



# **Circular Business Models (CBMs) applied in the value chain of bio-waste valorization**

Vogiatzidaki Evgenia  
DRAXIS ENVIRONMENTAL S.A.



The HOOP project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°101000836



## PRESENTER

Vogiatzidaki Evgenia  
Circular Economy Expert

[evogiatzidaki@draxis.gr](mailto:evogiatzidaki@draxis.gr)

Evgenia Vogiatzidaki is a chemical engineer, holding an MSc degree in environmental engineering and an MBA. Having worked for several years in the consulting sector, she joined DRAXIS Environmental S.A. in 2019. Her expertise lays in the environmental management and impact assessment mainly focused on solid waste and circular economy.



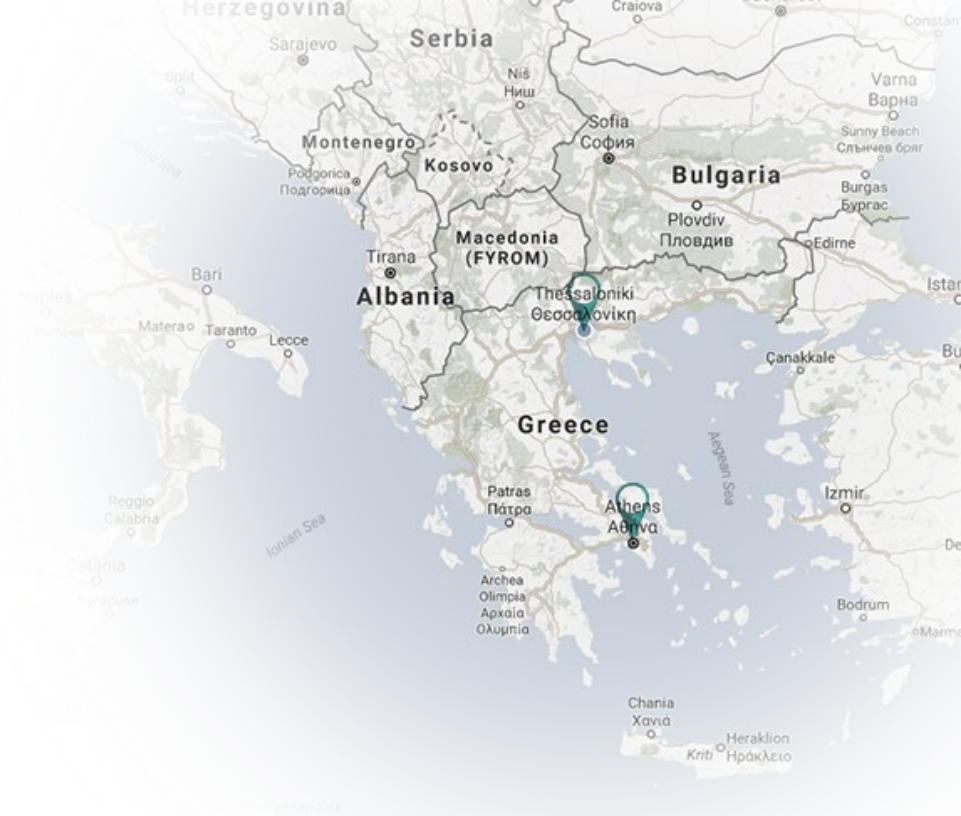
The HOOP project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°101000836



**DRAXIS**  
ENVIRONMENTAL TECHNOLOGIES

# DRAXIS in a nutshell

- Type: **SME**
- Year of Establishment: **2000**
- Average Annual Turnover: **~1,5 M €**
- Location: **Thessaloniki and Athens (Greece)**
- Main Areas of Expertise: Environmental Technology & Software, Climate Services, Circular Economy, Energy, Industrial Applications, Waste and e-Government
- Experience: The team has participated in **57 European and national projects**. Consultation for Public & Private organizations



# Content of the presentation

- ✓ *Definition of Business Models*
- ✓ *Introduction of the HOOP Project and the Circular Business Model (CBM) identification*
- ✓ *Critical factors examined for the CBM identification*
- ✓ *CBM typology proposed*
- ✓ *Indicative examples*
- ✓ *Contribution of our work*



The HOOP project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°101000836

# What is a business model?

*‘A business model describes the rationale of how an organization creates, delivers, and captures value’*

Osterwalder & Pigneur, 2010

*‘A circular business model is the rationale of how an organization creates, delivers and captures value with and within closed material loops’*

Mentink, 2014

# The HOOP project

HOOP is about investing in local initiatives to extract valuable resources from urban bio-waste and wastewater in order to make innovative bio-based products.

