for humans.*
- *Decentralized decision-making — the ability of cyber-physical systems to make simple decisions on their own and become as autonomous as possible.*
-

Reports have even suggested that emerging markets like India could benefit tremendously from Industry 4.0 practices, and the city of Cincinnati, Ohio has declared itself an "Industry 4.0 demonstration city" to encourage investment and innovation in the manufacturing sector there. The question, then, is not if Industry 4.0 is coming, but how quickly.

Text Source: Forbes / Picture Source: Croatian Wood Cluster

- To increase FBI sectors economic competitiveness on national and transnational levels;
- Help regions to become economically resilient and agile;
- Improvement of the quality of life in communities dealing with the FBI sector;
- Achieving of an improved efficiency of the support infrastructure for innovation and technology transfer;
- The enhanced institutional capacity of regional institutions;
- To help regional leaders form multi-sector partnerships to develop competitive, environmentally responsible strategies for economic development
- Opening windows of opportunities for firms to favour innovation, both through a variety of types of knowledge useful for their activities and through access to foreign sources of knowledge;
- Supporting the development of innovation management capacities in firms;

Deliverables that led to the Transnational Strategy:

D.3.1.2 Regional Mapping
PPs collected information related to the state of development of the regional clusters and their regional innovation systems and compile a mapping for each region;

D.3.1.3 Regional Validation Workshop
In each project region, a workshop dedicated to the validation of the mapping by the relevant stakeholders took place. A significant part of those workshops was dedicated to the SWOT analysis of each region with respect to forest-based innovative cross-sectoral activities. Stakeholders from policy, business, academia and innovation support were invited to take part;

D.3.2.1 Benchmarking – Joint SWOT analysis
On the basis of the regional mapping and analysis performed in each project region, a comparative benchmarking and SWOT analysis of the consortium in relation to the scope of the project was elaborated and validated during a dedicated project meeting. The scope of the SWOT analysis of the consortium especially encompassed (1) Cross comparison of the regional innovation systems, and (2) Identification of education, research, innovation and policy gaps as well as complementarities and synergies

D.3.2.2 Report on existing environments
Taking into account the identified needs, relevant initiatives involving multiple actors, were identified via a desk research and interviews, which should provide a basis for the development of support environments within the project, primarily in the project regions and countries, on the basis of the initial mapping, but also on European and international level thanks to expert interviews and desk research.

D.3.2.3 Selection of needs (Joint Action Plan)
On the basis of the joint SWOT analysis, the PPs selected needs for the development of support environments fostering transnational and cross-sectoral innovation activities to be addressed in the framework of FORESDA (Joint Action Plan).

- Transforming the underlying "best practice" framework for inter-regional exchange activities into favouring exchange in a learning perspective;
- Putting more emphasis on human resources as main carriers of knowledge to support innovation moves.

1.3 WHY ADOPT A JOINT STRATEGY?

The enhancement of the regional innovation capacity means the enhancement of the cooperation processes of all relevant stakeholders within one region, and having a strategy for it is a good start. However, even better starting position can be obtained by having a transnational strategy, which encompasses the analysis of challenges, approaches, and tools, as well as innovations implementation within FBI, in each of the Danube region.

The joint strategy ensures an integrated and detailed approach supported by the long-term perspective, with regard to the international dimension and improved cooperation within the EU regions. In that way, the key learnings acquired through the project activities highlight the key problem areas of the cross-sectoral collaboration topics of FBIs, and possible strategic approach in the future needed to better understand them and identify necessary adaption. The gained pertinent learning from the Transnational Strategy and Local Innovation Action Plans (WP3) as well as from the Pilot Innovation Environments (WP4) and Collaborative Networks (WP5), will be integrated in the FORESDA Transnational Sustainability Plan and coherent Local Action Plans (WP6), which should ensure the roadmap guidelines on improving the framework conditions for forest-based cross-sectoral value chains, including strategic but also operational objectives.

