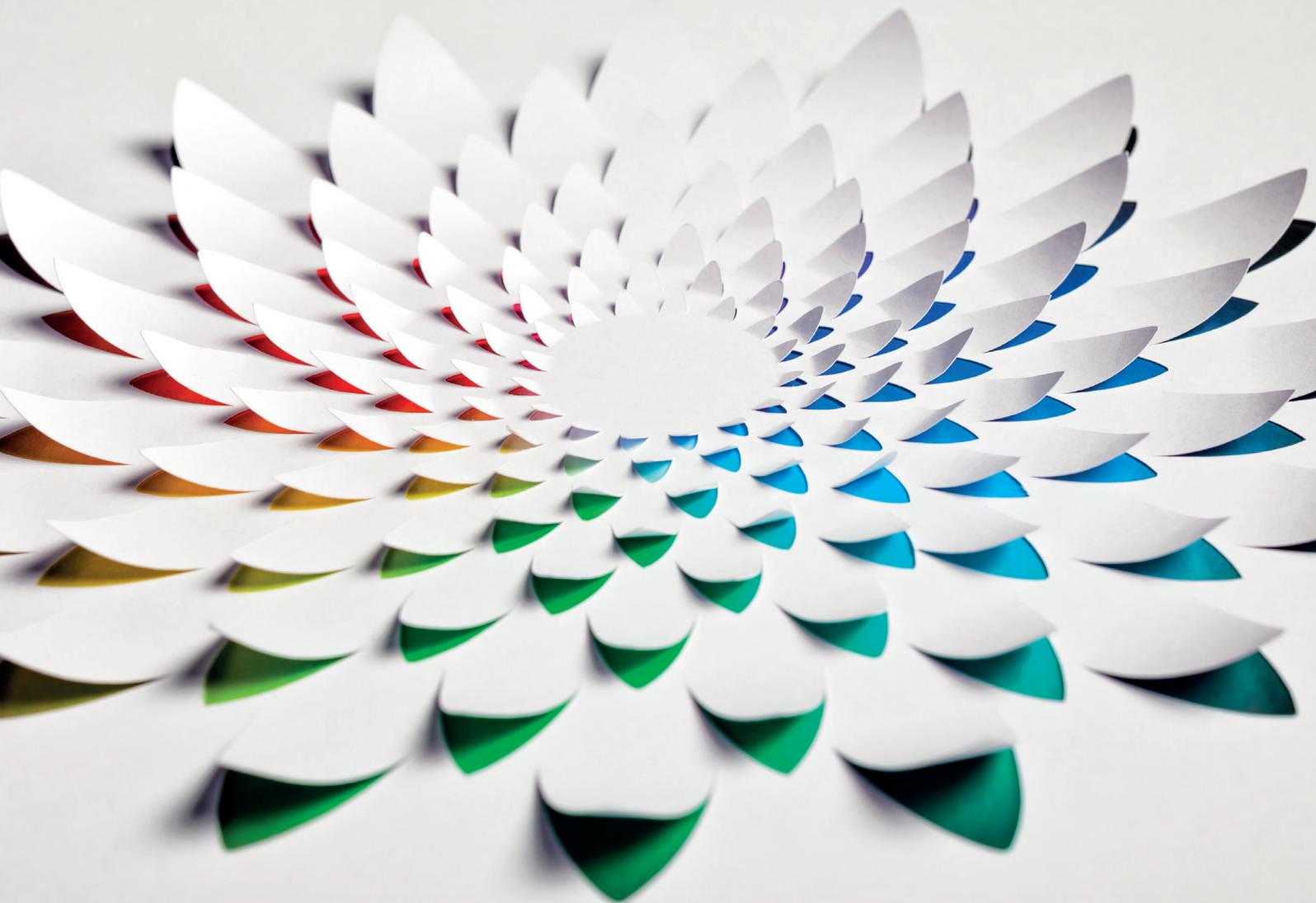


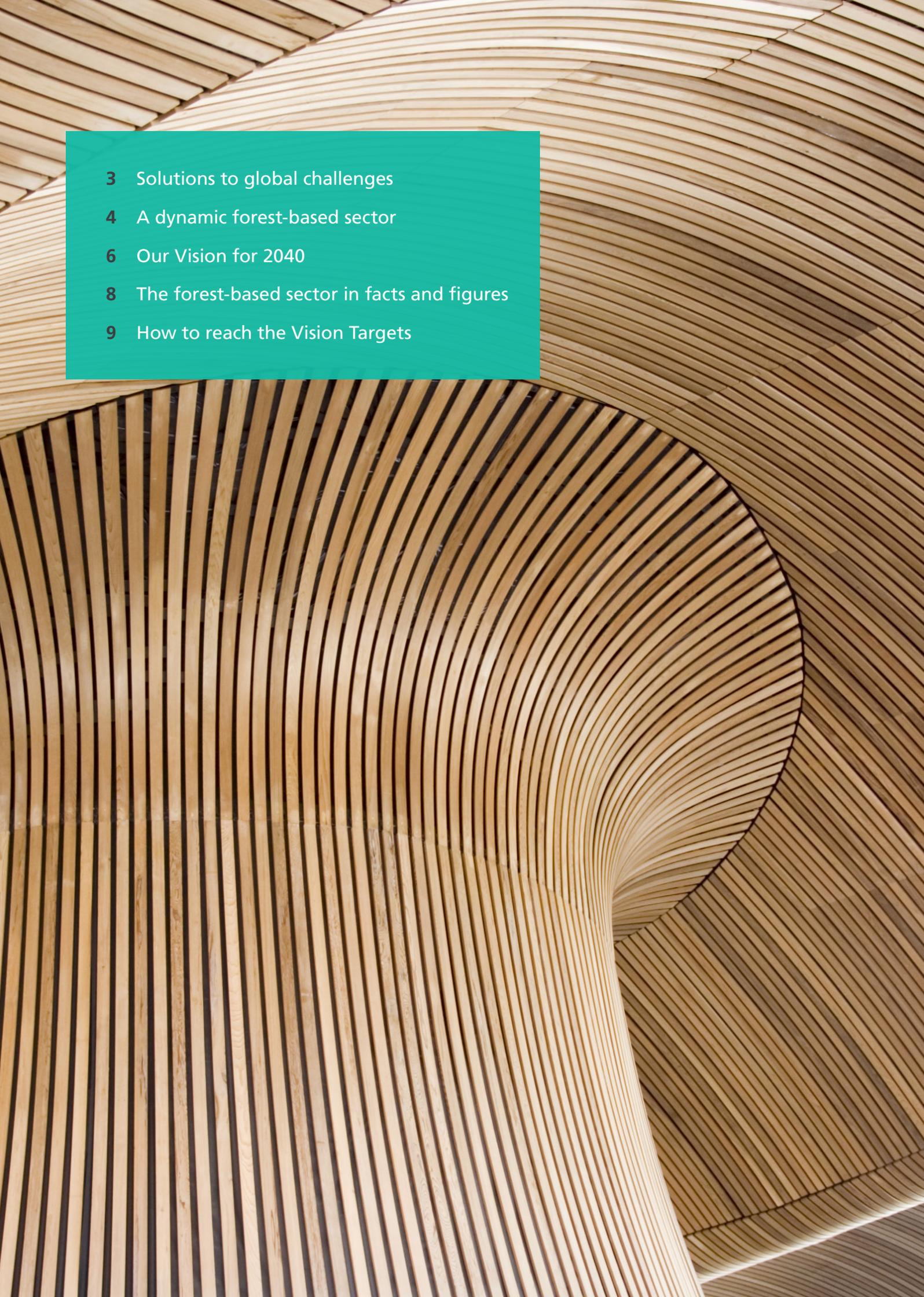
VISION 2040

OF THE EUROPEAN FOREST-BASED SECTOR



Forest-based Sector
Technology Platform



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solutions to global challenges

Since the first version of the Forest-based Sector Technology Platform (FTP) Vision was agreed in 2005, tremendous progress has been made in creating knowledge, technologies and innovations, thanks to the investment of public and private stakeholders, through Europe-wide collaborations. Previous achievements have now made it possible to set even more ambitious targets for the future.

The European forest-based sector, a cornerstone of Europe's bioeconomy, has a long history of providing for the needs of a growing population. Based on sustainable forest management and offering renewable products that don't compete with food production over land use, it creates several opportunities that should be further developed.

Ensuring progress towards the United Nations Sustainable Development Goals (UN SDGs)

The SDGs comprise 17 global goals towards ending poverty, protecting the planet and ensuring that all people enjoy peace and prosperity. A significant challenge is that, based on present consumption rates and a growing global population, the supply of natural resources will fall increasingly short of demand. Especially since there are still many people, particularly in developing countries, who have yet to gain access to their fair share of the world's natural resources.

