



Press Release – 21 October 2022

More than 200 people were involved in the inpactus project, which gave rise to 37 new patents

## **RAIZ leads Portugal's largest R&D programme dedicated to forest-based bioeconomy with an investment of €14.6 million**

The promotion of a new generation of bioproducts, the creation of innovative and unique new products, as well as the development of potential new businesses are some of the main contributions of the inpactus project. This is the result of the largest investment ever made in an R&D project in Portugal in the field of forest-based bioeconomy, with a view to decarbonising and achieving a more sustainable, circular, and competitive economy.

After a total investment of 14.6 million euros and the involvement of a team of over 200 people, inpactus, which stands for "innovative products and technologies from eucalyptus", was developed as a joint venture between The Navigator Company, RAIZ - Instituto de Investigação da Floresta e Papel (the Portuguese Forest and Paper Research Institute), the University of Coimbra, and the University of Aveiro. Partner institutions were also involved, including the University of Beira Interior, the University of Minho, Instituto Superior Técnico, Nova University Lisbon, and the International Iberian Nanotechnology Laboratory, along with the R&D centres RISE Bioeconomy (from Sweden) and Fraunhofer (from Germany), and the spin-off company Satisfibre.

Over four years and nine months, the quality of inpactus' research and technological development has led to more than 37 patents being submitted or in the pipeline, thus cementing the RAIZ Institute's leadership status in the national registry of industrial property. Innovation is also visible in the 66 prototypes and 114 proofs of concept generated by the consortium, as well as in the innovative and unique products created. At least four of these are already in the marketing stage. Three of these

products are tissue paper and another is kraftliner packaging paper made from high yield pulp, but there are also eight potential new products and businesses in the area of the forest-based bioeconomy.

Among the many achievements of this project, the development of an innovative process for the production of high-performance pulp should definitely also be mentioned. This was the starting point for one of the most important product launches in Navigator's recent history: the new range of packaging paper, gKraf, which offers an alternative to fossil fuel-based products, such as plastic. In addition, it has given rise to innovative materials already being marketed or pre-marketed for the hygiene and health sector, such as tissue products with additives – perfumes, softeners, or antibacterials.

In the context of a circular bioeconomy, there are also many examples of project achievements that demonstrate the enormous potential for innovative products from eucalyptus forests. For example, this species has enabled the development of a new generation of bioproducts, such as cellulose-based biocomposites and bioplastics, which could potentially be used in industries as varied as plastic injection and moulding, filaments for 3D printing, and the textile industry. But not only this. Bioactive products and essences derived from forest biomass could also potentially be used in pharmaceuticals, cosmetics and hygiene products, animal feed ingredients, and nutraceuticals. In the latter case, benefits have already been proven on many levels, including anti-inflammatory action, anti-ageing of the skin, and prebiotic activity.

There are also other promising projects in the industrial demonstration phase, such as new types of mortar and ecological cement that incorporate ash from biomass boilers, as well as uses for lignin, a by-product of the industrial process, in polyurethane foams, adhesives, and composites. Other outcomes include the production of biofuels from surplus forest biomass, using different technologies.

Therefore, this is a project that goes beyond the frontiers of science and economics, extending its influence to sustainability and the quality of life of future generations, and which highlights the importance of planted forests and of eucalyptus globulus as a prime raw material.

## **Cutting edge knowledge at the forefront**

Inpactus also stands out for generating cutting-edge knowledge and internationally recognised quality, as attested by the more than 140 international scientific publications published or submitted for publication by the project team.

