Biomimicry Design for Sustainability Skills in VET

KA220-VET-00620D4B

KA220-VET - Cooperation Partnerships in Vocational Education and Training

WP1 Project Management

Partner SWOT Analysis for Work Packages

Document Info	
Project reference	**2023-1-EL01-KA220-VET-000158477**
Deliverable	Partner SWOT Analysis for Work Packages
Dissemination level	Public
Date	15/3/2024
Document version	1
Status	Final
Sharing	CC-BY-NC-ND
Authors	Hariklia Tsalapatas, University of Thessaly Christina Taka, University of Thessaly Carlos Vaz de Carvalho, Virtual Campus Ioanna Stefan, ATS Anca Georghe, ATS Maria Fernandez, INFODEF Ahu Sismek, Yakacik Mesleki Ve Teknik Anadolu Lisesi Stella Regolli, Etudes Et Chantiers Corsica
Reviewers	Hariklia Tsalapatas, University of Thessaly

Contributors

Konstantina Vlachoutsou, University of Thessaly

Dimitris Ziogas, University of Thessaly

Konstantinos Katsimentes, University of Thessaly

Sotiris Evaggelou, University of Thessaly

Apostolos Fotopoulos, University of Thessaly

Antoniu Stefan, ATS

Laura Trevisan, INFODEF

TABLE OF CONTENTS

1. Introduction

The Let's Mimic project is dedicated to designing and developing a digital learning intervention that fosters biomimicry design principles in vocational education and training (VET). The project creates a comprehensive digital learning intervention that includes methodological learning based on biomimicry, analysis of student needs, design and development of a digital learning platform based on biomimicry, piloting activities with students, educator support material, multiplier events, and broad dissemination to reach the VET and wider lifelong learning communities.

This report presents a SWOT analysis developed by each partner as part of project management (Work Package 1) and planning at the beginning of each work package implementation. It summarises the SWOT analysis results per work package and partner. The SWOT analysis allows partners to identify and analyse strengths, weaknesses, opportunities, and threats concerning the implementation of each work package. It will enable partners to plan the implementation in a manner that fully exploits strengths and opportunities while adequately addressing weaknesses and threats.

The following is an overview of the Let's Mimic work plan tasks and deliverables, which serve as the basis for the SWOT analysis presented in subsequent sections.

The project implementation plan includes the following work packages, tasks, and deliverables:

Work Package 2: Biomimicry process design for sustainability skills.

Task 2.1 Learning outcomes matrix for sustainability skills in VET learners. The task involves:

- Desk-based research on best practices related to biomimicry and sustainability at partner organisations and in their regions.
- Questionnaire-based research on identifying learning needs for building biomimicry skills in VET.
- The definition of a learning outcomes matrix, which includes desirable student competencies on biomimicry.

Task 2.2 Project-based learning framework on biomimicry process design. The task involves a detailed analysis and presentation of the Let's Mimic biomimicry process learning design based on the well-accepted steps: DEFINE, BIOLOGISE, DISCOVER, ABSTRACT, EMULATE, and EVALUATE.

Task 2.3 Biomimicry platform design. It involves a detailed analysis of the design of the Let's Mimic biomimicry digital learning platform, which includes the Microlearning Module, the Self-Regulated Learning Module, the Teamwork Module, the Gamification Module, the Assessment Module, and the User Management Module.

Task 2.4 Kick-off meeting.

The results of the work package are the following:

D2.1 Biomimicry process design for sustainability skills.

- PART A – Learning outcomes matrix for sustainability skills in VET. It includes:
    - Desk research summary on current sustainability and biomimicry practices.
    - Questionnaire-based research results on needs analysis.
    - The Let's Mimic learning outcomes matrix for sustainability skills.
- PART B – Project-based learning framework on biomimicry process design. An in-depth description of the Let's Mimic biomimicry methodological learning design.

D2.2 Biomimicry platform design.

Work Package 3:

Task 3.1 Self-regulated learning kit. It includes:

- 60 biomimicry cases addressed through biomimicry.
- 60 biomimicry solutions.
- 60 open biomimicry challenges for VET students.

In addition, the self-regulated learning kit provides a methodology for using the above resources in the classroom to develop biomimicry skills.

Task 3.2 Biomimicry handbook for VET teachers. It supports the design and delivery of biomimicry learning activities in the classroom.

Task 3.3 Biomimicry training modules. It includes 7 detailed training modules with steps, resources, exercises, and rich content.

Task 3.4 Monitoring meeting.

The results of the work package are:

D3.1 Self-regulated learning kit. It includes 60 cases, 60 solutions, and 60 open challenges related to biomimicry.

D3.2 Biomimicry handbook for VET teachers. A reference document that supports educators in applying biomimicry and problem-based learning to build sustainability skills.

D3.3 Biomimicry training modules. Seven thoroughly developed learning units on biomimicry cases.

Work Package 4: Biomimicry platform development.

Task 4.1 Biomimicry platform development and maintenance. Development of the biomimicry digital learning platform software.

Task 4.2 Biomimicry platform testing. Alpha and beta testing of the digital learning platform functionality.

Task 4.3 Use cases and pilot setup. Developing of a piloting strategy and identification of piloting sites, participants, and activities.

Task 4.4 Biomimicry pilot implementation, deployment, and evaluation. Piloting activities with VET students and educators.

Task 4.5 Capacity building activity. An international training event for building VET trainer skills on integrating VET in learning.

Task 4.6 Monitoring meeting.

The results of the work package are:

D4.1 Biomimicry learning platform.

D4.2 Instructor technical guide. A reference manual on the Let’s Mimic digital learning platform functionality.

D4.3 Testing activities report. Results of alpha and beta testing of the Let's Mimic digital learning platform functionality.

D4.4 Use cases and piloting planning. Report on piloting planning, including identification of participant groups and activities.

D4.5 Biomimicry piloting report. Report on piloting with VET students and educators at all partner sites.

D4.6 Capacity building event report. Summary of capacity building event organisation.

Work package 5: Dissemination and exploitation

Task 5.1 Dissemination plan and visual identity.

Task 5.2 Dissemination activities. It includes a project portal, a project social media page, a project leaflet, a project newsletter, press releases, internet and social media articles, and more.

Task 5.3 Biomimicry exploitation. An exploitation plan for the post-project sustainability of activities.

Task 5.4 Multiplier events. It involves events organised at each partner site and an additional international event.

Task 5.5 Final meeting.

The results of the work package are:

D5.1 Dissemination plan.

D5.2 Dissemination activities.

D5.3 Biomimicry exploitation plan.