This Vision aims to make the forest-based sector even more innovative and dynamic and to:

- offer solutions that reduce air, water and soil pollution and contamination (SDG 3)
- provide a significant share of renewable energy in the European energy mix (SDG 7)
- create positive economic, social and environmental links between urban, peri-urban and rural areas (SDG 8)
- achieve higher levels of economic productivity through diversification, technological upgrading and innovation (SDG 8 and SDG 9)
- make sustainable and resilient buildings, utilizing renewable materials (SDG 11)
- ensure sustainable consumption and production, including through waste prevention, reduction, recycling and reuse (SDG 12)
- strengthen resilience and adaptive capacity for climate-related hazards and natural disasters (SDG 13)
- ensure the conservation and sustainable and efficient use of terrestrial ecosystems and natural resources (SDG 15)

Clearly, the forest-based value-chain is part of the solution, but at the same time it is also directly affected by the challenges of climate change, increasable but ultimately limited wood supply, changing consumer demands and demographics, the digital revolution and the growing complexity of manufacturing processes.

Only a competitive and profitable forest sector can focus resources on improving processes, products, materials and services, and thus contribute to the UN SDGs. Therefore, we propose that policymakers, Member States' administrations and the stakeholders of the forest-based sector, together, contribute to achieving the FTP Vision 2040 (SDG 17).

**Previous achievements
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a dynamic forest-based sector

Sustainably managed European forests are a source of non-wood forest goods and ecosystem services. They prevent floods, reduce soil erosion, improve air quality, provide most of Europe's fresh water supply and have great recreational value. Furthermore, forests are the most biodiversity-rich of all terrestrial ecosystems and they are vital for pollinating species, and therefore for agriculture and food production.

Managing Europe's forests sustainably

Managed with care and expertise through different types of ownership, from large and medium-scale managers of public forests to small-scale family forest owners and cooperatives, the forests of Europe offer an unsurpassable renewable raw material. The European forest area increases by an amazing equivalent of 1 500 football pitches per day. As only about two-thirds of the wood growth is harvested, a significant net increase of standing woody biomass is left unused each year. This builds up a resource base for future needs.

Investing in new, sustainable products and processes

From forest-fibre technologies to advanced paper and board design, as well as a range of different biobased materials, the paper industries currently invest around € 5 billion annually to offer a broader spectrum of resource-efficient products. In the areas of biorefinery and nanotechnology, the industry has already made substantial progress and is now rapidly ramping up production of green textile fibres and nanocellulose. Lignin and bark show potential in various applications; however, additional investment in development is required to reach full business potential.



Wood is good!

Wood is our most important renewable raw material because:

- It is renewable;
- It is a lightweight, nature-based, biodegradable and versatile material;
- Wood products can be reused and recycled many times and the energy stored within them can also be recovered;
- Wood has absorbed CO₂ from the atmosphere, which mitigates climate change;
- Wood products are made in an efficient, low-energy production system, with minimal emissions and well-established recycling systems;
- Wood production can be increased as long as we manage our forests sustainably;
- Wood has the potential to replace other materials of fossil origin and deliver the same or even better performance.



Cross-laminated timber (CLT) is an example of an innovative wood product displaying very strong market growth, in particular in new modular building systems for multi-storey housing. Building information modelling (BIM), virtual engineering of wood and advanced material models for computer-aided engineering are also important innovation areas.

Embracing the digital era

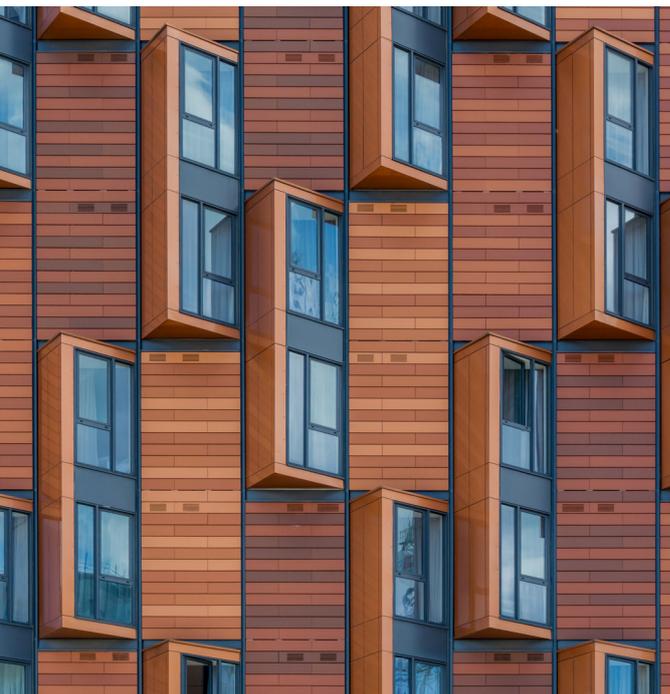
Digitalization, new remote sensing technologies and more efficient harvesting machines are making forestry operations more precise, with an even smaller environmental footprint. Digital technologies are transforming the logistics of the whole value-chain, making each step more flexible and efficient. For

instance, new scanning technologies can today see into wooden logs and in a few milliseconds decide how best to cut the log into timber. This enables an impressive optimization of raw material utilisation.

