



REDwine

# INCREASING MICROALGAE BIOMASS FEEDSTOCK BY VALORIZING WINE GASEOUS AND LIQUID RESIDUES

[www.redwineproject.eu](http://www.redwineproject.eu)

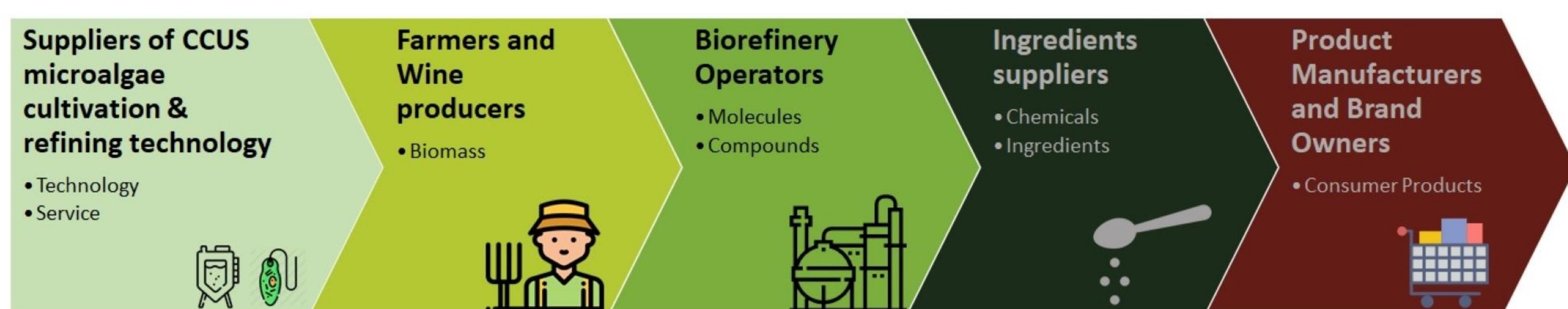
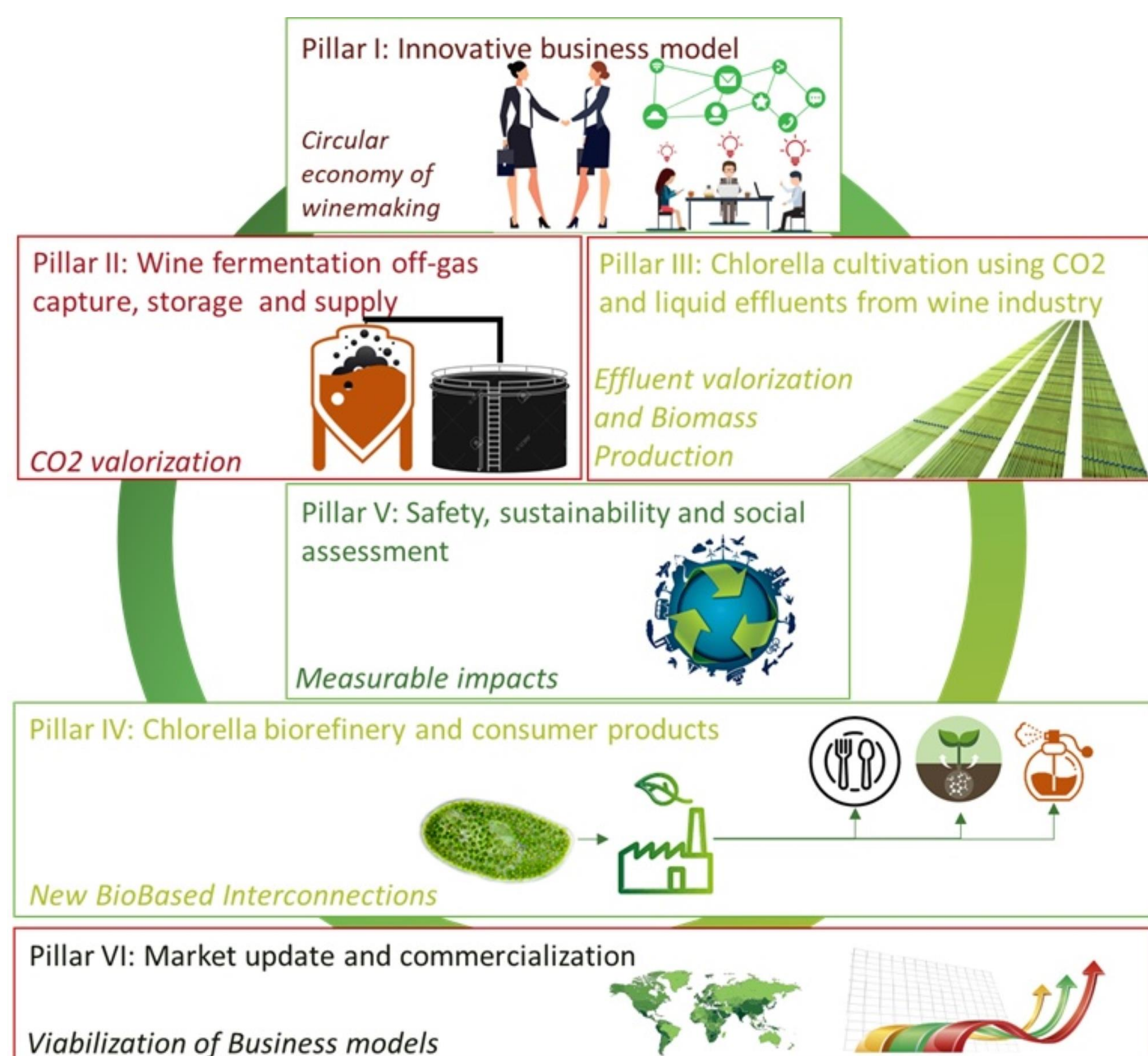
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## Introduction

