

# Business Models for the Circular Economy: Valorisation of Food Industry By-products to produce Animal Feed Ingredients

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**NEWFEED: Turn food industry  
by-products into secondary feedstuffs  
via circular-economy schemes**

**Acknowledgements:**

The research leading to these results has received funding from the European Union's PRIMA Program for Research, Technological Development and Demonstration under grant agreement n°2013.





## Specialists in the marine environment and food



MEMBER OF  
BASQUE RESEARCH  
& TECHNOLOGY ALLIANCE

Our purpose is to **drive positive change for the future of humankind**, contributing to a **healthy, sustainable and fair society**.

We provide cutting-edge, value-added **products and technologies** grounded in **sound science and research**.

## Research areas

### EFFICIENT AND SUSTAINABLE FOOD CHAIN



Economic valuation of food by-products; Biorefinery and New bio-based products.

Sustainability assessment and communication.

Eco-efficient savings and production.

Improved ergonomics of processes.

Food Chain 4.0.

### CONSUMER BEHAVIOUR



Competitive Intelligence.

Technological Surveillance.

Identification of trends and application in innovation.

Collaborative innovation.

Neuromarketing.

Sensory analysis; consumer studies.

### BIOTECHNOLOGY BASED PRODUCTS



Genetic diversity and isolation of micro-organisms.

Production of natural bioproducts.

### FOOD INTEGRITY AND SAFETY



Food Safety.

Food Control.

Food Identity

### FOOD AND HEALTH



Precision nutrition and personalised diet.

Formulation and processing of new food products.

Food Processing and Preservation Technology

# NEWFEED Goals and Focus

## Sustainable Business Models

The project aims to create sustainable business models that effectively utilize food industry by-products, fostering a circular economy.

## Valorisation of By-Products

NEWFEED focuses on converting food industry by-products into high-value ingredients for animal feed, promoting resource efficiency.

## Target Industries

The project targets by-products from the winery, orange juice, and olive oil industries for use in animal feed production.

## Animal Feed Sources

Transforming by-products into alternative feed sources for dairy cattle, sheep, and broiler chickens is a key focus.



# Importance of New Business Models

## Circular Economy Framework

New business models are vital for promoting the circular economy by integrating sustainability into operations.

## Resource Efficiency and Waste Minimization

These models emphasize efficient resource use and minimizing waste through closed-loop systems.

## Collaborative Multi-Actor Approach

The NEWFEED project engages various stakeholders to enhance expertise and applicability of solutions.

## Innovative Technologies and Processes

Adopting new technologies and processes is crucial for the development of effective business models.



# Business Models Applied to Circular Economy

## Platform-Based Models

Platform-based models leverage digital technologies to create marketplaces that promote resource sharing and waste reduction within the circular economy.