D5.4 Multiplier events.

2. Work Package 2 SWOT Analysis

2.1 SWOT analysis at the University of Thessaly

Strengths

- **Regional desk research**: Desk research and needs analysis are performed in Greece. The regional focus raises awareness of existing initiatives at the policy and educational levels to promote sustainability through biomimicry and other methodologies. It demonstrates how biomimicry can align with skills development strategies, such as the National Skills Strategy in Greece. Additionally, it highlights the relevance of biomimicry in VET in Greece, aligning it with national and international policies, including those by CEDEFOP. Finally, it helps identify opportunities for educator skills building by recognising gaps in sustainability lifelong training offerings and suggesting complementary skills building and career development strategies.
- **Stakeholder engagement**: A questionnaire-based needs analysis that engages VET students and educators in Greece fosters early stakeholder involvement, encouraging active participation in the design of the proposed digital learning intervention for biomimicry. This approach ensures that the results are aligned with end-users' educational and professional needs, aspirations, and goals.
- **Clear framework via learning outcomes matrix**: The definition of a learning outcomes matrix helps align biomimicry competencies with VET standards, practices, curricula, and offerings, ensuring coherence and facilitating integration.
- **Biomimicry learning design**: The Let's Mimic biomimicry learning framework provides a solid methodological foundation for building biomimicry skills among VET students and educators to address industry and societal challenges, while also providing an effective learning paradigm relevant to broader learning sectors, such as schools, higher education, and professional education.
- **Innovation**: Biomimicry introduces a forward-looking, sustainability-centred thinking into VET, supporting green skills development aligned with EU priorities and promoting the European Green Deal and the green transition.

Weaknesses

- **Limited awareness and experience:** Biomimicry remains a niche topic in Greek VET. Students and educators are unfamiliar with biomimicry concepts and steps, which may lead to low engagement or difficulty identifying local best practices.
- **Dependence on survey participation**: Low response rates to the questionnaire-based research could limit insights.
- **Insufficient digital readiness**: The Let's Mimic learning interventions heavily rely on digital delivery and engagement. The digital divide and insufficient digital skills, particularly in underserved areas, might introduce challenges in deploying the proposed digital solution.

Opportunities

- **Policy alignment**: Let's Mimic objectives strongly align with EU priorities, particularly the European Green Deal, the green transition, and the European Skills Agenda. This further aligns with EU priorities on circular economy and sustainability in education, which can attract additional institutional and funding support. In Greece, the project aligns with the National Strategy for VET, the National Recovery and Resilience Plan (Greece 2.0), the National Climate Law (4936/2022), the Digital Transformation Roadmap, and the Human Resources Development, Education and Lifelong Learning operational program (NSRF 2021–2027)
- **Replication and scaling**: The methodology's design and platform can serve as a blueprint for other thematic areas in sustainability education across Greek VET and additional learning sectors, including schools, higher education, and professional education. The proposed digital learning intervention can be adapted to address student needs in diverse learning contexts.
- **Cross-sectoral innovation and synergies**: The proposed biomimicry methodology can inspire innovation across diverse sectors, including design, architecture, agriculture, and manufacturing. It offers opportunities for collaboration with universities, industry, and environmental organisations to promote sustainability.

Threats

- **Lack of institutional commitment**: VET institutions might prioritise more traditional skills, delaying the uptake of emerging biomimicry practices.
- **Regulatory or accreditation barriers**: Integrating new content into curricula could face challenges in the long-term accreditation of skills.
- **Cultural resistance to change**: Educators more familiar with traditional learning delivery may oppose the proposed digital biomimicry learning methodology.

2.2 SWOT analysis at ATS

- **Desk research and analysis:** Integrating sustainability and PBL in VET curricula has been a top priority in Romanian VET education. Consequently, a National Strategy for Sustainable Development was established, with clear targets for 2030. This strategy is already incorporated into the school curricula, promoting inclusion, active citizenship, ethics, critical thinking, and engaging students in real-world problems. Teachers are experienced with the PBL methodology, which is widely implemented in schools, enhancing practical skills and fostering critical thinking through real-world projects.
- **Stakeholder engagement**: The questionnaire-based research with VET students and teachers has promoted early stakeholder engagement. This approach encourages active participation in designing the proposed digital learning intervention for biomimicry, ensuring that the outcomes align with the end-users' educational and professional needs, aspirations, and goals.
- **Coherent curriculum via the Learning Outcomes Matrix:** The matrix serves as a structured framework that outlines the specific skills and knowledge students should acquire through their education. By mapping these competencies to existing VET standards, the matrix ensures coherence and facilitates the seamless integration of biomimicry principles into the curriculum.
- **Comprehensive Biomimicry Learning Framework on Let's Mimic Platform:** The Let's Mimic platform design provides a robust view of the biomimicry learning framework, ensuring that educators and students clearly understand the methodology and its

applications on the platform. The design may help convey complex biomimicry concepts effectively.

- **Project innovation**: By focusing on biomimicry, the framework addresses real-world challenges faced by industries and society. This approach ensures that the skills and knowledge gained are applicable and valuable in practical settings, enhancing students' employability and problem-solving capabilities.

Weaknesses

- **Fragmented institutional framework:** Romania's VET system is highly fragmented, with essential functions spread across multiple organisations. This leads to potential inefficiencies when transferring them to biomimicry-specific curricula.
- **Lack of specific knowledge in Biomimicry and limited Biomimicry training and education**: The approaches of the concept of biomimicry in Romania are complex and not widely understood; thus, this lack of specific knowledge may pose significant challenges in defining the learning outcomes matrix and adopting the Let's Mimic project outcomes. Teachers and curriculum developers may struggle to understand the concept and the LET'S MIMIC platform design without a clear understanding of biomimicry.
- **Lack of multidisciplinary collaboration**: Effective biomimicry education requires collaboration across multiple disciplines, including design, engineering, biology, ecology, chemistry, business, and social sciences. However, there is often a lack of multidisciplinary collaboration in Romania, which may hinder teachers and students when applying biomimicry during learning activities.
- **Low digital literacy and limited access to technology:** The Let's Mimic learning interventions are designed to be delivered and used digitally. However, this reliance on digital platforms presents significant challenges, particularly in areas with a digital divide or where students and educators lack digital literacy skills.

Opportunities

- **Curriculum innovation focusing on green skills development:** Romania's high demand for sustainable development and green skills may support future adoption of the learning outcome matrix and the project outcomes.