2. CROSS-SECTORAL COLLABORATION WITHIN FOREST-BASED INDUSTRIES: CHALLENGES AND PRIORITY AREAS

2.1 INTRODUCTION

The FORESDA Transnational Strategy was developed in the process of the project activities: The results of the starting activities related to the regional mapping of FBI and collaboration with other sectors with the support of RISs directed the further focus of the project. The following activities connected to the specification of transnational needs for successful cross-sectoral innovation showed that FBI sectors across the Danube region struggle with the similar system gaps related to the activities (and its results) conducted within the framework of most common RIS entities: ministries, professional chambers and associations, regional development agencies, higher education and research organizations, clusters and other relevant institutions. Those gaps could be grouped into four thematic sections and are selected as priority areas for the TS implementation, as well as for the development of the LIAPs: “Policy & Legislative Support”, “Image & Lobbying”, “Funding & Business Environment”, and “Education & Human Resources”.

2.2 FORESDA TRANSNATIONAL STRATEGY ON CROSS-SECTORAL LEVEL

The FORESDA Transnational Strategy on Cross-sectoral Level tackles following four priority areas with different joint and local actions:

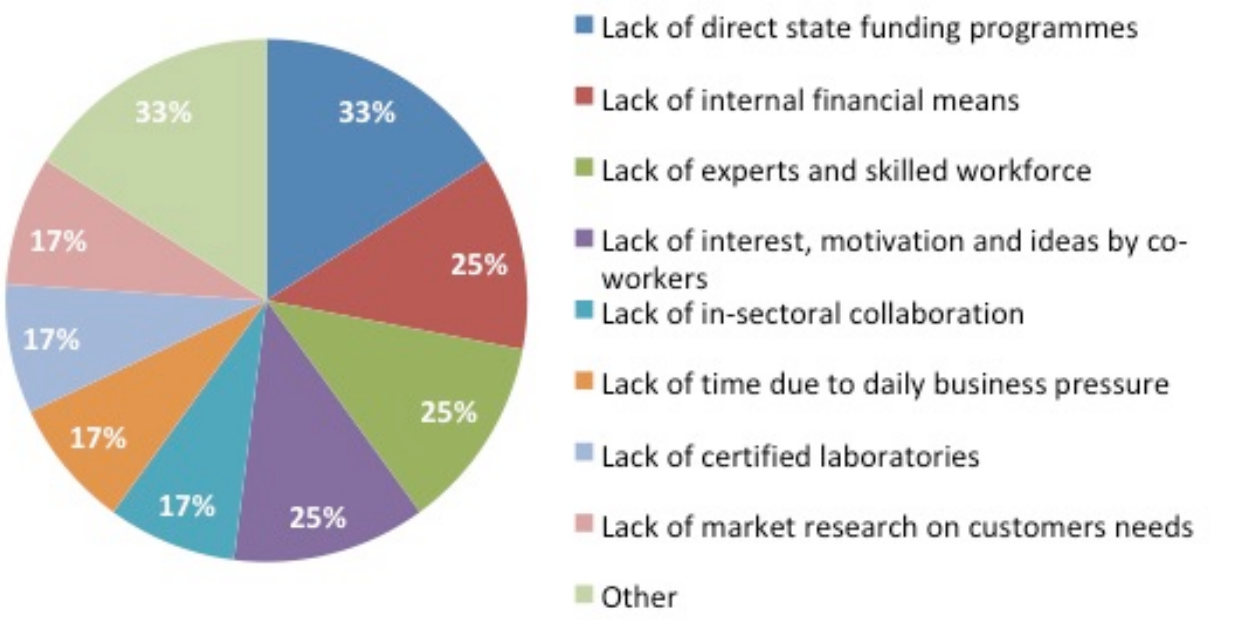
- Priority Area 1: Image & Lobbying
- Priority Area 2: Policy & Legislative Support
- Priority Area 3: Funding & Business Environment
- Priority Area 4: Education & Human Resources.

FORESDA Transnational Strategy is to tackle those priority areas, which mirror the main weaknesses of the FBI sectors. This will be done by other project operations that are grouped around three major activity groups:

1. **Set-up of pilot innovation environments (WP4)**

The main goal is to develop pilot innovation environment concept with regional but also transnational dimensions. Each concept shall clearly define the operational objectives, responsibilities, resources, and timeline for implementation. Each pilot will be implemented, with the aim to (1) test innovative approaches to foster forest-based cross-sectoral innovation, and (2) involve forest-based SMEs, and education and research organizations in regional innovation projects. The implementation of the pilots will be monitored during the whole duration of the testing phase on the basis of qualitative and quantitative criteria, and by the end of the pilot phase, an evaluation of all pilots will be performed and provide a basis for learning interactions and replication in further DTP regions.