## Cooperative Approaches

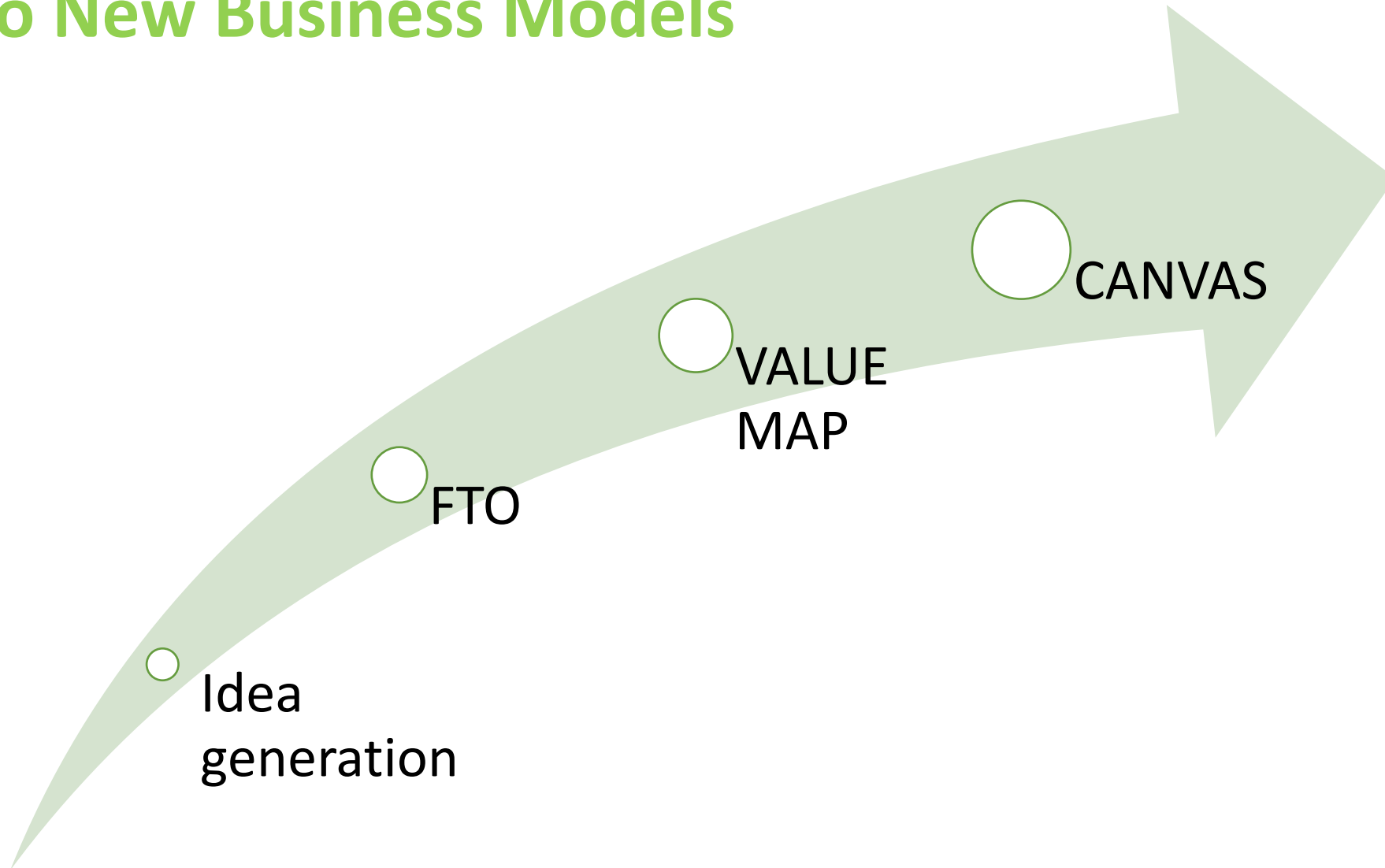
Cooperative approaches involve collaboration between businesses, communities, and stakeholders to optimize resource use and minimize waste.

## Value Chain Integration

Value chain integration focuses on connecting various stages of production and consumption to enhance sustainability and circularity within the economy.



# Road to New Business Models



# Idea Generation Phase

The idea generation phase involves brainstorming potential by-products for animal feed production, ensuring a wide range of options is considered.

## Market Research and Stakeholder consultations

Conducting market research helps in understanding industry needs and identifying opportunities for utilizing by-products in feed production.

## Feasibility Study

The feasibility study assesses technical, economic, and environmental factors to evaluate the viability of using by-products as feed ingredients.



**KER** : Key exploitable result



# Freedom to Operate Analysis



## Importance of FTO Analysis

FTO analysis is essential to ensure proposed products do not infringe on existing patents, mitigating legal risks.



## Review of Existing Patents

The process involves a thorough review of existing intellectual property rights related to proposed ingredients and methods.

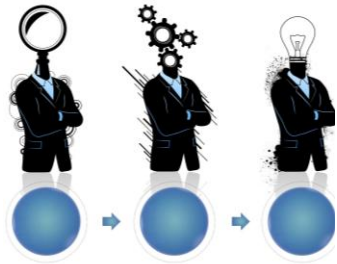


## Securing Commercialization Freedom

Completing an FTO analysis helps secure the freedom to commercialize new feed products without legal issues.



