



Progress is impossible without change, and those who cannot change their minds cannot change anything.

(George Bernard Shaw)

University – Business Alliance in Modern Biotechnology Approaches for Climate Change Mitigation Solutions

BIO-Save

IN THIS ISSUE

THE BACKGROUND:

Biosecurity, defined by the FAO as a *strategic and integrated approach that encompasses the policy and regulatory frameworks (including instruments and activities) for analysing and managing relevant risks to human, animal and plant life and health, and associated risks to the environment*, relies heavily on technologies for the **green growth** which draw on knowledge in genomics, genetics, and molecular biology.

However, the progress is hindered by:

➤ **Incompleteness** of national and sector-specific **scientific data**.

➤ The **shortage of high-level skills** and **advanced knowledge on the job market** where ca. 80% of the biotech companies and organisations would need more educated professionals in the near future.

BIO-SAVE: THE TEAMED-UP EFFORT

➤ The initiative *University-business alliance in modern biotechnology approaches for climate change mitigation solutions (BIO-Save)* teams up experienced **researchers** and **higher education professionals**:

- With expertise in **biotechnology**, cell biology, molecular biology, **environmental protection**, climate studies, **educational management**,
- From four **universities**, four **SMEs** and two **NGOs**”:
 - **Sofia University St. Kliment Ohridski (Bulgaria)** - the **coordinator**
 - **Intellect Foundation (Bulgaria)**
 - **BULGAP Ltd. (Bulgaria)**
 - **EKO-Znanie GT Ltd. (Bulgaria)**
 - **The University of Thessaly (UTH) (Greece)**
 - **Biognosis (Greece)**
 - **Alma Mater Studiorum – Università di Bologna (UNIBO) (Italy)**
 - **Institute of Information Technology Ltd. (Initut) (Slovenia)**
 - **Gazi University (Turkey)**
 - **PLANART Ltd. (Turkey)**

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BIO-SAVE: THE AMBITIONS:

BIO-Save strives to:

- **Bridge the gap** between higher education and the biotech **business**
- Promote the **best practices** and **advanced knowledge** and **skills** in modern biotechnology
- Boost **innovation** through a novel programme “*Modern biotechnology approaches for climate change mitigation*”
- Stimulate the shift of the education towards **smart and green competences**
- **Introduction** of up-to-date knowledge in climate protective biotechnology
- Use **ICT-based** flexible, transferable **Learning Outcomes** and **Learning Pathways** to build a **competence-based learning system**.
- Contribute to the (re)training of the workforce to answer the **Industry 4.0 requirements** for digital transformation of the economy, the business, and our life.

BIO-Save: The Three Pillars:

- Linking higher education, research and business
- Stimulating entrepreneurial and creative skills to promote innovation in higher education through an interactive learning environment
- Improving skills for the development of the biotech sector

BIO-Save builds on the ECO-Center and Bio-FIT projects by:

- Emphasizing the latest research on clean environment and bio-fertilizer technologies
- Transferring the outputs to Turkey, Italy and Slovenia
- Introducing green principles into the agricultural sector
- Upgrading the free-access multilingual educational programmes through application of EQF/HE strategic system



BIO-SAVE: KNOWLEDGE IS POWER

BIO-Save resolves the mismatch

between the academy and the job market with respect to:

- the **distance between the knowledge** gained in the university **and the skills expected** by the job market
- the **lack of entrepreneurial and strategic skills** in modern biotechnology
- the **gaps in addressing the socio-economic challenges** linked to climate change

By **work-based learning** with a focus on **digital skills** and competences.

BIO-Save takes on business ideas and translates them into:

- Innovative **training content**
- Real opportunities for **developing and sharing business ideas**
- Prospects for university graduates to **join entrepreneurs' community**

BIO-Save supports education in business by promoting a better understanding of the:

- Role of the different professionals
- Approaches to strengthening the cooperation between tutors and trainees
- Practices to empower trainees in HE & business.

BIO-SAVE: EUROPEAN ADDED VALUE

BIO-Save makes a difference by:

- Promoting **smart and inclusive growth** in the EU by addressing:
 - Sustainability
 - Skills and Mobility
 - Cooperation
 - Intersectoral relations
- **Meeting the need** for existing and emerging knowledge in climate change prevention
- **Bridging the gap** between the academic world and the biotech business in the EU by:
 - Promoting the **best practices** for climate change mitigation based on modern biotechnology,
 - Applying **novel methods for upgrading** learning programmes to connect them to the **real-world job market**,
 - Offering knowledge about **novel biotechnology approaches** – in **bio-fertilizers** and **energy efficient farming**,
 - Proposing **hands-on experience with technology solutions** – omics, system biology, among others.



