Examples of bioeconomy business models

Spyridon Karytsas, Efthymia Alexopoulou

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MARGINAL LANDS, INDUSTRIAL CROPS
AND INNOVATIVE BIO-BASED VALUE CHAINS

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Introduction

Figure source: Bio-based Industries Consortium (2023)

The business model canvas

Business Model Canvas

Project:

Designed by:

Date:

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 your Value Propositions require?
Your Distribution Channels?
You Customer Relationships?
YourRevenue streams?

CATEGORIES:
Production, Problem Solving, Platform/Network

Key Resources
What Key Resources do your Value Propositions require?
Your Distribution Channels?
Your Customer Relationships?
Your Revenue Streams?

TYPES OF RESOURCES: Physical, Intellectual (brand patents, copyrights, data), Human, Financial

Value Propositions
What value do you deliver to the customer?
Which one of your customer's problems are you helping to solve?
What bundles of products and services are you offering to each Customer Segment?
Which customer needs are you 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 your Customer Segments expect you to establish and maintain with them?
How are they integrated with the rest of your business model?
How costly are they?

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

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

Cost Structure
What are the most important costs inherent in your 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 your customers really willing to pay?
For what do they currently pay?
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

Figure source: Neos Chronos (n.a.)

Business model example: Marginal lands

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Business Model Canvas

Key Partners

- Research institutions for scientific collaborations.
- Investors and funding organizations.
- Industry associations promoting bioeconomy and sustainability.
- Potential distribution partners.

Key Activities

- Identifying and optimizing marginal lands for cultivation.
- Developing and adapting crops and processes for specific land conditions.
- Collaborating with local farmers and communities.
- Marketing and branding efforts for direct-to-consumer products.

Key Resources

- Advanced cultivation and processing facilities for marginal lands.
- Research and development team.
- Intellectual property (patents and licenses).
- Production and processing equipment.

Value Propositions

- Utilizing marginal lands for sustainable agriculture and resource management.
- Creating new economic opportunities for local communities.
- Providing eco-friendly and locally sourced products.
- Offering alternative feedstock for biofuels and other industrial applications.

Customer Relationships

- Personal assistance for local farmers and cooperatives.
- Self-service for individual consumers through the online platform.

Channels

- Direct sales to partner companies.
- Local farmer networks and cooperatives.
- Trade shows and conferences.
- Online sales platform for direct-to-consumer products.

Customer Segments

- Local farmers and agricultural communities.
- Food and beverage companies.
- Cosmetic and personal care companies.
- Construction and chemical companies.

Cost Structure

- Labor costs for research, cultivation, and production teams.
- Raw materials (seeds, water, and nutrients for crop cultivation).
- Energy consumption for cultivation facilities and equipment.
- Maintenance and upkeep of facilities and equipment.

Revenue Streams

- Direct sales of bioeconomy products.
- Licensing of proprietary technology.
- Collaboration and partnership revenue.
- Government grants and funding for sustainable projects.

Business model example: Lignocellulosic crops

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Business Model Canvas

Key Partners

- Research institutions.
- Agricultural cooperatives and farmers.
- Government agencies and funding organizations.
- Equipment manufacturers and suppliers.
- Biorefineries and processing facilities.
- Industry associations and consortiums.
- Distribution and logistics partners.
- Environmental and sustainability organizations.

Key Activities

- Crop Selection and Breeding.
- Land Acquisition and Management.
- Cultivation and Harvesting.
- Biomass Processing.
- Product Development.
- Product Manufacturing and Quality Control.
- Marketing and Branding.
- Distribution and Logistics.
- Research and Innovation.

Key Resources

- Advanced cultivation facilities.
- Research and development team.
- Intellectual property.
- Production and processing equipment.
- Expertise in lignocellulosic biomass conversion.
- Collaborative partnerships.
- Funding and investments.

Value Propositions

- Sustainable raw materials.
- High-quality bio-based products.
- Job creation and local economic development.
- Innovative technology and intellectual property.

Customer Relationships

- Key industries and partners.
- Personalized sssistance for strategic partners.
- Self-service for smaller businesses and individual consumers.

Channels

- Direct sales.
- Intermediaries.
- Online platforms.
- Trade shows and conferences.

Customer Segments

- Food and beverage companies.
- Chemical and material manufacturers.
- Pharmaceutical companies.

Cost Structure

- Labor costs.
- Raw materials.
- Energy consumption.
- Water usage.
- Maintenance and upkeep.
- Research and development (R&D).
- Licensing and intellectual property (IP) costs.