- **Enhanced engagement through questionnaire-based research:** Questionnaire-based research directly involves students and teachers in the process, fostering a deeper connection to the project and its outcomes and making them more invested in the initiative's success.
- **Technological advancements:** Incorporating new concepts such as Biomimicry with digital tools can enhance the learning experience and better prepare students for the modern workforce.

Threats

- **Lack of alignment with National VET frameworks:** The proposed learning outcome matrix and biomimicry learning framework may not align well with existing national VET frameworks developed in Romania. This misalignment could hinder the long-term integration of biomimicry into VET curricula, as it may not fit seamlessly with established educational standards and practices.
- **Regulatory or accreditation barriers**: Integrating new content, such as biomimicry, into existing curricula could face regulatory or accreditation challenges. These barriers could complicate the formal recognition and certification of the latest skills and competencies.
- **Potential low adoption:** The proposed digital biomimicry learning methodology may face opposition from teachers who are more accustomed to traditional teaching methods. This cultural resistance to change can slow the adoption of the project outcomes and the implementation of the innovative educational practices.
- **Risk of low student engagement:** If the biomimicry platform modules are not tailored to the students' levels or interests and understanding, there is a risk of low engagement. Ensuring the structure is relevant, engaging, and appropriately challenging is crucial for maintaining student interest and participation.

2.3 SWOT analysis at Virtual Campus

Strengths

- **Desk research and needs analysis**: The task will allow Virtual Campus to explore how sustainability is addressed through biomimicry and similar approaches. This localised

analysis will shed light on existing policy frameworks and educational practices that support sustainable development, emphasising the potential of biomimicry to contribute meaningfully to national skills development efforts. The findings will also highlight how biomimicry can be effectively integrated into VET pathways, reflecting national goals and broader European priorities.

- **Stakeholder engagement**: The questionnaires about biomimicry will be distributed to teachers and VET students in Portugal, helping to engage these target groups in the project.

Weaknesses

- **Limited research and experience:** Biomimicry remains a relatively underexplored field in Portugal, particularly in VET. The limited national research and few established

practices connecting biomimetic approaches directly to VET curricula present a challenge and an opportunity for pioneering work and knowledge development.

- **Lack of established resources or curricula:** In Portuguese, there are few ready-to-use teaching materials or training modules tailored to VET and biomimicry.
- **Low visibility of biomimicry in national priorities:** Sustainability is a priority, but biomimicry is not yet widely recognised in national education or innovation strategies, which could affect institutional support.

Opportunities

- **Curriculum innovation and differentiation:** Introducing biomimicry can help VET institutions stand out by offering forward-looking, interdisciplinary learning experiences that set them apart.
- **International collaboration potential:** The project can foster knowledge exchange by opening doors for strategic partnerships with biomimicry experts and institutions in other EU countries.
- **Upskilling opportunities for educators:** Developing training for teachers and trainers in biomimicry can fill identified gaps and contribute to continuous professional development.

Threats

- **Low awareness and understanding of biomimicry:** Stakeholders may not see its relevance, making outreach, adoption, and integration into curricula more difficult.
- **Lack of policy recognition:** Biomimicry is not explicitly referenced in national or regional education and training strategies, which may limit institutional and governmental support.

2.4 SWOT analysis at INFODEF

Strengths

- **Structured learning design:** The biomimicry process framework (DEFINE, BIOLOGISE, etc.) ensures methodological clarity for students and educators.
- **Active stakeholder engagement:** Involving VET students and teachers early in the design promotes ownership and relevance of outcomes.

- **Alignment with green policies:** The focus on sustainability connects strongly with national and EU environmental strategies.

Weaknesses

- **Limited initial familiarity:** Biomimicry is a relatively new concept in VET, which could slow early adoption and understanding.
- **Resource-intensiveness:** Significant efforts are needed to contextualise biomimicry into diverse vocational training sectors.

Opportunities

- **Policy support:** Alignment with the European Green Deal and national recovery plans increases the potential for broader institutional backing.
- **Scalability:** The framework can be adapted for different educational contexts, including adult learning and higher education.

Threats

- **Curricular integration barriers:** Institutional inertia or rigid qualification systems could delay the uptake of biomimicry content.
- **Sectoral variability:** Different VET sectors may show uneven interest or applicability regarding biomimicry principles.

2.5 SWOT analysis at Yakacik Mesleki Ve Teknik Anadolu Lisesi

Strengths

- **Engagement of multidisciplinary departments:** Existing multidisciplinary departments enable the identification of relevant competencies for biomimicry to support the development of the Learning Outcomes Matrix.
- **Teacher experience:** Teachers are experienced in curriculum development and Erasmus+ projects, which support the creation of a structured and applicable matrix.
- **Technical education experience:** A strong base of project-based and technical education experience in the school can support the integration of biomimicry process steps.

- **Hands-on learning experience:** Teachers have experience guiding students in hands-on learning, aligned with the process-based nature, which is useful in adapting PBL approaches to biomimicry.
- **Gamification experience:** Experience in gamification and teamwork tools from previous projects enhances the ability to contribute to the design of the Let's Mimic digital learning platform.

Weaknesses

- **Limited experience in biomimicry learning design:** Limited experience with biomimicry-specific learning outcomes may cause delays or inconsistencies in defining the Learning Outcomes Matrix.
- **Teacher workload:** Teacher workload may limit the depth of desk research and engagement with survey development for needs analysis and desirable skills.
- **Lack of localised external resources:** Lack of localised examples for the biomimicry steps may affect learner understanding and application.

Opportunities

- **Ownership of results:** The questionnaire-based research enables direct involvement of students and teachers, increasing ownership of the results about desirable skills development.
- **Rising demand for sustainability skills:** The rising demand for sustainability and green skills in Turkey supports the future adoption of the Learning Outcomes Matrix into the national VET strategy.
- **Enriching green innovation learning:** Embedding biomimicry into PBL allows the school to model green innovation for other Turkish VET schools.
- **Cross-disciplinary learning:** Opportunity to develop cross-disciplinary student projects, linking biology, design, and engineering.

Threats

- **Lack of alignment between biomimicry and existing VET frameworks:** Lack of alignment between national VET frameworks and the proposed biomimicry competencies could limit long-term integration.

- **Language barriers:** Language barriers could impact the effective use of international sources and survey tools.
- **Limited access to biological expertise and data:** Limited access to biological expertise or ecological datasets might hinder deeper application of biomimicry steps.
- **Staff resistance:** Potential resistance from staff unfamiliar with integrating natural models into technical disciplines.