- HOOP will provide direct Project Development Assistance (PDA) to municipalities so they can build their administrative, technical, economic, financial and legal expertise.
- HOOP will help boost investments at regional levels and help build the capacity of local actors to contribute to Europe's bioeconomy

In that context, **one of the main objectives of HOOP is the identification of Circular Business Models (CBMs) for bio-waste valorisation** and the **development of a CBM typology** which will be able to incorporate also other business cases of bio-waste valorization in the future.



The HOOP project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°101000836



D R A X I S  
ENVIRONMENTAL TECHNOLOGIES

# Circular Business Model identification – critical factors

**Examined existing solutions** of bio-waste valorization which are technologies that are examined in the framework of 3 other projects related to HOOP, WaysTUP!, ValueWaste and SLALIBUR.

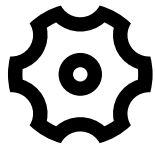
- ✓ *Involved parties*
  - *Types of parties*
  - *Interconnection between parties*
- ✓ *Bio-waste availability*
- ✓ *Maturity of bio-waste valorization technologies*
- ✓ *Product and relevant markets*
  - *Types of products and relevant markets*
  - *Value of products*
- ✓ *Legal and regulatory implications regarding the uses of the end - product*

**Thorough methodological approach in the public deliverable available at <https://hooproject.eu/library/>**

# Involved parties



- **Bio-waste owner:** A public or private organization or association which is responsible for the management of the bio-waste produced in a specific geographical territory of its responsibility. Indicative examples of Bio-waste owners could be a Municipality or other Local Authority, an Agricultural Association, Hotels Association etc.



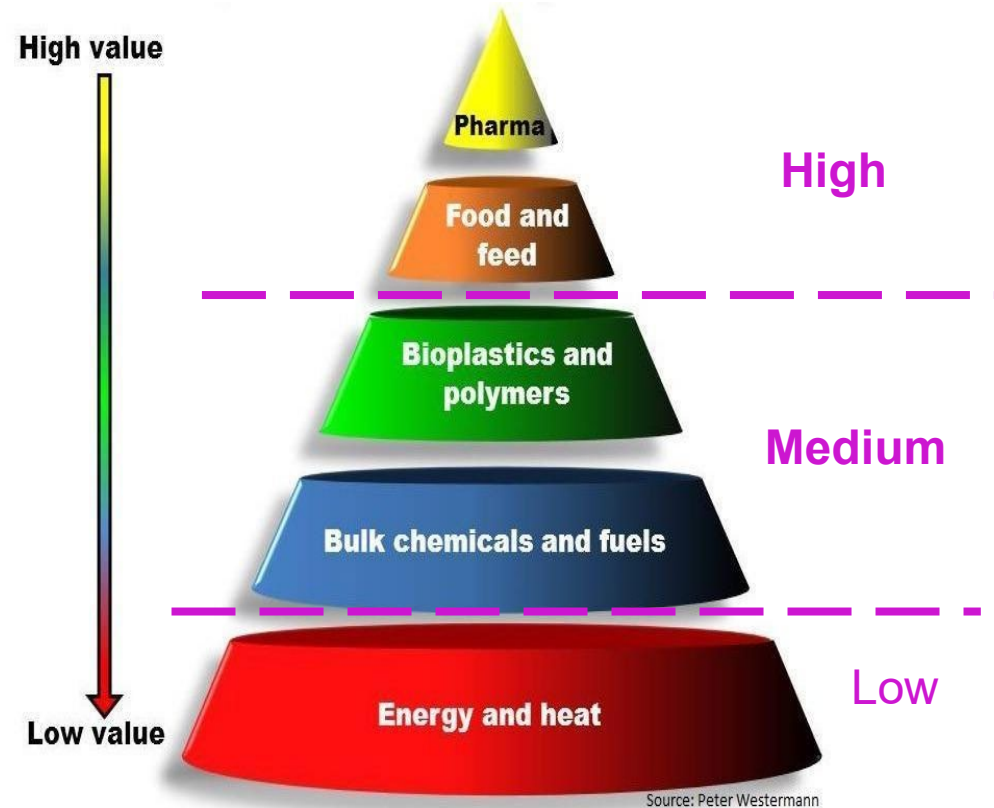
- **Solution owner:** A public or private organization or other entity which owns or owns and operates a specific treatment technology for bio-waste valorisation. Indicative example of a Solution owner is technical entities providing bio-waste treatment technologies.