The BIO-Save innovative differentiators are:

- **Blending** of different learning tools
- **“Formal” hard-skill courses and resources**
- **Peer-to-peer learning**
- **Online support**, a learning programme, a hub of **cloud-based** resources
- Events across Europe for **networking**
- A **web-based application** for a diagnostic tool kit, a **repository** of learning objects, and **personalised** learning

BIO-SAVE: IN SEARCH FOR NEW COMPETENCES

The BIO-Save methods involve:

- **Digital** design and **cloud** technology;
- Testing and implementation of **innovative practices** in biotechnology;
- Novel IT skills including **3D interactive education images**;
- Use of **new materials** and products;
- Managing **new solutions** for recognition and validation of the knowledge, skills and competences acquired via EQF/NQF/HE instruments;
- Building of pilot training skills and **green competency** in the European Higher Education Area;
- Promotion of **cooperation** among regional authorities for efficient education.

The BIO-Save approach provides training in:

- Modern **sustainable technologies** in biotechnology - 3D-printing, genomics, nanotechnology and synthetic biology.
- Specific skills for handling new **advanced** biotech technologies.
- **Risks** posed by modern biotechnology.
- The new eco-friendly **green use** of agro-chemicals which reduce pesticides through the deployment of genes conferring **resistance** or **tolerance** to biotic and abiotic stresses.
- Assessment and monitoring of **eco-friendly technologies** in addressing climate change.

BIO-SAVE: THE RESULTS

BIO-SAVE CLOUD-BASED WEB PORTAL

Online and offline courses in English, Bulgarian, Turkish, Greek, Italian

BIO-Save web portal hosts

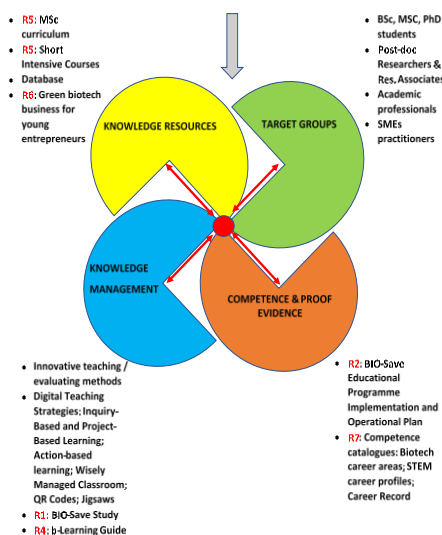
- the BIO-Save b-learning
- BIO-Save project database
- BIO-Save dissemination & exploitation materials

BIO-SAVE BLENDED LEARNING MODEL

Methodology and guidelines in English, Bulgarian, Turkish, Greek, Italian

BIO-Save blended learning model implemented into the **b-Learning Guide in Modern Biotechnology for Higher Education Professionals** which has three parts:

- “New learning and teaching methods in HE programmes”
- “BIO-Save project learning”
- “The use of ICT in HE”



BIO-SAVE MODULAR EDUCATION PROGRAMME

Learning/training materials & guide in English, Bulgarian, Turkish, Greek, Italian

- Arranged in **modules**
- Aimed at **Learning Outcomes**
- Organised in **Blended Learning Pathways (BLP)**
- Based on: **offline/online e-learning, personalised paths, short intensive courses**, etc.

And have **two outputs**:

- The **BIO-Save Learning Curriculum**:
- The **BIO-Save Guide “Green Business for Young Entrepreneurs”**

BIO-SAVE CAREER GUIDANCE

Guideline in English, Bulgarian, Turkish, Greek, Italian

- Produces the **BIO-Save Competence Catalogue** organised into two parts:
 - Part I: **Career profiles**
 - Part II: **Competence records**

BIO-SAVE: INVEST IN THE FUTURE

BIO-Save sustainability is ensured by:

- The **flexibility** and **modularisation** of the learning content
- The **diversity** of the educational solutions
- The versatility of the **e-learning** materials and **blended learning** methodology
- The **self-training** and **reproduction on demand** options
- The **“return on investment”** cycle
- The focus on **increased competitiveness**
- The **“knowledge strategy”** based on the competence-based model
- The exploitation of the BIO-Save Competence Catalogue to **transform** learning experience



BIO-Save: the aftermath

The BIO-Save Consortium will maintain the BIO-Save programme by:

- Building capacity to foster project accessibility
- Incorporating (parts of) the BIO-Save programme in ongoing organisational or community activities
- Collaboration within the partners or associated participants
- Upgrade of resources
- Involvement of new associated players
- Search for sponsors to further BIO-Save achievements
- Encouraging the higher education institutions to use the BIO-Save programme
- Establishment of joint actions with other EU programmes

AND SPECIFICALLY:

The BIO-Save e-platform will **operate after the end of the project.**

Dissemination and exploitation activities will continue.

The Units of Learning Outcomes and modules will be introduced **into the formal university programmes.**

The universities will offer **educational paths on demand to business practitioners.**

For more information visit
BIO-Save web site:
<https://bio-save.eu/>



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