2.6 SWOT analysis at Etudes Et Chantiers Corsica

Strengths

- **Regional experience:** ECC has strong operational roots in Corsica, particularly in youth engagement and sustainable development education. This enables relevant, context-aware desk research on biomimicry and local sustainability practices, making contributions highly tailored to the territory's environmental and vocational landscape.
- **Local engagement:** ECC maintains active collaborations with vocational training centres, NGOS, and local educators, which support the effective dissemination and collection of questionnaires for the needs analysis. This facilitates early stakeholder involvement and helps ensure alignment with local learner expectations and training practices.
- **Environmental relevance:** Corsica's biodiversity, mountainous terrain, and rich ecosystem provide a fertile ground for identifying and exploring nature-inspired strategies. These natural resources can be used as direct case studies to introduce biomimicry concepts meaningfully and in a relatable way to VET learners.

Weaknesses

- **Limited biomimicry knowledge:** The concept of biomimicry is relatively unknown in the Corsican VET context. Educators and trainers have limited exposure to its design framework and applications, which may hinder understanding the learning outcomes matrix and limit early enthusiasm or adoption.
- **Digital skill variability:** While innovative, Let's Mimic's digital approach may pose challenges due to uneven digital readiness among educators and learners. Not all VET

actors are equipped or trained to navigate digital platforms or contribute to online surveys, especially in rural areas.

Opportunities

- **Policy synergy:** Biomimicry principles align closely with regional objectives for environmental awareness, eco-citizenship, and sustainability education. ECC's contributions to the learning outcomes matrix and methodological framework may support integration with local public education and ecological training strategies, reinforcing EU green transition goals.
- **Educational value:** The Let's Mimic framework provides an opportunity to introduce interdisciplinary, hands-on learning in VET programs. With appropriate contextualization, ECC can pilot modules that connect biomimicry to local industries, such as eco-construction, sustainable tourism, or green agriculture, thereby enhancing vocational relevance.

Threats

- **Low response rate:** As participation in the needs analysis is voluntary, there is a risk that ECC may face low engagement from students and educators. This would limit the representativeness and depth of local insights feeding into the project.
- **Curriculum constraints:** Even if biomimicry aligns with sustainability goals, Corsican training providers may encounter regulatory barriers in integrating it into existing formal curricula. Resistance may stem from institutional inertia or a lack of formal accreditation pathways for such emerging concepts.

3. Work Package 3 SWOT analysis

3.1 SWOT analysis at the University of Thessaly

Strengths

- **Alignment with Greek VET modernisation objectives:** The Let's Mimic self-regulated learning kit, training modules, and educator handbook directly support national efforts to modernise VET education through digitalisation and green skill integration, aligning with the Greek National VET Strategy and Greece 2.0 initiatives
- **Localised, practical learning cases for students:** The cases, solutions, and challenges in the self-regulated learning kit and the fully developed training modules will include content relevant to Greece, such as Mediterranean ecosystems, traditional crafts, and local sustainable innovations. The cases will be highly relatable and boost student engagement.
- **Handbook supporting Greek VET educator needs:** Many VET teachers may not be familiar with biomimicry. The Let's Mimic handbook provides them with practical, easy-to-apply guidance tailored to Greek curricula and practices.
- **Reusability:** The Let's Mimic self-regulated learning kit, training modules, and educator support handbook are digital, designed for use in diverse learning contexts across Greece, including both urban and rural areas.

Weaknesses

- **Low familiarity with biomimicry in Greek VET:** Limited educator and student awareness of biomimicry in Greece may require additional effort in contextualisation and basic concept introduction.
- **Limited interdisciplinary teaching experience:** The design of biomimicry solutions requires multidisciplinary content that combines, for example, biology, design, and engineering. Educators may need additional support to deliver interdisciplinary activities due to their primary exposure to traditional learning delivery methods.
- **Potential overload for educators:** Educators already have a lot on their plates. This may lead to resistance to engaging with emerging pedagogical learning approaches, such as biomimicry.

Opportunities

- **Green skills are in high demand:** The self-regulated learning kit and training modules contribute to developing highly sought-after green competencies aligned with national and EU green economy trends, supporting sectors such as eco-design, sustainable agriculture, and green manufacturing. This is also the case in Greece, resulting in increasingly elevated consumer awareness of green practices.
- **Pedagogical innovation in Greek VET:** Biomimicry offers opportunities for developing VET students' innovation skills in designing nature-inspired solutions. Specifically, in VET, biomimicry introduces alternatives in the design of industrial products and processes that address end-user needs while respecting the environment.
- **Potential for national recognition and replication:** If piloted successfully, the content of the self-regulated learning kit and training modules could be widely applicable in the VET sector regionally and nationally.

Threats

- **Digital infrastructure disparities:** Some Greek VET schools, particularly those in rural areas or on islands, may lack the necessary digital infrastructure to utilise the platform or access all learning content.
- **Slow curriculum reform processes:** Updates in formal VET curricula in Greece, particularly involving emerging pedagogical approaches such as biomimicry, may take time. However, biomimicry can be applied in non-formal contexts, including learning in the classroom and beyond, providing benefits for green skills development.
- **Educator reluctance or resistance to change:** Teachers with limited professional development opportunities may opt for more mainstream training offerings to upgrade their lifelong skills, rather than exploring emerging biomimicry design.
- **Lack of institutional incentives:** The lack of integration of biomimicry in formal curricula may lead to VET organisations prioritising traditional VET activities over relevant modules.

3.2 SWOT analysis at ATS

Strengths

- **Modernisation and digitalisation:** The project supports Romania's efforts to modernise VET education through digitalisation and green skill integration. This aligns with global trends and prepares students for the future.
- **Alignment with European goals and sustainability focus:** Emphasising sustainability and biomimicry aligns with European educational goals and enhances funding opportunities. This focus on green skills addresses current educational priorities and supports future career readiness.
- **Enhanced engagement and practical guidance:** The learning kit includes relevant content that enhances student engagement with familiar examples and provides ready-to-use materials for teachers, making the learning process more effective and accessible.
- **Broad applicability and flexibility:** The learning kit and training modules ensure broad applicability across various learning contexts, and the modular structure allows for challenge-based and self-paced learning. This flexibility makes the kit suitable for diverse educational settings and teaching styles.
- **Support for teachers and community building:** The handbook provides step-by-step guidance for teachers new to the concept of biomimicry, serving as a valuable resource for training sessions and support groups. This support fosters a community of practice, enabling teachers to confidently and collaboratively adopt new methodologies.

