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**Drivers and barriers for new circular business models valorizing olive waste
and by-products**

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The circular economy represents an intentionally regenerative industrial system and offers an alternative economic model, aiming at closing loops via recycling and reusing products, components and materials and keeping their value as long as possible, and reducing waste to a minimum (Murray, 2015). Circular business models are a subcategory of business models, which incorporate circular economy principles as guidelines. They aim to fully close product or material loops (Bocken et al., 2019; Donner, Gohier and de Vries, 2020), creating value from waste or providing functionality instead of products (Bocken et al. 2014). Circular business models can also be considered as generalized templates prescribing how enterprises should organize themselves in order to align with the circular economy as an emerging institutional trend (Stål and Corvellec, 2018). In the Mediterranean region including its relevant olive oil sector, environmental protection, food and nutrition security, inclusive development, and resilience to crises are four core challenges. The production of olive oil generates different wastes (wood, branches, leaves) and by-products (olive pomace, olive mill wastewater, olive stones) (Roselló-Soto et al., 2015), in huge quantities. The enterprises involved in olive oil production are hence facing multiple stimuli for a transition towards circular business models and better waste management, pushed institutionally by the regulations (and especially regarding water), societal demands, but also facing resource scarcity. Olive waste and by-products should not only be considered from a mere ‘management or treatment’ point of view but can offer opportunities to be valorized, i.e. to be converted into new value-added and marketable ingredients and products, potentially leading to additional farmers’ incomes and a more sustainable and environmentally resilient olive oil value chain.

The objective of this work was to understand the drivers and barriers influencing transition towards circular business models valorising olive waste and by-products (for food and non-food applications) in the Mediterranean area. Firstly, an online search for olive oil company websites with indications of waste or by-product valorization was performed, followed by snowball sampling for getting referrals from COLIVE project partners and experts in the olive oil sector. The search resulted in ten cases of entrepreneurial initiatives from the following Mediterranean countries: Tunisia, Morocco, France, Spain, Italy, Greece. For each case, the data available online was compiled (website, videos, articles), semi-structured interviews with the responsible persons from the enterprises were conducted, including a field investigation in Tunisia. The specific focus was on drivers and barriers within the socio-institutional context, including the role of the external environment for the establishment of circular business models in the olive oil value chain.

Results from the study show that the principal internal drivers enabling successful implementation of circular business models are an environmental concern, knowledge about waste valorising technologies and markets; and long-term presence in the sector. The main external drivers are the

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availability of resources, legislation and subsidies, the role of consumers; and circular economy embeddedness in the territorial agenda. Two important barriers or challenges for the enterprises are both strong managerial implication and (financial) support from experts, policy and decision-makers. Firstly, even though the olive oil sector is urgently needing subsidies for investments in waste valorising activities, the enterprises do not have any specific measures of support. The role of waste management activities is recognized but not supported in practice. Secondly, the much-needed collaboration between enterprises and research centres or universities is rather complicated. Legislative obligations, in particular for the treatment of wastewater, but also regional norms for the preservation of landscapes are another push for enterprises to adopt circular economy principles.

The new business models implementing circular economy principles in the olive oil sector are an example of employing different valorization pathways, providing alternative resource use. A common feature observed among all the cases is the importance of territorial embeddedness, and care for the environment, both as a motivation and success factor. The enterprises are driven by a commitment to the environment, especially because of the unused high amounts and partly environmentally harmful residues (Donner and Radić, 2021). However, for a truly successful transition towards a circular economy, the most important barriers for businesses are external support and sustainable partnerships. This implies that more public-private partnerships or multi-stakeholder collaborations e.g. via joint projects are needed for further developing circular business models.

References

- Bocken, N. et al. (2019) 'A review and evaluation of circular business model innovation tools', Sustainability (Switzerland). doi: 10.3390/su11082210.
- Bocken, N. M. P. et al. (2014) 'A literature and practice review to develop sustainable business model archetypes', Journal of Cleaner Production. doi: 10.1016/j.jclepro.2013.11.039
- Donner, M., Gohier, R. and de Vries, H. (2020) 'A new circular business model typology for creating value from agro-waste', Science of the Total Environment. doi: 10.1016/j.scitotenv.2020.137065.
- Donner, M., and Radić, I. (2021) 'Innovative circular business models in the olive oil sector for sustainable Mediterranean agrifood systems', Sustainability, 13(5), 2588. doi: 10.3390/su13052588
- Murray, A., Skene, K., Haynes, K. (2015). The circular economy: An interdisciplinary exploration of the concept and application in a global context. Journal of Business Ethics, 140(3), 369-380.
- Roselló-Soto, E.; Koubaa, M.; Moubarik, A.; Lopes, R.P.; Saraiva, J.A.; Boussetta, N.; Grimi, N.; Barba, F.J. Emerging opportunities for the effective valorisation of wastes and by-products generated during olive oil production process: Non-conventional methods for the recovery of high-added value compounds. Trends Food Sci. Technol. 2015, 45, 296–310.
- Stål, H. I. and Corvellec, H. (2018) 'A decoupling perspective on circular business model implementation: Illustrations from Swedish apparel', Journal of Cleaner Production. doi: 10.1016/j.jclepro.2017.09.249.

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