Fig. 1: The Biggest Challenges to Overcome in Implementing More Innovations within FBIs



The chart values show the results of the survey within FORESDA project. The survey was done among the FBI and RIS stakeholders, as part of the regional mapping activities (D.3.1.2) during 2017. Three biggest challenges to overcome in implementing more innovation in the business are in all project countries related to the lack of direct state funding programmes, lack of experts and skilled workforce and lack of internal financial means.

2. **Establishment of collaborative networks and innovation projects (WP5)**

Transnational and cross-sectoral innovation will be fostered here through the establishment of the collaborative networks (CNs), which are defined as international, cross-sectoral networks of SMEs, large companies, and education and research organizations. As identified in the Figure 1 (pg. 12), the two biggest challenges of the FBI are lack of state funding programs and internal financial means, which motivates the FORESDA consortium to focus on existing international as well as available national funding schemes to achieve long-term, sustainable results with the planned activities.

They will be established to develop joint innovation agendas, and through their activities, to generate and validate cross-sectoral and transnational innovation activities in the selected strategic innovation areas, which are already defined as main thematic fields of Pilot Innovation Environments (WP4):

- Smart and sustainable construction and furniture,
- Innovative bio-based products and materials – non-conventional uses of wood-based materials,
- Energy efficiency.

The aim of those activities is to provide support to at least 90 SMEs in establishing cooperation with R&D and innovation projects (IPs). Selected networks, projects, and ideas for sustainable business cases will receive support from experts out of the consortium mostly and additional external experts in specific cases. Both the IPs and CNs will make use of the pilot environments as part of the support, and if possible, the PPs will identify synergies with regional, national and European funding schemes.

3. **Capacity building activities (WP6)**

Support organizations (clusters, technology poles, regional development agencies, etc. in the wood sector) are one of the major tools for increasing innovations and competitiveness in the sector, and without building their capacities, it will be impossible to realize cross-sectoral projects within FBIs. The operations linked to those

activities intend to improve the impact and efficiency of support organizations in the project regions – and beyond - by improving their internal skills and organization and strengthening their intermediary role between the productive sector and the knowledge poles on regional, national but also transnational and cross-sectoral level.

The implemented activities will be linked to the mutual learning & mentoring activities (via mentoring and knowledge transfer, study visits etc.) and development of the Transnational Sustainability Plan (O.6.3), and following Local Action Plans (D.6.2.4). The TSP should actually complete the TS with the aim to define clear steps for the sustainability of the FORESDA partnership and its outputs beyond the termination of the project. The LAPs (D.6.2.4) will describe the planned activities for ensuring the implementation of the Transnational Sustainability Plan for each project region separately, including the commitment of the relevant stakeholders.

In order to understand the necessity for this detailed approach, which links the FBI and RIS on the horizontal but also vertical level, the single priority areas and actions are described in detail in the following sections:

2.2.1 Priority Area 1: Image & Lobbying

Forest-based industries are almost always connected with some traditional industry approach. They are considered to be as old-fashioned and conservative sector. General public furthermore does not expect high-tech in this sector and often links it with the negative associations related to the environmental and climate issues. Often, all sorts of green actions contribute to this negative image, suggesting that cutting trees is bad for the sustainable development. The lobbying activities happen often on isolated levels, and financial means for the lobbying are much more available than for some other industries, especially when it comes to the fossil fuels.

The results of the existing support environments analysis within FORESDA show that related promotional activities are yet being performed, but mostly with limited results and with a vision that often does not involve cross-sectoral activities. The social and

economic impact that those sectors have are often not recognized on the national, but only on the regional level, and it is expected that the importance of FBI sectors will rise

***Regional Branding Example**: Made in Vermont. Regional branding can directly influence on the product price: the available researches show that furniture branded as Made in Vermont can achieve up to six percent higher price on the market when compared to other Northern Forest brands. Regional branding, therefore, presents a way of promotional strategy, which includes all activities that make some area attractive for living, working, and entertainment, by encouraging the development of the regional economy and contributing to the regional development. All available studies show that there is no standard manual on the development of the regional branding; Each region is marked by its specific physical, social, cultural and historical characteristics, which define the specific context for the branding of a region. The only thing in common to each of those regions is a strong passion on the mobilization of the inhabitants to be involved in the development of their region. Source: http://vermontwoodsstudios.com*

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because of the trends and policies related to the development of the rural areas, not just in EU but also on the worldwide level.