Weaknesses

- **Limited awareness and understanding:** Teachers and students may not be familiar with biomimicry, requiring additional efforts to introduce and contextualise the basic concepts. This lack of awareness can hinder the initial acceptance and usage of the learning kit, training modules, and handbook.
- **Need for a multidisciplinary approach:** Biomimicry solutions require a combination of knowledge from different disciplines. Teachers, who are often trained in traditional, single-discipline methods, may need additional support and training to effectively

utilise the challenges, solutions, and case studies designed based on the Biomimicry design framework.

- **Resistance to new pedagogical methods:** Teachers, already managing heavy workloads, may resist adopting new teaching approaches, such as biomimicry. This resistance can stem from a lack of understanding of the long-term benefits and insufficient professional development opportunities.
- **Hands-on training and support:** Effective implementation of biomimicry principles requires hands-on training. Without proper training and support, educators may struggle to integrate this concept and utilise the self-regulated learning kit, training modules, and handbook.
- **Technical language barriers and adaptation challenges:** The materials provided in the self-regulated learning kit must be translated accurately to be helpful for all teachers and students. Additionally, some modules may need to be adapted to fit specific vocational areas, ensuring they are neither too advanced nor too general.

Opportunities

- **Curriculum integration and workshops:** The self-regulated learning kit and the training modules can be integrated into courses, workshops, and interdisciplinary weeks, offering flexible and diverse learning opportunities. This integration can enhance student engagement and provide practical applications of biomimicry concepts.
- **Professional development and standardisation:** The handbook can serve as a foundation for professional development workshops, enhancing teacher competence and confidence. Additionally, it offers a chance to standardise biomimicry teaching practices, ensuring a consistent and high-quality educational experience.
- **Promotion of 21st-century skills:** The self-regulated learning kit, promoted through case studies featuring ready-to-use challenges and solutions, self-work, or collaborative work, focuses on essential 21st-century skills, including problem-solving, creativity, and autonomy, as well as green skills. These skills are crucial for students' future success and align with broader education policy goals, making the initiative highly relevant and impactful.
- **Wide applicability in vocational education and beyond:** The Self-Regulated Learning Kit and training modules offer opportunities for developing vocational education and

training innovation skills in designing nature-inspired solutions. If implemented successfully, the content of the Self-Regulated Learning Kit and training modules could be widely applicable in the VET sector and beyond, both regionally and nationally, thereby enhancing the overall quality of education.

Threats

- **Digital and technological infrastructure gaps:** In Romania, certain areas may lack the necessary digital infrastructure to utilise the platform effectively or access all learning content. This gap can significantly hinder the project's reach and effectiveness, limiting students' and teachers' ability to engage thoroughly with the materials.
- **Curriculum integration:** Integrating biomimicry into formal VET curricula can be slow or pose significant challenges due to a lack of awareness of this concept in education. This issue can reduce the exposure to and benefits of the innovative approach proposed by the Let's Mimic project. Additionally, if the materials are not aligned with the curricula or assessment models, their integration and impact may be further limited.
- **Teacher resistance and preference for mainstream training:** Romanian curricula are rigorous. Consequently, teachers have limited time to incorporate other innovative concepts, and they may prefer to focus on more mainstream training for lifelong skills upgrading rather than emerging biomimicry design. This preference can slow the adoption of innovative teaching methods.
- **Engagement and practicality issues:** Technical or motivational barriers may hinder students' full engagement in self-directed tasks, affecting the overall effectiveness of the learning approach. If the handbook is too theoretical or generic, it may be seen as impractical for real VET classroom settings, reducing its usability and impact. Additionally, time constraints in the curriculum may limit the deep exploration of the self-regulated learning kit and training modules, further diminishing the potential benefits.
- **Lack of follow-up support:** A lack of follow-up support or training might reduce the long-term impact on teaching practices. Without ongoing assistance, teachers may struggle to sustain the new methods, potentially leading to a decline in the effectiveness and adoption of biomimicry-based education.

3.3 SWOT analysis at Virtual Campus

Strengths

- **Alignment with European initiatives:** The project's focus on sustainability and biomimicry aligns well with broader European educational goals, positioning your organisation for potential funding and collaboration opportunities.
- **Support for interdisciplinary learning:** The Let's Mimic resources of Work Package 3 facilitate the integration of biomimicry into a wide range of subjects and disciplines, fostering cross-curricular learning and innovative thinking in VET.
- **Alignment with sustainability goals:** The project aligns well with Portugal's increasing emphasis on sustainability and green skills, positioning the Let's Mimic toolkit as a valuable resource in addressing current educational priorities.

Weaknesses

- **Limited awareness of biomimicry in Portugal:** As biomimicry remains a niche topic in Portugal, educators may initially be unfamiliar with the concept, making implementation and engagement more challenging.
- **Need for additional training:** Educators may need more hands-on training to effectively implement the self-regulated learning kit and biomimetic principles in the classroom.
- **Potential resistance from educators:** Teachers may be reluctant to adopt new methods without a clear understanding of the long-term benefits or additional professional development opportunities.

Opportunities

- **Increasing demand for green skills:** As the demand for green and sustainability-related skills rises, there's a growing market for innovative educational solutions like the Let's Mimic project.
- **Increasing demand for green skills:** As the demand for green and sustainability-related skills rises, there's a growing market for innovative educational solutions like the Let's Mimic project.

Threats

- **Uneven digital infrastructure across institutions:** Some VET institutions may lack the necessary technological infrastructure to fully implement and benefit from digital learning tools, thereby limiting the project's reach.
- **Risk of misalignment with national curricula:** The Self-Regulated Learning Kit may not yet be explicitly integrated into national educational policies or VET curricula, potentially hindering its widespread adoption.

3.4 SWOT analysis at INFODEF

Strengths

- **Comprehensive learning kit:** The self-regulated learning kit, training modules, and handbook offer holistic support for students and educators.
- **Engagement through challenges:** Including open biomimicry challenges encourages active problem-solving and innovation.

Weaknesses

- **Teacher training needs:** Educators unfamiliar with interdisciplinary approaches may require additional support to effectively deliver modules.
- **Volume of content:** Extensive learning materials could overwhelm less experienced VET teachers.

Opportunities

- **Flexible adaptation:** Modules can be used independently or integrated into broader courses, offering flexible pathways to green skills development.
- **Capacity building:** Teacher empowerment through training on biomimicry methodologies supports long-term pedagogical innovation.

Threats

- **Technological disparities:** Limited digital infrastructure at some VET centres could hinder access to digital learning materials.

- **Recognition challenges:** New biomimicry skills may not be immediately recognised within national qualification systems.