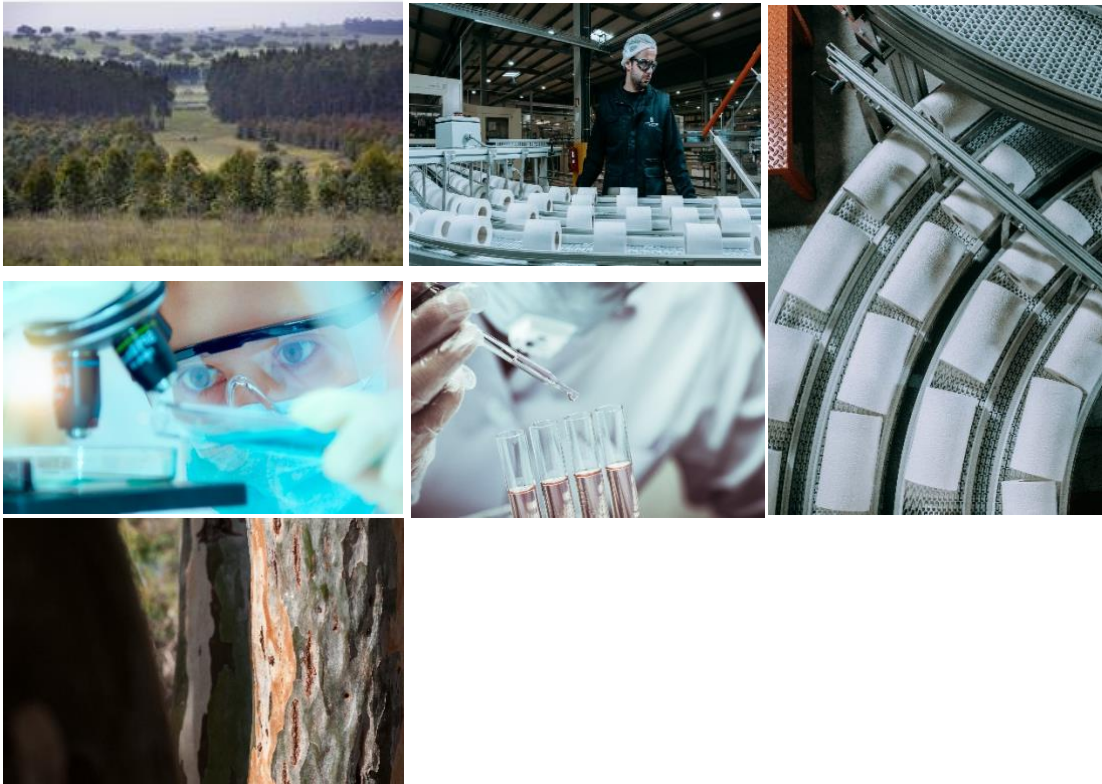
Furthermore, it has enabled the development of our workforce. Altogether, there were around 24 PhDs, 45 Master's degrees, and two International Visiting Professorships, one in Paper Science and Technology and the other in Biorefineries and Bioproducts, at the Portuguese universities of Aveiro and Coimbra.

The knowledge and dynamic generated were also decisive in promoting lasting synergies at national and international level, with a collaborative model praised as good practice by the Organisation for Economic Cooperation and Development (OECD). RAIZ was also awarded a European quality certification as a Business Innovation Centre and was recognised by UNESCO Portugal as a UNESCO Club, as well as a promoter of the forest-based bioeconomy and of the United Nations' sustainable development objectives for future generations.

Despite coming to an end now, the project's impact will last for a long time, as it has established a university-industry platform of excellence in a fundamental area: the forest-based bioeconomy, centred on eucalyptus forests and the Portuguese paper industry.

Participation in the inpactus project testifies to the Company's desire to be innovative with a view to developing a new generation of bioproducts. The Company has been looking for more sustainable alternatives to products with a significant environmental footprint, moving towards a bioeconomy which is environmentally friendly and climate neutral, but which also has a positive impact on the quality of life of future generations. These are commitments that The Navigator Company has made as part of its Business Purpose.

**Images for illustration available at the link: <https://we.tl/t-m3AgQOsDsP>**



### **About The Navigator Company**

The Navigator Company is an integrated producer of forestry, pulp, paper, tissue, sustainable packaging solutions, and bioenergy, whose operations are underpinned by state-of-the-art technology at world-class manufacturing facilities. It is recognised as a benchmark in quality in its sector throughout the world.