# VALUE MAP



## Products & Services

This component details the offerings that a business provides to meet customer needs and desires effectively.



## Gain Creators

Gain Creators explain how the offerings provide benefits and enhance the customer's experience and satisfaction.



## Pain Relievers

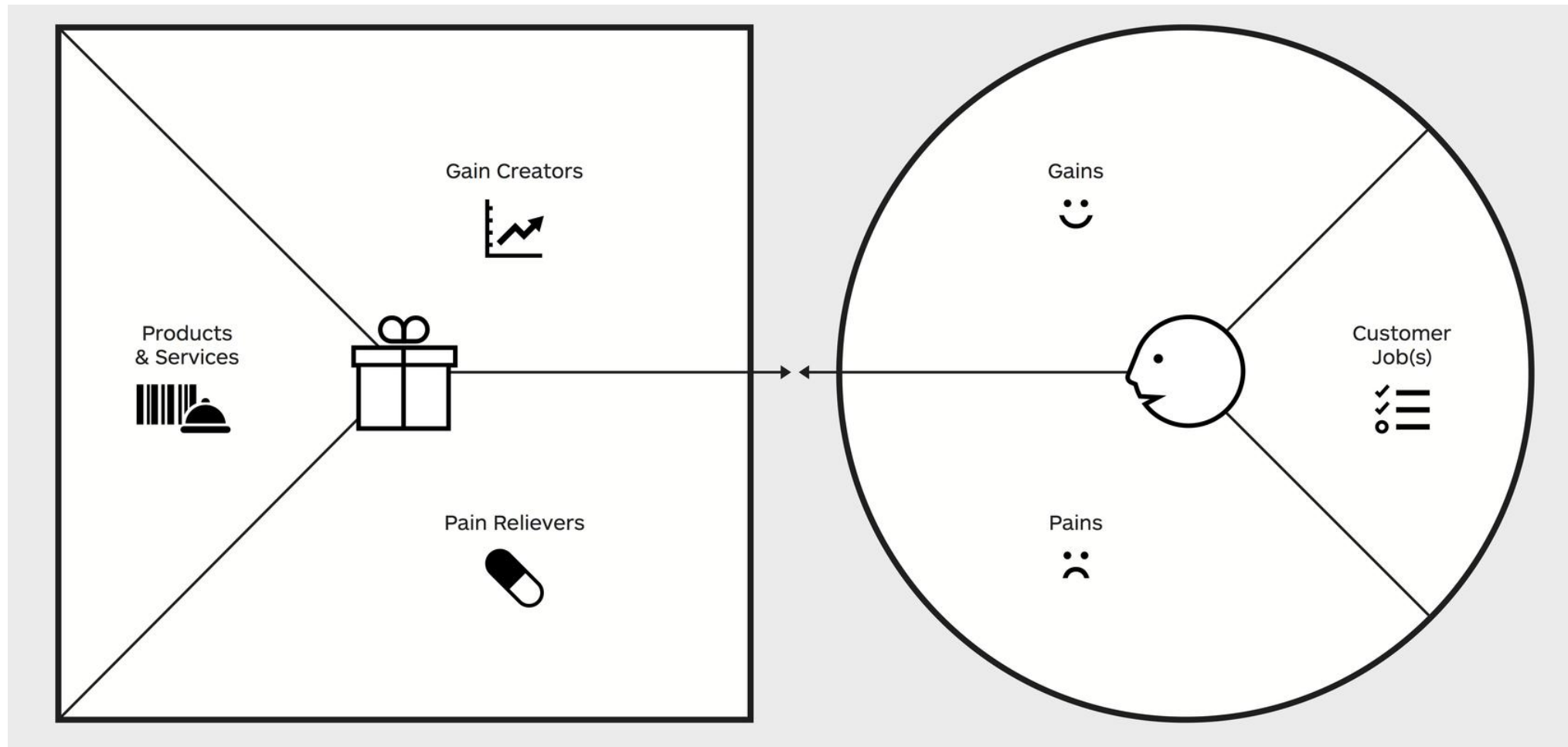
Pain Relievers describe how the products and services alleviate specific problems faced by customers.