3.5 SWOT analysis at Yakacik Mesleki Ve Teknik Anadolu Lisesi

Strengths

- **Modular curriculum structure:** Modular curriculum structure in VET schools in Türkiye allows integration of challenge-based and self-paced learning.
- **Growing digital culture:** Familiarity with blended or semi-autonomous learning approaches is essential for growing digital culture.
- **Step-by-step guidance:** A structured teacher handbook provides step-by-step guidance, making it easier for teachers unfamiliar with biomimicry to adopt the methodology. It can be used in teacher training sessions and peer-to-peer support groups already present in the school.
- **Saving teachers' time:** Ready-to-use modules save teachers' time and offer consistency in delivering high-quality content. The modular approach fits well with flexible or elective courses in the VET system.

Weaknesses

- **Limited student experience:** Students may lack experience working independently or reflecting critically on open-ended challenges.
- **Need for teacher support:** Teachers may require support in facilitating self-regulated learning, particularly with large class sizes. Some modules may be too advanced or general for specific vocational areas unless adapted.
- **Teacher overload:** Overloaded teaching schedules may limit time available to explore and apply the handbook in depth.
- **Language barriers:** If not localised or translated correctly, material may be underused by teachers who are less confident in English.

Opportunities

- **Interdisciplinary learning:** A rich collection of real-world biomimicry examples offers a valuable interdisciplinary learning resource across multiple departments.

- **Building 21st-century skills:** The proposed Self-Regulated Learning Kit promotes 21st-century skills (problem-solving, creativity, autonomy), supporting broader education policy goals.
- **Professional teacher development:** The proposed handbook can be used for professional development workshops, enhancing teacher competence and confidence. It offers a chance to standardise biomimicry teaching practices across departments.
- **Integrating outcomes into existing curricula:** The training modules could be incorporated into a biomimicry elective course or integrated into workshops and interdisciplinary weeks.
- **Cross-border validation:** European relevance of results can be achieved through piloting with learners and trainers in multiple countries.

Threats

- **Time constraints:** The curriculum's time constraints may limit the in-depth exploration of 60 cases and challenges.
- **Technical or motivational barriers:** Technical or motivational barriers might hinder students' full engagement in self-directed tasks.
- **Need for training follow-up and support:** Lack of follow-up support or training might reduce its impact on long-term teaching practice.
- **Alignment with VET curricula:** Integration may be limited if not aligned with the Turkish VET curriculum or assessment models.
- **Insufficient customisation:** Teachers might rely too heavily on pre-packaged content, reducing customisation and student-centred approaches.

3.6 SWOT analysis at Etudes Et Chantiers Corsica

Strengths

- **Practical context knowledge**: ECC has a long-standing presence in Corsican vocational training and student-centred community projects. This provides the team with a realistic understanding of the everyday challenges, motivations, and needs of local VET learners, especially those from disadvantaged or rural backgrounds.

- **Access to target users**: ECC regularly works with VET students, trainers, and integration facilitators. This proximity enables efficient testing, direct feedback collection, and iterative refinement of the self-regulated learning kit and training modules. The association can act as a bridge between the project and real-world users.

Weaknesses

- **Need for simplification**: Although the biomimicry content is rich and well-structured, some modules may require simplification or adaptation to match the skill levels of Corsican VET learners, particularly those with limited academic or scientific backgrounds. Concepts and terminology may need to be rephrased for greater accessibility.
- **Cross-disciplinary complexity**: Biomimicry inherently requires a blend of biology, design, and systems thinking. Without specific training, local educators may feel ill-equipped to teach these modules confidently. This may reduce the effectiveness of implementation unless clear, user-friendly guidance is provided.

Opportunities

- **Localisation:** ECC can contextualise the training materials using regional case studies drawn from Corsica's forestry practices, water conservation efforts, or sustainable agriculture. Highlighting nature-based local innovations can increase learner engagement and make the lessons more tangible and relevant.
- **Community impact**: Open challenges in the biomimicry kit can foster creativity and active participation among learners. When linked to real community problems, such as water scarcity or eco-tourism, these challenges may empower youth to design sustainable solutions and take ownership of their learning process.

Threats

- **Educator overload**: Corsican VET teachers already manage heavy workloads and may be reluctant to incorporate additional or experimental content such as biomimicry. Piloting or participating in module delivery could be limited without incentives or adequate time allocation.
- **Mismatch with learner needs**: If the self-regulated learning kit or handbook content is not adequately adapted to the local VET realities, such as focusing too much on

theoretical aspects, it may fail to resonate with learners. Low perceived relevance could result in disengagement or low completion rates.

4. Work Package 4 SWOT analysis

4.1 SWOT analysis at the University of Thessaly

Strengths

- **Alignment with National Digital Transformation Goals:** The Let's Mimic digital learning platform for biomimicry supports Greece's Digital Transformation Strategy and VET modernisation by introducing innovative, open, digital learning tools in vocational education.
- **Localised piloting for real-world relevance in Greece:** The digital learning platform is piloted with Greek VET students to ensure it is tailored to local learning styles, sector priorities (such as tourism and agriculture), and cultural context.
- **Teacher skills and competence development in Greece:** Capacity-building sessions help overcome low familiarity with biomimicry and digital tools, giving educators hands-on experience and practical strategies.
- **Developing institutional capacity in green education in Greece:** The Let's Mimic digital learning platform enhances existing VET initiatives by fostering digital preparedness that supports the green transition.

Weaknesses

- **Digital skill gaps among educators:** Utilising the Let's Mimic digital learning platform for biomimicry requires a certain level of digital familiarity among VET teachers, which may be lacking. This can be addressed through teacher training and capacity-building activities.
- **Infrastructural limitations:** Let's Mimic digital learning platform requires internet connectivity through desktop or mobile devices. While labs may not be available in all VET schools in Greece, mobile devices allow access to the platform.

Opportunities

- **Supporting national green and circular economy goals:** The Let's Mimic digital learning intervention supports the development of student and educator skills for

green innovation in sectors relevant to the Greek economy, such as sustainable construction, eco-tourism, and agriculture.

- **Catalyst for blended and distance learning in VET:** The Let's Mimic digital learning platform for biomimicry offers new learning modes for VET in Greece, beneficial for continuing education or remote learners.
- **Potential for national recognition and policy influence:** If successful, the Let's Mimic digital learning platform for biomimicry can be widely adopted in VET schools across Greece, as well as in regional and national educational organisations in other sectors.