Having a clear vision

The Vision 2040 of the forest-based sector will help the EU to fulfil its international commitments, such as the Paris Agreement, as well as its many responsibilities towards its citizens. It will also greatly contribute to the UN Sustainable Development Goals, and create new export possibilities for Europe.

A dynamic forest-based sector is ready to take the lead towards a more sustainable future and aim to accomplish 10 ambitious Vision Targets.



our vision for 2040

Forest volumes continue to increase in all of the EU Member States. Sustainable forest management ensures the resilience and vitality of ecosystems and is the foundation for a growing circular bioeconomy.

- **The forest-based sector is the leading actor in and enabler of a circular bioeconomy**
- **Consumer needs and the smart and sustainable use of forest resources are the cornerstones of the sector**
- **The sector is bustling with entrepreneurial activity that creates employment and enriches both rural and urban regions**

Knowledge and investment, which leads to a sustainable increase in wood production, is the basis for the entire forest-based industry.

The sector prospers from satisfying people's desire to live in greater harmony with nature and reduce their environmental footprint. Smart services and products designed for reuse, recycling and recovery, contribute to people's good health and general feeling of well-being.

ten vision targets for 2040

1 Sustainable forest management, biodiversity and resilience to climate change

The importance of sustainable and multifunctional forest management is widely acknowledged, due to its benefits for society. Resilient and diverse European forests, managed through different types of ownership, provide a wide array of forest ecosystem services including raw material production, climate change mitigation, biodiversity conservation and protection of water-related ecosystems.

2 Increased, sustainable wood production and mobilization

Forest growth is increasing, leading to increased CO₂ sequestration. Management practices are being further optimized for even higher productivity and stand quality. The creation of climate change-resilient and stress-tolerant forests is particularly important. Research, innovation and careful, long-term forest management have increased harvesting possibilities in Europe by 30 per cent, between now and 2040.

3 More added value from non-wood ecosystem services

In 2040, we have successful new business models based on forest ecosystem services. They are often based on cross-sectoral cooperation with sectors such as food, water and tourism. The added value from new markets for non-wood forest goods (mushrooms, berries, clean water) and services (recreation, tourism, climate change mitigation) has increased tenfold.



4 Towards a zero-waste, circular society

By 2040, material collection rates of forest-based products have increased to 90 per cent and their reuse and recycling account for 70 per cent of all recyclable material. This circular economy stores carbon and substitutes more energy-intensive materials.

5 Efficient use of natural resources

Activities to foster resource efficiency have resulted in significant improvements in energy efficiency, specific raw material input and specific water use in the forest-based industries. This contributes to the provision of high-added value products with a drastically reduced environmental footprint.

6 Diversification of production technologies and logistics

With new technologies, such as AI, and improvements in automation and digitalization, traceability is fully implemented throughout the value-chain. Diversification of technologies also helps to make small-size production units economically feasible. They might be stand-alone or part of a regional industry ecosystem.

7 Purposeful, safe jobs and links between rural and urban regions

In 2040, the forest-based sector is an attractive employer, known for providing meaningful and safe jobs in rural as well as in urban regions. It is well known for developing the skills of its workers and managers and has significantly increased the number of employees involved in different aspects of research, development and innovation activities.

8 Renewable building materials for healthier living

Wood, the most commonly used renewable construction material in the world, has a bright future. In 2040, biobased construction in Europe has tripled its market share from the 2015 level, whilst the overall added value of the woodworking industries has doubled. Increased value will come from new products and services, as well as more widespread use of energy-saving, modular and flexible housing structures and functional furniture.

9 New fibre-based products and 80 per cent lower CO₂ emissions

The forest-fibre and paper industry is well on its way to reaching the targets – set out in the CEPI 2050 Roadmap – to cut its carbon emissions by 80 per cent, while creating 50 per cent more added value. While established product segments, mainly paper, packaging and hygiene, have evolved and remain the main source of income, almost half of the new added value is expected to come from other new biobased products such as textiles and green chemicals.