Therefore, the continuous activities in each priority area should focus on further improvement of the FBI sectors' by creating different actions with the accent on cross-sectoral potential in the form of:

- Development of joint promotional campaigns that will use the cross-sectoral potential as a generator of a sustainable economy and society development
- Raising awareness on the importance of cross-sectoral activities and projects among business society, policy-makers and broader public sector in order to

help various stakeholders understand that sector strategies on cross-sectoral collaboration are important as a “new way of business,” and that they are not just another “program " or "policy paper"

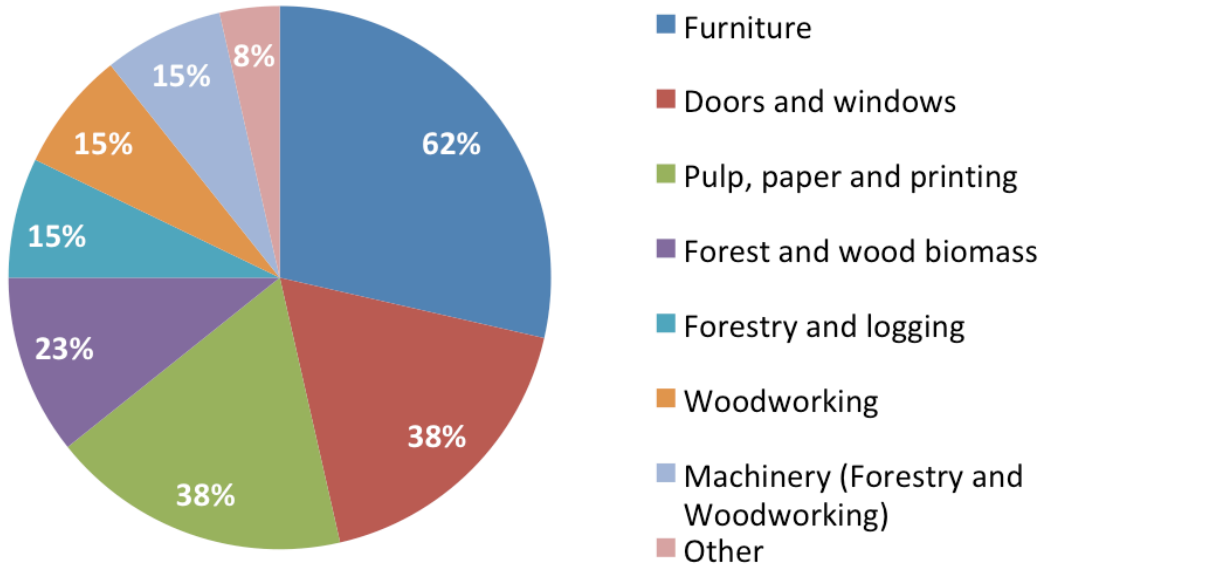
- Tracking the realisation and further development of cross-sectoral activities and trends in order to promote the cross-sectoral collaboration with the help of "real" results and business indicators
- To strengthen lobbying organizations and activities on both formal and informal levels in the Danube project region, considering the differences in the perception of FBIs on the regional, national and international level and by putting the accent on the impact on the transition towards a low-carbon and resource-efficient economy.

2.2.2 Priority Area 2: Policy & Legislative Support

Already some previous FBI strategy documents (2013 Blueprint, EU Forest Strategy etc.) underlined the importance of ensuring coherence and consistency in EU legislation to provide a predictable environment for businesses. However, it is clear that some policies or legislative elements may overlap or have conflicting goals or effects, so further coordination and adjustment activities are needed, as well as to ensure better information flow within forest-based industries but also other sectors. Especially policies related to the rural development and regional development topics should be considered in the following processes related to the providing of more quality support for R&D and innovations environment in forest-based industries:

- To remove barriers and coordinate strategies on regional, national, but also cross-regional level in order to create a common vision and to support relevant stakeholders in the establishment of the collaboration on the cross-sectoral level
- To encourage initiatives towards the inclusion of the sector strategies into statutes, laws etc. to secure development of the funding schemes but also education and training programmes on cross-sectoral projects

Fig. 2: The Highest Activity in Implementing of Innovations According to Sub-sectors



The chart values show the results of the survey within FORESDA project. The survey was done among the FBI and RIS stakeholders, as part of the regional mapping activities (D.3.1.2) during 2017. The survey results show that the highest activity in implementing of innovations is in the sub-sector of furniture production, and one of the lowest is in forestry, logging, and woodworking.