Threats

- **Resistance to digital technology:** Some educators or institutional leaders may be reluctant to integrate emerging digital learning tools or content without formal recognition or integration into the curriculum.
- **Maintenance costs:** Maintaining the Let's Mimic digital learning platform can be costly in the long term. However, hosting the platform on the coordinator's internal servers and supporting it through existing technical staff will help control these costs. Additionally, well-established digital tools are used in development, which minimises the risk of incompatibilities or technical difficulties.

4.2 SWOT analysis at ATS

Strengths

- **Support for digital transformation and VET modernisation:** The Let's Mimic digital learning platform aligns with the Romanian Education Digitalisation Strategy 2021 - 2027 and modernises vocational education by introducing innovative digital tools.
- **Integration and collaboration:** The platform seamlessly integrates the six steps of the biomimicry methodology and the Let's Mimic project resources, creating a cohesive learning ecosystem. Strong partnerships with tech-focused partners and existing Erasmus+ networks facilitate cross-institutional cooperation.
- **Enhancement of VET initiatives and sustainability goals:** The platform offers ready-to-use materials for self-directed learning or collaborative learning, enhancing digital

preparedness and the development of green skills. The platform aligns with global sustainability trends and national goals for promoting nature-inspired innovation.

- **Testing**: Internal and external testing ensure the platform is ready for use and adapted to learning styles and priorities.
- **Piloting and capacity-building sessions:** These sessions address educators' low familiarity with biomimicry and digital tools by providing hands-on experience and practical strategies.

Weaknesses

- **Digital literacy and training needs:** VET teachers may lack the necessary digital skills to effectively utilise the Let's Mimic platform. This can be addressed through targeted teacher training and capacity-building activities.
- **Internet connectivity and device access:** The platform requires internet connectivity. While not all VET schools in Romania have labs, mobile devices can provide access to the platform, but might hinder the experience.
- **User engagement and initial impact:** Building awareness and convincing teachers and institutions to use the new platform may take time. Initial lack of engagement could slow down the platform's impact.
- **Software development and maintenance:** Limited in-house software development expertise may hinder contributions or detailed feedback. The testing questionnaire (internal and external) can address this issue.

Opportunities

- **Development of green innovation skills:** The Let's Mimic digital learning intervention supports the development of teachers' and students' skills in green innovation sectors relevant to the national and EU economies, such as sustainable infrastructure and construction, renewable energy production, sustainable design in production and manufacturing, tech innovation, climate-centred mobility, and agriculture.
- **New learning models and broad usage:** The platform introduces new learning models for VET in Romania, particularly useful for lifelong learning. If successful, it can be

widely adopted in VET schools across the region, nation, and internationally, as well as in other educational settings.

- **Opportunity for integration:** With the rise of digital education, the LET'S MIMIC Platform can become a go-to resource for integrating sustainability and innovation into curricula. The platform's design supports the EU educational goals related to green skills, sustainability, and the European Green Deal.
- **Resource for various stakeholders:** The platform is valuable for teachers and students, researchers, and professionals seeking to explore and apply biomimicry in real-world contexts. It provides a scalable and flexible solution for long-term biomimicry education.
- **Testing, engagement, and replication:** In addition to internal testing, direct involvement in the testing phase allows teachers to use the platform according to classroom needs, creating a sense of ownership and engagement among learners and teachers. The case studies and training modules designed on the platform can be replicated across the EU and beyond.

Threats

- **Reluctance to integrate digital tools:** Some teachers or institutional leaders may hesitate to adopt emerging digital learning tools without formal recognition or curriculum integration. Proper awareness-raising and outreach efforts are crucial to attract users and achieve the platform's intended impact.
- **Technical and user experience challenges:** Technical delays or bugs can impact timely delivery and discourage use. The platform must be designed with user-friendliness and accessibility to avoid underuse. Low engagement during testing phases may reduce valuable feedback, and unresolved bugs or poor UX can affect perception and willingness to adopt the platform post-testing.
- **Piloting and implementation issues:** A mismatch between pilot design and curriculum needs may reduce impact or scalability. Delays in identifying participants and their digital literacy and engagement level can disrupt the piloting timeline. Uneven digital readiness may affect consistency. Adverse experiences during pilot testing could harm future uptake, and inadequate follow-up or dissemination of training results could

limit local impact. The practical classroom application may remain unclear if the event is too theoretical.

4.3 SWOT analysis at Virtual Campus

Strengths

- **Alignment with global sustainability trends:** Developing a biomimicry learning platform directly aligns with the increasing international focus on sustainability and innovation, enhancing the platform's relevance and appeal.
- **Tailored to the needs of educators and learners:** The platform will integrate easily with the learning kit and training modules developed in the Let's Mimic project, creating a seamless ecosystem for teaching and learning about biomimicry.
- **Alignment with Portugal's sustainability targets:** The Biomimicry Platform supports national sustainability goals by promoting nature-inspired innovation in education, aligning with Portugal's focus on green skills and environmental sustainability as part of its 2030 Agenda for Sustainable Development.

Weaknesses

- **Initial engagement and outreach:** Building awareness and convincing users (educators and institutions) to engage with a new platform may take time, and a lack of initial engagement could slow down the platform's impact.
- **Limited platform adoption in some sectors:** Some VET institutions or educators may not yet have the digital literacy or infrastructure needed to utilise the platform, limiting its impact fully.

Opportunities

- **Growing demand for online learning tools:** With the rise of digital education, the Biomimicry Platform has an opportunity to become a go-to resource for educators looking to integrate sustainability and innovation into their curricula.
- **Alignment with EU sustainability initiatives:** The platform can serve as a tool to support EU educational goals, particularly those related to green skills, sustainability,

and the European Green Deal, positioning your organization as a leader in biomimicry education.

- **Engagement with a diverse audience:** The platform can serve as a valuable resource for educators, students, researchers, and professionals seeking to explore and apply biomimicry in real-world contexts.

Threats

- **Resistance to adopting new digital platforms:** Some educators or institutions may resist adopting a new one, particularly if they are already invested in other educational tools or methodologies.
- **Risk of insufficient engagement:** Without proper awareness-raising and outreach efforts, the platform may struggle to attract users or achieve its intended impact in educational settings.

4.4 SWOT analysis at INFODEF

Strengths

- **Multimodal learning:** Integrating gamification, teamwork, self-paced learning, and assessment modules caters to diverse learning styles.
- **Modern platform design:** The biomimicry platform provides an engaging and accessible environment for developing sustainability skills.

Weaknesses

- **Technical complexity:** High-level software development may demand continuous updates and robust maintenance systems.
- **User onboarding difficulties:** Without intuitive design and clear guidance, initial platform adoption could be slow among educators and students.