10 Renewable energy for society

Thanks to new and innovative production technologies, reduced overall energy consumption, increased recycling, reuse and refining of side-streams, the sector will continue to be the biggest producer of green electricity and biofuels in Europe, with a capacity in 2040 to provide the equivalent of 100 million barrels of crude oil (produced from about 65 million m³ of forest and mill residues).



the forest-based sector in facts and figures

The forest-based sector in Europe provides society with a wide variety of products and services, ranging from paper, packaging, tissue paper and furniture, to carpentry and construction materials, wood-based panels, textile fibres, biofuels, bio-energy, chemicals and still much more.

The sector is a well-integrated value-chain with three main subsectors: forestry, the woodworking industries and the pulp and paper industries. It provides around 8 per cent of the EU's total manufacturing added value and creates close to 4 million jobs. Forest available for wood supply cover one-third of the EU's landmass and provide income for approximately 16 million forest owners, and thousands of employers in public forest management organizations.

Forest owners and forest managers

Sustainably managed, healthy and resilient forest ecosystems are a prerequisite for providing society with wood as well as other goods and services (including carbon sequestration, groundwater, erosion protection, biodiversity, and recreational opportunities). European forest holders have long, practical experience of sustainable forest management, which continues to evolve thanks to innovation, improved expertise and emerging societal demands. The implementation of existing European and national policies, regulations and voluntary tools, ensures the sustainable sourcing of forest biomass, irrespective of its end use.

43%
of EU's landmass is covered by
forests and other wooded land

The woodworking industries

The woodworking industries include sawmilling, planing and wood impregnation (12 per cent), other woodworking industries (47 per cent), and furniture (41 per cent). In 2015, turnover in the EU woodworking industries amounted to € 129 billion and incorporated an estimated 170 000 companies, employing substantially more than 1 million workers. In addition, 120 000 companies were active in the furniture sector. These figures, however, remain an underestimation, since SMEs are not necessarily included in Member States' reporting.

€ 129 billion
of turnover in 2015
1 million
employed workers

The pulp and paper industries

The pulp and paper industries, also referred to as the forest-fibre and paper industries, had a total turnover of € 81 billion in 2016 and employed about 175 000 people. As well as using virgin forest fibres, the European pulp and paper industries are one of the major recyclers in Europe. They reached a world record paper recycling rate of 72.3 per cent in 2017 (which is close to the theoretical maximum), while 90 per cent of newspapers and corrugated boxes are made from recycled fibres.

90%
of newspapers and corrugated
boxes are made of recycled fibres

how to reach the vision targets

The FTP Vision 2040 has been agreed and approved by stakeholder groups and representatives across the European forest-based sector. This recognition allows the sector to speak with one voice when it comes to research and innovation.

To continue to make progress towards our Vision 2040 and the Vision Targets, strategic cross-sectoral alliances with other industries, and the support of investors and public institutions, will play a vital role. Vision 2040 will facilitate these interactions as it clearly sets out the long-term ambitions of our sector.

The FTP Strategic Research and Innovation Agenda

While the FTP Vision 2040 presents our long-term common goals, the far-reaching technical, business and societal innovations that must be undertaken to reach them, are described in the FTP Strategic Research and Innovation Agenda (FTP SRA). Industry and researchers will find the SRA to be an important point of reference for further actions. The SRA sets out how we will develop technical solutions and which research and innovation areas need additional collaboration, funding and skill-building to accomplish this.

Meanwhile, FTP serves as a crucial focal point in the process, by bringing stakeholders together and by helping policymakers and funding providers, at both the EU and national levels, to play their part in achieving the forest-based sector's Vision.

FTP organization

National Support Groups (NSGs) are an important element of FTP's organizational structure. The NSGs serve as coordinators for business and national research bodies, authorities and funding agencies. They have a key role in securing regional support for the platform. The NSGs and representatives for core stakeholders participate in regular meetings of the FTP Advisory Committee.

FTP's secretariat is located in Brussels and is headed by the FTP managing director. The FTP Board is the highest decision-making body. At present, the Board is comprised of representatives from industry, the chair of the Advisory Committee, and at least one representative from each one of the four FTP shareholders: the European State Forest Association (EUSTAFOR), the Confederation of European Paper Industries (CEPI), the Confederation of European Forest Owners (CEPF), and the European Confederation of Woodworking Industries (CEI-Bois).



Window of opportunity

Researchers have succeeded in producing transparent wood by removing the lignin. In addition to potential use for windows and interior panels, this material could be used in biobased solar panels.

**The European Technology Platform
for the Forest-based Sector is recognised
by the European Commission**

The Commission accepts no responsibility or liability whatsoever with regard to the information presented in this document

Additional information on research and innovation in the European Union can be found on the Commission site: www.ec.europa.eu/info/research-and-innovation

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MANAGING STATE
FORESTS RESPONSIBLY

European State Forest Association

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Forest-based Sector

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