Revenue Streams

- Direct sales.
- Wholesale.
- Licensing.
- Government grants and funding.
- Consultancy services.
- Research collaborations.
- Carbon credits.

Business model example: Oil-seeds

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Business Model Canvas

Key Partners

- Collaborations with academic institutions for research and development.
- Strategic alliances with agricultural equipment manufacturers.
- Joint ventures with other bioeconomy companies for cross-promotion and resource sharing.

Key Activities

- Developing and improving oilseed extraction and processing technology.
- Cultivating and managing industrial crop farms.
- Researching and implementing sustainable farming practices.
- Marketing and promoting the benefits of bioeconomy to potential customers.

Key Resources

- Advanced oilseed extraction and processing technology.
- Industrial crop farming expertise.
- Research and development capabilities.
- Distribution network for efficient delivery.

Value Propositions

- Providing sustainable, high-quality oilseeds derived from industrial crops, contributing to a circular economy and reducing reliance on fossil fuels.

Customer Relationships

- Personalized assistance for large-scale orders.
- Self-service through the online platform for smaller orders.

Channels

- Direct sales to manufacturers and producers.
- Online platform for ordering and delivery.
- Trade shows and industry events for networking and partnerships.

Customer Segments

- Food manufacturers.
- Cosmetic and personal care product manufacturers.
- Biofuel producers.
- Pharmaceutical companies.

Cost Structure

- Research and development expenses.
- Farming and crop maintenance costs.
- Technology maintenance and upgrades.
- Marketing and promotional activities.

Revenue Streams

- Sales of oilseeds.
- Licensing of proprietary technology for oilseed extraction and processing.
- Consultancy services for companies interested in adopting bioeconomy practices.

Business model example: Guayule

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Business Model Canvas

Key Partners

- Research institutions and universities for R&D collaborations and technological advancements.
- Agricultural companies for the cultivation and management of guayule crops.
- Logistics and transportation providers for efficient distribution of raw materials and finished products.

Key Activities

- Guayule crop cultivation and management.
- Research and development of innovative processing techniques for guayule.
- Marketing and sales of guayule-based products and services.
- Networking and partnership building with relevant stakeholders.

Key Resources

- Guayule plants and cultivation infrastructure.
- Production facilities for processing guayule into natural rubber and other products.
- Human resources with expertise in agriculture, biotechnology, and business management.

Value Propositions

- Sustainable and eco-friendly raw material (guayule) for the production of natural rubber and other valuable products.
- Providing a renewable alternative to synthetic rubber, contributing to reduced carbon footprint and environmental conservation.

Customer Relationships

- Collaborative partnerships with customers to develop innovative products.
- Educating customers on the benefits of guayule-based rubber.

Channels

- Direct sales to customers in the automotive and consumer goods sectors.
- Collaborations with suppliers and manufacturers in the target industries.
- Participation in trade shows, conferences, and events to showcase the company's products and services.

Customer Segments

- Automotive industry for tires and other rubber components.
- Consumer goods manufacturers using natural rubber in their products (e.g., footwear, sports equipment, etc.).
- Environmental organizations and governments promoting sustainable development and circular economy.

Cost Structure

- Labor costs for agricultural and production workers.
- Maintenance and development costs for cultivation and processing infrastructure.
- Research and development expenses.
- Marketing and sales expenses.

Revenue Streams

- Sales of guayule-derived natural rubber.
- Licensing of intellectual property related to guayule cultivation and processing technologies.
- Consultancy services for companies interested in adopting guayule-based solutions.

Business model example: Hemp

Business Model Canvas

Key Partners

- Research institutions and universities for R&D collaborations and technological advancements.
- Agricultural companies for the cultivation and management of hemp crops.
- Logistics and transportation providers for efficient distribution of raw materials and finished products.

Key Activities

- Hemp crop cultivation and management.
- Research and development of innovative processing techniques for hemp.
- Marketing and sales of hemp-based products and services.
- Networking and partnership building with relevant stakeholders.

Key Resources

- Hemp plants and cultivation infrastructure.
- Production facilities for processing hemp into various products.
- Human resources with expertise in agriculture, biotechnology, and business management.

Value Propositions

- Utilizing hemp as a sustainable and versatile resource for various products, such as textiles, construction, and food.
- Offering eco-friendly alternatives to traditional materials and products, promoting a circular economy.

Customer Relationships

- Personalized assistance for individual consumers.
- Strategic partnerships and long-term relationships with B2B clients.
- Educating customers about the benefits of hemp-based products.