- To set up a fiscal regime beneficial to innovation and to create a favourable legal and regulatory framework as a support to the R&D&I activities on the regional level
- To develop action plans on how to raise the level of importance of cross-sectoral activities in terms of national investment priorities
- To start activities towards alignment of the official NACE codes with the real economy trends and diversification of the sub-sectors
- To create a new communication paradigm between supporting structures and SMEs in order to overcome the challenges related to the lack of communication, lack of direct state funding for cross-sectoral topics, and lack of interest and motivation by supporting structures.

2.2.3 Priority Area 3: Funding & Business Environment

Ensuring cross-sectoral approach within FBIs' innovation projects means to build a new business culture and norms to facilitate new ways of working. However, the current availability of the funding sources related to the R&D&I and cross-sectoral topics within FBIs, are still on the poor level. Therefore, the strategy in this priority area is mainly oriented towards the improvement of the existing funding schemes and procedures. At the moment, the existing government-sponsored growth incentives are not putting an accent on cross-sectoral projects and therefore the future actions related to this priority area should meet the need on reinforcing the business environment for cross-sectoral collaboration through the following activities:

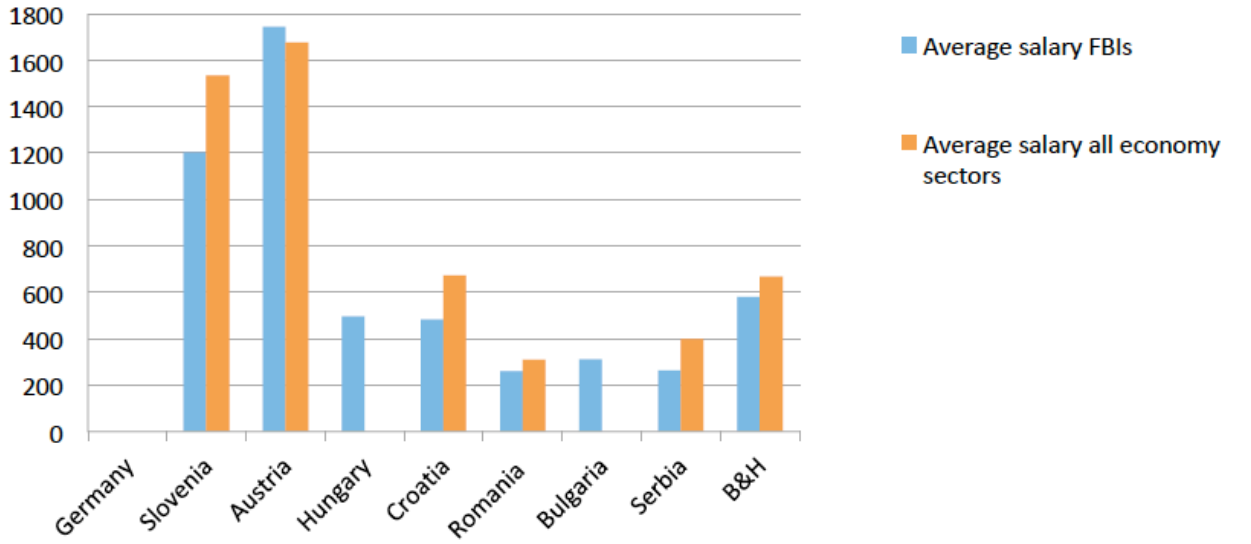
- Support for the development of funding schemes on how to intensify the collaboration between R&D and business sectors, especially related to cross-sectoral projects
- Development of models to encourage innovation in enterprises, especially SMEs, and strengthen the regional dimensions of cross-sectoral innovation, including support to spin-offs, and start-ups of SMEs, as generators of new innovations, and cross-sectoral development
- Initiating the improvement of the financing system of cross-sectoral innovations and related R&D&I activities between companies, in order to support companies' investments in that business area, but also by supporting of public-private partnerships on cross-sectoral collaboration for sustainable economic development
- To create tools for the companies in order to facilitate the use of funding programmes for SMEs since the researches show that companies' low-level use of the programmes is often a result of the lack of information and a complicated application process on the funding possibilities.