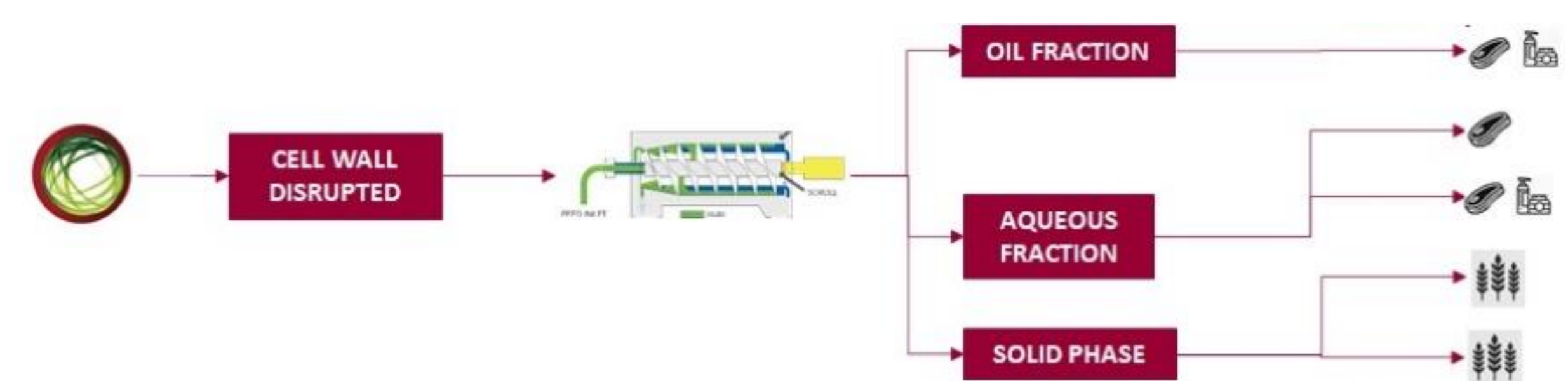
Global warming due to greenhouse gases (GHG) has become a serious worldwide concern. The new EU Green Deal aims to achieve GHG emissions reduction by at least 55% by 2030 and a climate neutral EU economy by 2050. The deal strongly encourages GHG reducing measures at local, national and European levels. The REDWine project will demonstrate the technical, economic and environmental feasibility of reducing by, at least, 31% of the CO<sub>2</sub> eq. emissions produced in the winery industry value chain by utilizing biogenic fermentation CO<sub>2</sub> for microalgae biomass production.



## Concept

REDWine concept will be realized through the establishment of an integrated Living Lab demonstrating the viability of the system at TRL 7. The Living Lab will be able to utilize 2 ton of fermentation off-gas/year (90% of total CO<sub>2</sub> produced in the fermenter) and 80 m<sup>3</sup> of liquid effluent (100% of the liquid effluent generated during fermenter washing) to produce 1 ton (dry weight) of Chlorella biomass/year. This biomass will be processed under a downstream extraction process to obtain added-value extracts and applied in food, cosmetic and agricultural end-products and to generate a new EcoWine. REDWine will focus on the recovery of off-gas from a 20.000L fermenter of red wine production existing in Adega Cooperativa de Palmela (Palmela, Portugal).

**Keywords:** Wine, CO<sub>2</sub>, Chlorella, circular economy



## Impact

REDWine will result in the demonstration at an operational environment (TRL 7) of a new business model that will create an optimal synergy between two biobased industries, the wine industry and the microalgae industry. This has the potential to reduce the CO<sub>2</sub> eq. emissions of the winery industry and treat its waste waters while creating the optimal conditions for microalgae farming for the wine, food, cosmetics and agricultural markets. This unique combination will optimize microalgae cultivation technologies to achieve high yields while keeping OPEX up to 20% lower than today's most suitable technology for microalgae cultivation. Breaking the costs barrier will boost microalgae supply by allowing European wine producers to invest in microalgae cultivation technologies and subsequently unite efforts in a cooperative business model for microalgae processing and commercialization. This will result in a major increase in microalgae supply.

**TOTAL BUDGET: 7 525 555€ | EU CONTRIBUTION: 5 676 744€**

**STARTING DATE: May 2021 | DURATION: 48 Months**