- **Investor:** Any natural person or other entity (such as a firm or mutual fund) or public organisation who commits capital with the expectation of receiving financial or other returns. An investor could be a person or a firm as well as a Municipality (or other public body) which has the necessary funds to invest in a project.



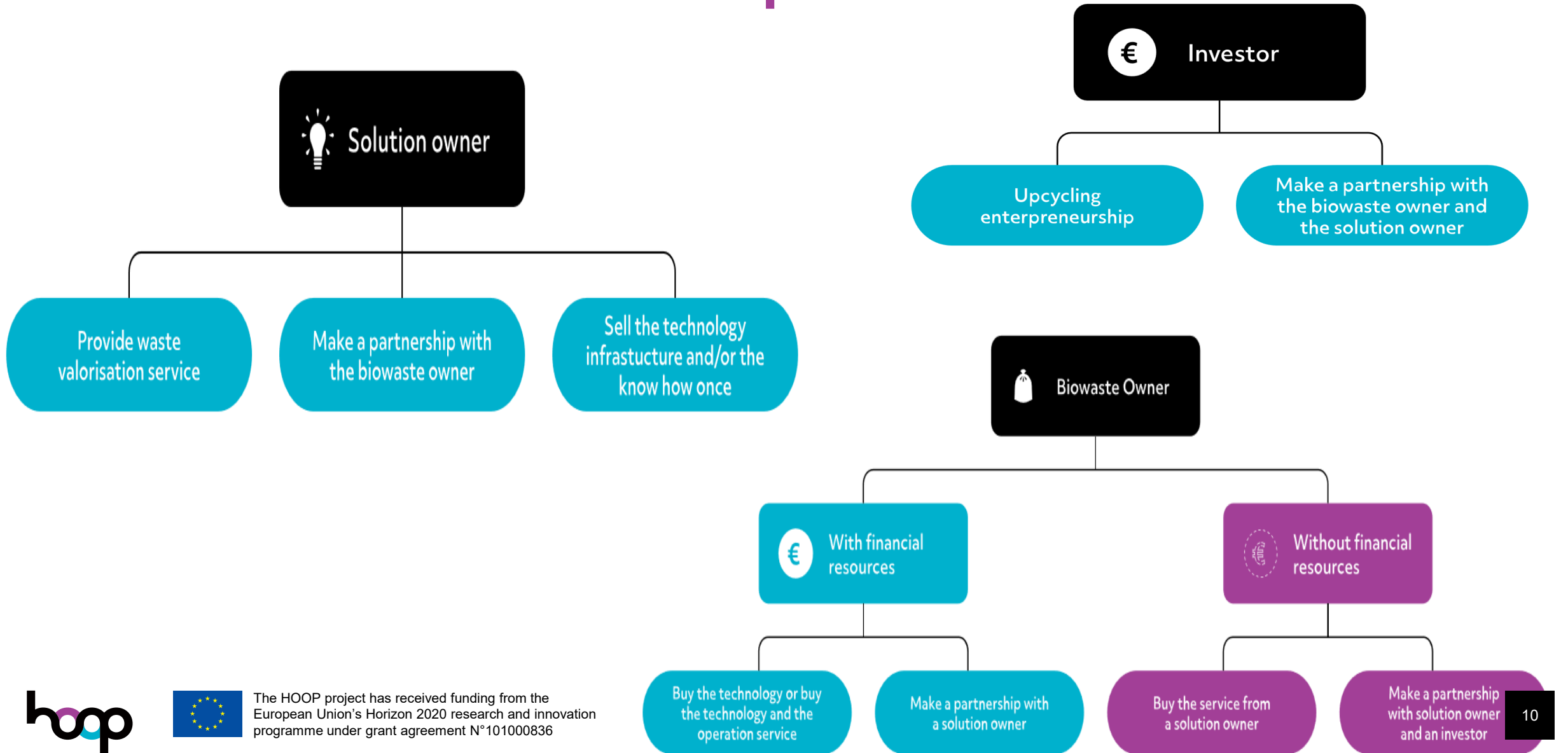
# Value of target market



Source: Resources for Our Future (2016)