2.2.4 Priority Area 4: Education & Human Resources

Education and human resources tend to be the most delicate priority area of FBIs, which could have a long-term negative impact if not addressed properly in the next

years. The available data from all forest-based subsectors show a mismatch between the knowledge and skills gained during the education period and the knowledge and skills industries actually need.

Fig. 3: Average Salary of FBI Companies Compared to All Economy Sectors (2007-2015)



The chart values show the results of the survey within FORESDA project. The survey was done among the FBI and RIS stakeholders, as part of the regional mapping activities (D.3.1.2) during 2017. The experience of the PPs show that information related to the average salary in FBIs was often not available, and this is a result of the poor position of those industries in the economy, with the exception of Austria. Furthermore, the data show that salaries in FBIs are in average between 20 and 30 percent lower than in other sectors (also with the exception of Austria).

According to the results of the available researches, the companies believe that main reason for it is that the educational programmes don't put enough accent on the importance of innovations and R&D topics. Another important reason is that the FBI companies are mostly situated in the rural areas, which are not so attractive, especially for young people. Therefore, it is essential to start the activities towards:

- Provide knowledge for the reconstruction of the educational and training programmes in order to overcome the mismatch between the "learned" and "market needed" knowledge and skills

- Implementing more cross-sectoral topics and example projects into educational programmes
- The attraction of young people, especially women, to the industry by putting an accent on R&D and cross-sectoral innovations as a major growth accelerator in creating the sustainable FBI business environment
- Support activities and projects for the re-training of the workforce and raising awareness on the importance of lifelong learning in order to secure the technological improvement and sustainable development of FBIs.

However, it is also important to encourage parallel activities related to the education of the staff in policymaking institutions, dedicated to coordination of the programmes, projects, and activities, so they could recognize and provide more opportunities for cross-sectoral activities in the future.

3. IMPLEMENTATION AND SYNTHESIS

This TS is developed upon for a period of five years and include objectives to be achieved during the project but also beyond. The implementation is ensured via Local Innovation Action Plans (O.3.2), which are specific for each project region, and defined for the duration of the project, with clear operational objectives. However, most of the actions are expected to be durable by nature, i.e. if the implementation during the project is successful, it is expected that the project partners or relevant regional stakeholders continue with those activities as part of their activity portfolio. The project partners are also expected to integrate the outputs in their institutional strategic and financial planning in order to improve their own effectiveness and efficiency.

The challenges, approaches, and innovations observed from the project regions' LIAPs implementation with regard to monitoring, learning and adaptation will be summarized in the Transnational Sustainability Plan (O.6.3) beyond the project lifetime. This document is planned to be a project output of FORESDA and will be dedicated on improving the framework conditions for forest-based cross-sectoral value chains, including strategic but also operational objectives, thus extending the initially this Strategy. Also here PPs will develop local action plans (D.6.2.4) aiming at ensuring a coherent implementation of the Transnational Sustainability Plan in each project region, and this will include the preparation for larger investments enabling the implementation at a broader and durable scale of the Pilot Innovation Environments developed within FORESDA.

The main characteristics of the described synthesis are:

- Linking local, national, regional and global priorities, actions and stakeholders
- Linking different sectors
- Coherence between budgets and strategical priorities
- Linking the short-term to the medium- and long-term plans and actions.

This vertical and horizontal coordination represents basic linkages aiming to ensure the implementation of both strategies and experiences and lessons learned during the project implementation. However, those linkages also ensure transferability and durability of the project outputs, especially in terms of replicability of the strategic processes for any region with similar needs related to the FBI, regional innovation system, and cross-sectoral collaboration.