Channels

- Direct sales to customers in the textile, construction, and food sectors.
- Collaborations with suppliers and manufacturers in the target industries.
- Participation in trade shows, conferences, and events to showcase the company's products and services.

Customer Segments

- Textile and fashion industry for hemp-based fabrics and clothing.
- Construction and building materials sector for hemp-based insulation and other applications.
- Food and beverage companies using hemp seeds and derivatives in their products.
- Environmental organizations and governments promoting sustainable development.

Cost Structure

- Labor costs for agricultural and production workers.
- Maintenance and development costs for cultivation and processing infrastructure.
- Research and development expenses.
- Marketing and sales expenses.

Revenue Streams

- Sales of hemp-based textiles, clothing, and other consumer goods.
- Sales of hemp-based building materials and insulation.
- Sales of hemp-derived food products and ingredients.
- Licensing of intellectual property related to hemp cultivation and processing technologies.

Business model example: Tobacco

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Business Model Canvas

Key Partners

- Collaborations with agricultural organizations, research institutions, and other bioeconomy companies can help in resource sharing, knowledge exchange, and joint ventures.

Key Activities

- Crucial activities include crop cultivation, research, product development, manufacturing, and marketing.

Key Resources

- Essential resources include tobacco-based industrial crops, processing facilities, research and development capabilities, and a skilled workforce.

Value Propositions

- The value proposition lies in providing sustainable, bio-based raw materials and innovative products derived from tobacco-based industrial crops, contributing to a greener economy and reducing environmental impact.

Customer Relationships

- The company could maintain a mix of self-service and personal assistance, depending on the customer's needs and preferences.

Channels

- The business might use direct sales, online platforms, or trade shows and conferences to reach customers.

Customer Segments

- The primary customer segments for this business model could be pharmaceutical companies, alternative tobacco product manufacturers, and research institutions.

Cost Structure

- The main cost drivers include crop cultivation, labor, research and development, infrastructure maintenance, and marketing expenses.

Revenue Streams

- Income can be generated through the sale of tobacco-based raw materials, finished products, and licensing of technology or intellectual property.

Business model example: Algae

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Business Model Canvas

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
• Research institutions for scientific collaborations. • Investors and funding organizations. • Industry associations promoting bioeconomy and sustainability. • Potential distribution partners.	• Algae strain development and optimization. • Scalable algae cultivation and harvesting. • Product development and formulation. • Marketing and branding efforts. **Key Resources** • Advanced algae cultivation facilities. • Research and development team. • Intellectual property (patents and licenses). • Production and processing equipment.	• Sustainable and eco-friendly algae-based products. • High-quality ingredients with unique nutritional properties. • Bioactive compounds for pharmaceuticals and health supplements. • Renewable and low-carbon biofuels.	• Personal assistance for pharmaceutical and biofuel partners. • Self-service for individual consumers through the online platform. **Channels** • Online sales platform. • Direct sales to partner companies. • Trade shows and conferences. • Collaborations with influencers and sustainability advocates.	• Consumers interested in eco-friendly products. • Food and beverage companies seeking sustainable ingredients. • Pharmaceutical companies for bioactive compounds. • Biofuel producers and energy companies.

Cost Structure	Revenue Streams
• Labor costs for research, cultivation, and production teams. • Raw materials (nutrients, water, and CO_2 for algae cultivation). • Energy consumption for cultivation facilities and equipment. • Maintenance and upkeep of facilities and equipment.	• Direct sales of algae-based products. • Licensing of proprietary technology. • Collaboration and partnership revenue. • Government grants and funding for sustainable projects.

Sources

Bio-based Industries Consortium (2023) "BIC Trend Report: rethinking the approach to the EU bioeconomy and taking action". Accessed Apr 2024 https://biconsortium.eu/media/bic-trend-report-rethinking-approach-eu-bioeconomy-and-taking-action

European Commission (n.a.) "Maritime forum - Cluster story: Algae and blue bioeconomy". Accessed Apr 2024 https://maritime-forum.ec.europa.eu/contents/cluster-story-algae-and-blue-bioeconomy_en#:~:text=Algae%20have%20been%20recognised%20as,vii

Eurostat (2023) "Glossary: Industrial crops". Accessed Apr 2024 https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Industrial_crops

Neos Chronos (n.a.) "Neos Chronos Template Library - Business Model Canvas Template". Accessed Apr 2024 https://neoschronos.com/download/business-model-canvas/docx/

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midas-bioeconomy.eu

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@MIDAS_EUProject

MIDAS Project

info@midas-bioeconomy.eu

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