People, their quality of life and the planet's future are what inspire and guide The Navigator Company. The company is committed to creating sustainable value for its shareholders and for society at large, making a better planet to hand down to future generations through sustainable products and solutions that are natural, recyclable and biodegradable, and that contribute towards carbon sequestration, oxygen production, the protection of biodiversity, soil formation, and the fight against climate change.

The Navigator Company produces pulp and paper using forests which are planted exclusively for this purpose. Each year, Navigator nurseries give life to more than 12 million trees. These nurseries, the largest in Europe, produce 135 different species of trees and shrubs. Many of these, although not economically viable, are financed by the company to protect biodiversity and guarantee species' continuity.

The forests under The Navigator Company's management in Portugal represent a carbon stock, excluding carbon in the soil, equivalent to 6.1 million tons of CO<sub>2</sub>. This stock has remained stable thanks to the sustainable management model followed by the company.

The Group's forestry business is vertically integrated, with its own Forestry Research Institute. The Group is responsible for planting a vast forested area in Portugal (1.2% of the country's land area), 100% certified

by FSC<sup>1</sup>® and PEFC<sup>2</sup> systems. The Company has a production capacity of 1.6 million tonnes of paper, 1.6 million tonnes of pulp, 130,000 tonnes of tissue, and 2.5 TWh of renewable energy per year. In 2021, 66% (vs. 60% in 2020) of energy produced by Navigator at its four industrial complexes came from biomass, giving it the leading role in the sector, with this ecological non-fossil fuel accounting for about 35% of the country's overall energy.

In November 2021, the Navigator Company launched its latest line of packaging products, through the new gKraft brand, to help accelerate the transition from plastic to the use of natural, sustainable, recyclable and biodegradable fibres, once again demonstrating its commitment to sustainability and preserving the environment.

The company is Portugal's third largest exporter, accounting for approximately 1% of GDP, around 2.4% of all the country's exports of goods and more than 30,000 direct, indirect and generated jobs. It is also the Portuguese exporter generating the most National Value Added. In 2021, The Navigator Company had a turnover of €1.596 billion. More than 90% of the Group's products are sold outside Portugal and are shipped to approximately 130 countries.

The Navigator Company has made a formal commitment to achieving carbon neutrality at its industrial complexes by 2035, 15 years ahead of the targets set by the European Union and Portugal. This makes it the first Portuguese company, and one of the first in the world, to set itself this ambitious goal, for which it has earmarked total capital spending of €154 million.

This commitment is the culmination of a responsible business management strategy that had already been distinguished by the CDP (formerly Carbon Disclosure Project, now Disclosure Insight Action), in 2019 and 2020, with the classification of global leader in the fight against climate change. The Navigator Company was recognised for its efforts to reduce emissions, reduce climate risks and develop a low-carbon economy.

At the end of 2021, The Navigator Company joined the Science Based Targets initiative (SBTi), having submitted its greenhouse gas (GHG) emission reduction targets based on the most current climate science at the time of joining, thus dispensing with the two-year grace period that companies have and typically use to do so. The Company has been developing a set of strategies to measure and reduce its total GHG footprint, as well as to promote mitigation and adaptation to the risks generated by climate change. By joining SBTi, the Company advances in its alignment with scientific-based criteria and methodologies that deserve international recognition within the scope of the global climate agenda, affirming its leadership in sustainability.

In 2022, Navigator obtained a score of 14.3 in the ESG Risk Rating for 2021 – the best rating obtained since being added to Sustainalytics assessments – once again positioning itself among the best companies in the world in terms of sustainability. With this classification, the Company remains in the "Low Risk" category, meaning that it presents a low risk for investors, and occupies third place, both in the ranking of companies in the "Paper and Forest" industry group – in a total of 81 global companies that are part of this cluster – and in the "Paper and Pulp" subgroup, in a total of 60 companies worldwide.

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<sup>1</sup> FSC – Forest Stewardship Council® (FSC® Licence no. – C010852)

<sup>2</sup> PEFC – Programme for the Endorsement of Forest Certification schemes (PEFC Licence/13-23-001)

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