## VALUE PROPOSITION

clear statement that explains how a product or service solves a problem, delivers benefits, and why it is better than alternatives.

# VALUE MAP



# Business model (CANVAS)

The CANVAS business model development framework is employed to outline the business strategy



**Key Partners**



**Key Activities**



**Value Propositions**



**Customer Relationships**



**Customer Segments**



**Key Resources**



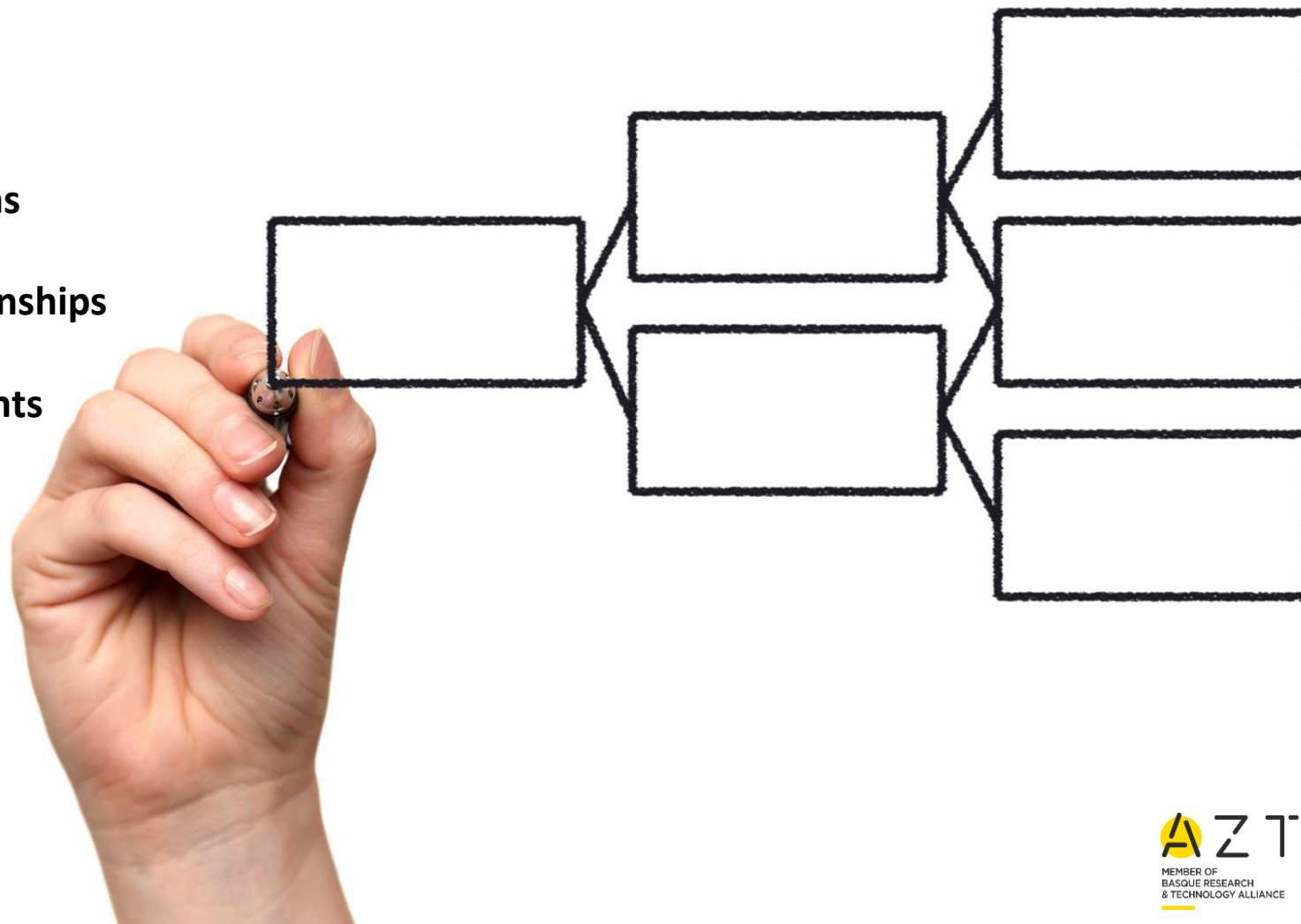
**Channels**



**Cost Structure**



**Revenue Streams**



### Key Partners



Who are our Key Partners? Who are our key suppliers? Which Key Resources are we acquiring from partners? Which Key Activities do partners perform?  
 MOTIVATIONS FOR PARTNERSHIPS: Optimization and economy, Reduction of risk and uncertainty, Acquisition of particular resources and activities

### Key Activities



What Key Activities do our Value Propositions require? Our Distribution Channels? Customer Relationships? Revenue streams?  
 CATEGORIES: Production, Problem Solving, Platform/Network

### Key Resources



What Key Resources do our Value Propositions require? Our Distribution Channels? Customer Relationships Revenue Streams?  
 TYPES OF RESOURCES: Physical, Intellectual (brand patents, copyrights, data), Human, Financial

### Value Propositions



What value do we deliver to the customer? Which one of our customer's problems are we helping to solve? What bundles of products and services are we offering to each Customer Segment? Which customer needs are we satisfying?  