4. CONCLUSION

Although the forest-based industries have a centuries-old tradition in the Danube region, they are often considered as outdated and old-fashioned. They tend to have negative perception because of the linkages with the illegal cutting of forests or cutting in general. The relative not so good image of those sectors is a result of poor lobbying and humble attitude of the relevant stakeholders, which is probably linked to the fact that FBIs are low cumulative industries, mostly situated in the rural areas. This also means that, besides the common daily challenges of the industrial production, they have to deal with all the problems created by their rural position on a daily basis, and in this scenario lobbying, image, promotion and similar activities cannot be their priorities.

However, the fact is that FBIs have a great basis to become an important generator of sustainable and cascade economy, which potential still needs to be revealed. New products are needed to meet changing societal demands of 21st century consumers, and FBIs can provide them. The orientation towards sophisticated, higher-value wood products will be essential, not just for the EU markets but also on the global level.

These require new processes and business models, such as cross-sectoral approach, but also improvement of the quality and efficiency of the production and selling processes, products and related services. Those can be and are already being developed as bio-based products, which integrate also added-value approach, and innovations are an indispensable element of those processes. FBIs' level of innovation implementation within the cross-sectoral collaboration should be therefore significantly improved.

The Forest-based Sector Technology Platform (FTP) is a key independent instrument for coordinating sectoral RTD and innovation strategy, but the access to projects still remains difficult for small and micro firms, which are most common in FBIs, and for which development is expensive, representing often a high risk.

Therefore, in order to realize a full potential of the FBIs, some strategical changes need to be planned, and intensifying of the discussion on the innovation as an essential element of the European industrial culture should be a starting point. Regional innovation systems' approach to the FBIs on the European level needs to be improved, especially when it comes to the cross-sectoral topics. This Transnational Strategy tackles four priority areas, which create the framework for the needed changes: Image & Lobbying, Policy & Legislative Support, Funding & Business Environment, and Education & Human Resources. The proposed actions are complementary and should ensure a general alignment of the FBIs potentials in the contribution to the creation of the sustainable and low-carbon societies, not only across the Danube region but on the global level.

5. SOURCES OF INFORMATION

FORESDA deliverable 3.1.2 Regional Mapping
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FORESDA deliverable 3.2.1 Benchmarking – Joint SWOT analysis
FORESDA deliverable 3.2.2 Report on existing environments
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FORESDA deliverable 3.3.3 Report on the Transnational Strategy Workshop
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APPENDIX I:

LIST OF THE FORESDA PROJECT PARTNERS AND REGIONS

Role	Official Name in English	Acronym	Country
LP	CyberForum e.V.	CyberForum	GERMANY
ERDF PP1	Regional Economic Development Agency of Northern Black Forest	WFG	GERMANY
ERDF PP2	inno AG	inno	GERMANY
ERDF PP3	Wood Industry Cluster	WIC	SLOVENIA
ERDF PP4	Slovenian Forestry Institute	SFI	SLOVENIA
ERDF PP5	Salzburg University of Applied Sciences	SUAS	AUSTRIA
ERDF PP6	Zala County Foundation for Enterprise Promotion	ZMVA	HUNGARY
ERDF PP7	Croatian Wood Cluster	CWC	CROATIA
ERDF PP8	KO-FA Association – legal entity of the PRO WOOD Regional Wood Cluster	PRO WOOD	ROMANIA
ERDF PP9	Bulgarian Furniture Cluster	BFC	BULGARIA
IPA PP1	University of Belgrade – Faculty of Forestry	UB FF	SERBIA
IPA PP2	Zenica Development Agency	ZEDA	BOSNIA AND HERZEGOVINA
IPA PP3	Agency for economic development of Municipality Prijedor "PREDA-PD"	PREDA	BOSNIA AND HERZEGOVINA
ASP1	Innovation and Technology Transfer Salzburg GmbH	ITG	AUSTRIA
ASP2	Cluster Management for Wood	Holzcluster	AUSTRIA
ASP3	Virovitica-Podravina County	VPC	CROATIA
ASP4	Ministry of Economic Development and Technology of the Republic of Slovenia, Wood Industry Directorate	MEDT WID	SLOVENIA
ASP5	Regional Development Agency Centru Region	RDA CENTRU	ROMANIA
ASP6	Ministry for National Economy	NGM	HUNGARY
ASP7	Ministry of Industry, Energy and Mining	MIER	BOSNIA AND HERZEGOVINA