<https://www.susvaluewaste.no/2016/05/27/resources-for-our-future/>

# Interconnection between parties



# CBM typology examined on bio-waste

3 Core business models

4 Sub business models

## Interconnection of parties

Joint venture

Vertical integrated

Individual Entrepreneurship

## Participation

Simple collaborative

Multi collaborative

Simple collaborative

Multi collaborative

## Value of the target market

High value

Medium value

High value

Medium value

High value

Medium value

# CBM typology focused on bio-waste

## Interconnection between the involved parties – 3 models

- **Joint venture** is a business model where the involved parties are related with a **legal relationship** that is most often formed by a written agreement between two or more among the bio-waste owner, the solution owner and/or the investor. The partners invest their assets (bio-waste, solution, money) in the business, and **each partner benefits from any profits and sustains part of any losses**.
- **Vertical integrated** is a business model **where only one of the parties** (the bio-waste owner or the solution owner or the investor) **consolidates multiple steps** in the valorization process. In a vertically integrated business model the party performs all tasks commonly carried out by the other parties, instead of acting solely as bio-waste owner or solution owner or investor.
- **Individual entrepreneurship** is a business model where one type of party (the bio-waste owner or the solution owner or the investor) utilizes its asset/product/service and **all costs and revenues will always be assumed by the entrepreneur and not by third parties**.

# CBM typology focused on bio-waste

## Participation of the different parties – 2 sub models

- **Simple collaborative** is a sub-business model where there is **one participant from the same type of parties** (one bio-waste owner and one solution owner) who is involved in the core business model.
- **Multi collaborative** is a sub-business model where there is **more than one participant** from the same type of parties (e.g. two bio-waste owners or/and three solution owners) who are involved in the core business model.

## Value of the target markets – 2 sub models

- **High value** is a sub-business model where the market targeted is expected **to create high value** for the product owner.
- **Medium value** is a sub-business model where the market targeted is expected **to create medium value** for the product owner.

# Indicative examples...

## **Joint venture – Simple collaborative**

A Municipality who has the feedstock (*Bio-waste owner*) collaborates with a technical private company who grows microalgae (*Solution owner*) and a private entity (*Investor*) who commits capital, in order to treat bio-waste and all have benefits from the end-product or any other benefit. For example, the Municipality saves money for the disposal of the MSW, the Solution owner and the Investor earn from the sales of the end-product.



The HOOP project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°101000836

## **Vertical integrated – Multi collaborative**

More than one Municipalities in a region who have the feedstock (*Bio-waste owners*) are collaborating and with their own financial resources (*Investors also*), invest in a technology (e.g. production of biofertilisers), thus they are also the *Solution owners*. The Municipalities are responsible to operate the treatment technology and also benefit from the end product. For example, the Municipalities use the biofertiliser in the public green areas and/or sale biofertiliser to farmers, agricultural associations etc.

## **Independent entrepreneurship - High value**

A Hotel Association in a region who has the feedstock (*Bio-waste owner*) provides the bio-waste in a technical private company (*Solution owner*). The Solution owner treats the bio-waste and benefits from the sale of the product (e.g. nutrients recovered from SCGs). The Hotel Association and the Solution owner act independently regarding their costs and revenues.

# Our work contributes to the following...

- To create a common understanding around business models focused on bio-waste valorization
- To highlight the essential factors, when starting to build a business model for bio-waste
- To provide a roadmap for guidance to build/reform a business model
- To prepare for the business planning
- To provide PDA to public or private organisations

# THANKS FOR YOUR ATTENTION

Evgenia Vogiatzidaki

[evogiatzidaki@draxis.gr](mailto:evogiatzidaki@draxis.gr)



The HOOP project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°101000836