 CHARACTERISTICS: Newness, Performance, Customization, "Getting the Job Done", Design, Brand/Status, Price, Cost Reduction, Risk Reduction, Accessibility, Convenience/Usability

### Customer Relationships



What type of relationship does each of our Customer Segments expect us to establish and maintain with them? Which ones have we established? How are they integrated with the rest of our business model? How costly are they?

### Channels



Through which Channels do our Customer Segments want to be reached? How are we reaching them now? How are our Channels integrated? Which ones work best? Which ones are most cost-efficient? How are we integrating them with customer routines?

### Customer Segments



For whom are we creating value? Who are our most important customers? Is our customer base a Mass Market, Niche Market, Segmented, Diversified, Multi-sided Platform

### Cost Structure



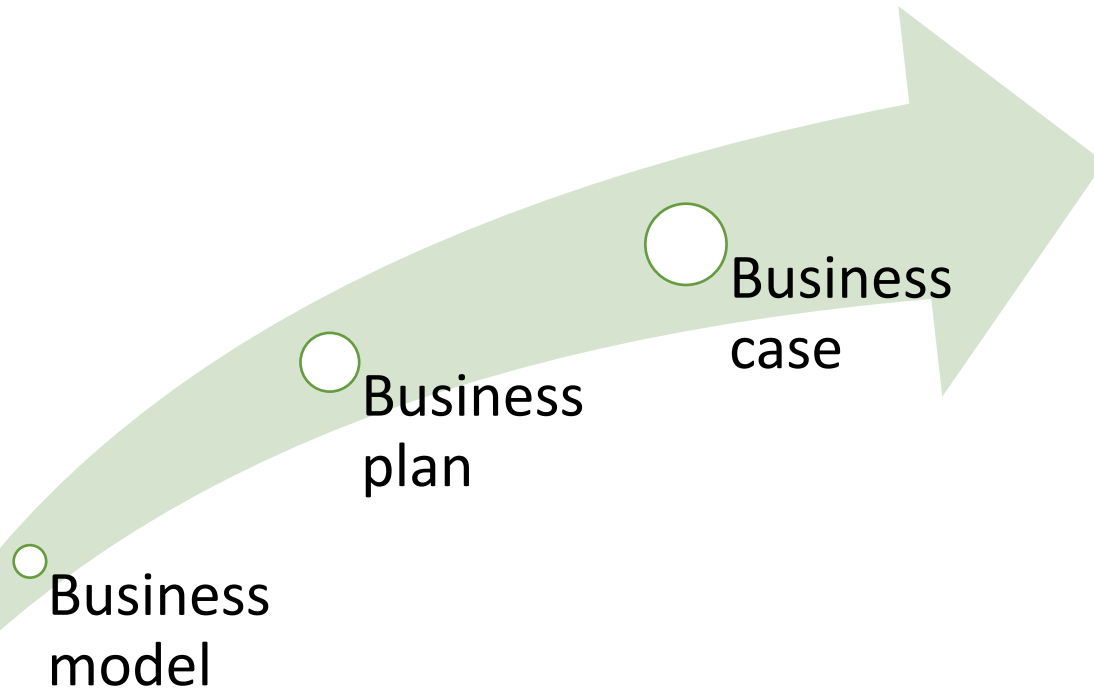
What are the most important costs inherent in our business model? Which Key Resources are most expensive? Which Key Activities are most expensive?  
 IS YOUR BUSINESS MORE: Cost Driven (leanest cost structure, low price value proposition, maximum automation, extensive outsourcing), Value Driven (focused on value creation, premium value proposition).  
 SAMPLE CHARACTERISTICS: Fixed Costs (salaries, rents, utilities), Variable costs, Economies of scale, Economies of scope

### Revenue Streams



For what value are our customers really willing to pay? For what do they currently pay? How are they currently paying? How would they prefer to pay? How much does each Revenue Stream contribute to overall revenues?  
 TYPES: Asset sale, Usage fee, Subscription Fees, Lending/Renting/Leasing, Licensing, Brokerage fees, Advertising  
 FIXED PRICING: List Price, Product feature dependent, Customer segment dependent, Volume dependent  
 DYNAMIC PRICING: Negotiation (bargaining), Yield Management, Real-time-Market

# Importance of New Business Models



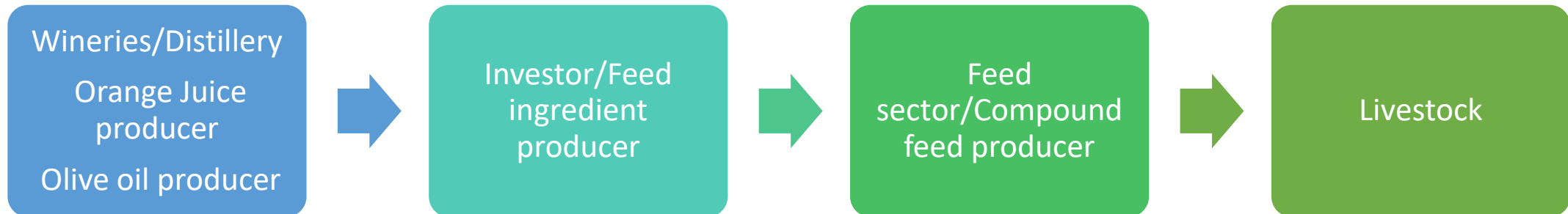
- The business model is the starting point, providing the overall framework for the business.
- The business plan details how the business model will be implemented and operated.
- The business case focuses on the viability and value of specific projects or initiatives within the broader business plan.

## Business Model to Business Plan

**Actors** for the value chain relevant from a business perspective

### Business model

Define the stakeholders in each stage of the value chain (to be included in the business model)



### Business plan

- ⇒ Identify **2-3 companies of each step of the value chain** that will be interested in implementing the solution at case study region
- ⇒ Ask for **Letter of intent** (Investors) / **Commercial agreements** (Feed sector / Livestock)

# Grape stem ingredient for dairy cows in the Basque country

Lead by AZTI

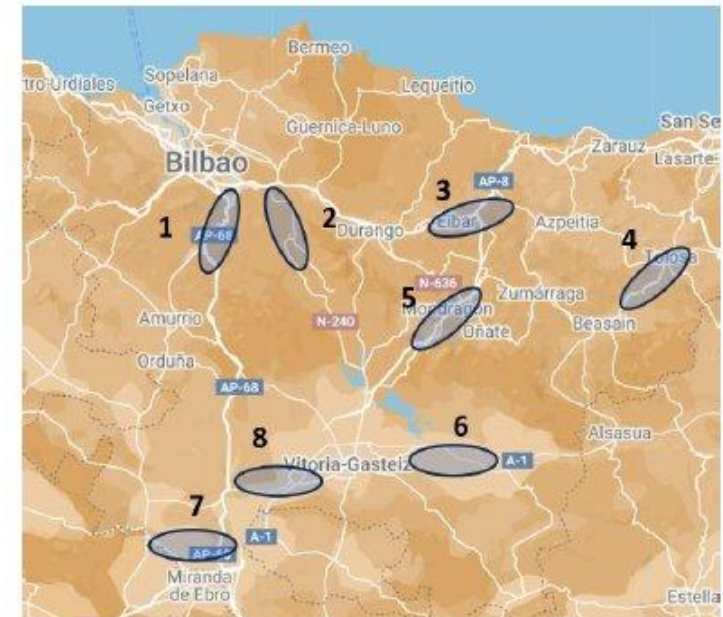


Interest from:

- By-product generator (wineries).
- Investor (By-product valorisation, ingredient production)
- Feed producers
- Farmers (Dairy cows)



COMARCA	VIA	HERRIALDE	REFERENCIA
ZONA 1 NERBIOI	AP68-A8	BIZKAIA	ARRIGORRIAGA
ZONA 2 ARRATIA	N240-A8	BIZKAIA	IGORRE
ZONA 3 DEBABARRENA	A8-P1	GIPUZKOA-BIZKAIA	EIBAR
ZONA 4 TOLOSALDEA	N1	GIPUZKOA	TOLOSA
ZONA 5 DEBAGOIENA	AP1	GIPUZKOA-ARABA	ARETXABALETA
ZONA 6 LAUTADA	A1	ARABA	ELBURGO
ZONA 7 AÑANALDEA	A1	ARABA	LANTARON
ZONA 8 GASTEIZ	A1	ARABA	JUNDIZ



## Orange peel in Greece, to produce ingredient for dairy husbandry

Lead by NTUA

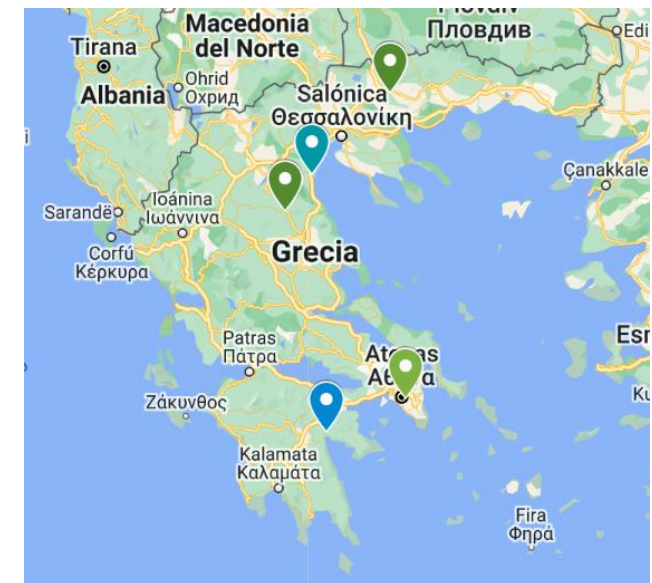
Interest from:

- By-product generator (orange peels).
- Investor
- Feed producers
- Farmers

Also gathered interest for subsequent yogurt producer.



National  
Technical  
University  
of Athens



# Olive cake in Cairo for poultry

Lead by HU

Olive cake from olive oil production and aromatics herbs in Cairo (Egypt)

Develop a Circular Economy solution at SEKEM foundation.



Thank you for your attention!  
Any question?



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### Project Partnership



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