Opportunities

- **Cross-sector expansion:** The platform architecture allows future extension to other sustainability education areas, such as the circular economy or renewable energy.

- **European digital repository:** The project could pioneer a pan-European platform for **biomimicry** education resources.

Threats

- **Rapid tech evolution:** Emerging technologies could quickly make the platform architecture outdated if not continuously updated.
- **Pilot feedback integration risks:** Failure to fully incorporate pilot testing feedback could reduce the platform's long-term relevance and usability.
- **Low reengagement in piloting:** Low engagement during testing phases, often due to a lack of incentives or time, can reduce valuable feedback.
- **Insufficient willingness to adopt:** Unresolved bugs or poor user experience (UX) may affect perception and willingness to embrace the platform after testing.

4.5 SWOT analysis at Yakacik Mesleki Ve Teknik Anadolu Lisesi

Strengths

- **Existing ICT infrastructure:** The school has prior experience in EU digital education projects and is equipped with basic ICT infrastructure.
- **Collaboration with digital technology experts:** Strong collaboration with tech-focused partners provides guidance and division of labour.
- **Broad platform testing:** The platform can be tested with a large, diverse student population for testing across multiple departments.
- **Teacher engagement:** Teachers are eager to try innovative teaching methods and already use digital tools in the classroom.
- **Support for blended learning:** Platform-based deployment allows flexible, blended learning formats.
- **Building teacher competences:** Exposure to international trainers increases teacher competence and network opportunities.

Weaknesses

- **Limited in-house software development experience:** In-house expertise may be limited, which can hinder direct contributions or detailed feedback.

- **Dependency on external developers:** Dependency on external developers for maintenance and updates could affect long-term sustainability.
- **Scheduling conflicts for piloting:** Scheduling and curriculum conflicts may limit when and how piloting can occur.
- **Language and other barriers in international teacher training:** Language proficiency and travel restrictions (e.g., funding, documentation) may limit participation.

Opportunities

- **Flexibility through digital learning services:** A well-developed platform provides a scalable and flexible solution to support biomimicry education long-term.
- **Potential to integrate additional digital resources:** Potential to integrate other digital resources developed in previous or future Erasmus+ projects.
- **Testing supports curricula integration:** Direct involvement in platform piloting allows tailoring to real classroom needs.
- **Data gathering through piloting:** Piloting provides an opportunity to collect impact data for future curriculum integration or national scaling.
- **Uptake reinforcement:** Positive outcomes from pilots could strengthen institutional visibility and project credibility.
- **Enhancing teacher confidence:** Capacity-building enhances teacher confidence in integrating digital and biomimicry concepts. Trained staff can then cascade their knowledge to others through local workshops or peer mentoring.

Threats

- **Technical implementation delays:** Technical issues or bugs may impact timely delivery or discourage the use of the system.
- **Insufficient platform use:** Risk of platform underutilisation if not designed with user-friendliness and accessibility.
- **Insufficient planning of piloting activities:** A mismatch between the pilot design and curriculum needs may reduce the impact or scalability.
- **Uptake threats:** Negative experiences of students or teachers during piloting could harm future platform uptake.

4.6 SWOT analysis at Etudes Et Chantiers Corsica

Strengths

- **Test environment access**: ECC collaborates closely with training centres and integration programs across Corsica, providing direct access to learners and educators for pilot implementation. This allows for on-site testing of the biomimicry platform in real-world educational settings with motivated and context-aware participants.
- **Feedback loops**: The proximity to learners and trainers enables ECC to collect real-time feedback during alpha and beta testing. This allows for responsive adjustments and refinements based on practical user experience, which enhances the platform's usability and relevance for VET users.

Weaknesses

- **Technical barriers**: Some Corsican training centres, especially in rural areas, face challenges related to limited computer labs, outdated equipment, or inconsistent internet connectivity. These infrastructural issues may hinder smooth testing and reduce platform accessibility for all learners.
- **Unfamiliar format**: The platform's structure, which includes modules like gamification, self-regulated learning, and digital assessment, may be unfamiliar to both students and trainers. Users might feel overwhelmed or disengaged at first use without proper onboarding or support.

Opportunities

- **Innovation exposure**: Introducing learners and trainers to a digital learning environment focused on biomimicry provides valuable exposure to both sustainability principles and digital skills. This can help boost digital fluency and foster innovation mindsets, in line with regional and EU green and digital transition goals.
- **Visibility**: ECC can highlight success stories and learner experiences from the pilot sites, reinforcing its role as a driver of innovation in Corsican vocational training. These stories can be disseminated regionally to increase awareness of biomimicry education and the project's broader value.

Threats

- **Low digital fluency**: Despite training opportunities, some users—especially older educators or learners with less digital experience—may struggle to adopt and navigate the biomimicry platform. This could lead to limited engagement or slower uptake of the methodology.
- **Implementation delays**: Limited access to devices or connectivity may create scheduling difficulties or prevent some groups from participating fully in pilot activities. Such logistical challenges could delay milestones and affect the quality or representativeness of pilot results.

5. Work Package 5 SWOT analysis

5.1 SWOT analysis at the University of Thessaly

Strengths

- **A clear dissemination plan enhances visibility:** A well-structured dissemination strategy tailored to Greek VET stakeholders (teachers, students, institutions, and policy-makers) ensures the project reaches the right audiences with targeted messaging.
- **Use of multiplier events to engage stakeholders:** A regional multiplier event in Greece will help broadly reach the target VET sector and lifelong learning community.
- **A clear post-project exploitation plan adds sustainability:** The exploitation plan will demonstrate how the proposed Let's Mimic digital learning intervention for biomimicry will be adopted by the University of Thessaly and other educational stakeholders in Greece.
- **Leveraging partner networks:** The University of Thessaly has an extensive academic and professional network that will be mobilised to adopt project results. The network includes schools, universities, regional authorities, and industry, facilitating broad outreach.

Weaknesses

- **Dissemination fatigue or overload:** Generating strong, sustained attention may be challenging in a crowded landscape of EU projects and education initiatives.

Opportunities

- **Explore national and regional VET events:** These events can contribute to broader project outreach and can be combined with other dissemination activities.
- **Use of media and storytelling:** The University of Thessaly has a strong Public Relations Office, which promotes the outcomes of research activities through regular press releases. Biomimicry stories, project activities, and piloting provide useful material for broad dissemination.

- **Exploitation through regional pilots and follow-up projects:** Regional piloting and multiplier events will allow broad adoption of project results in the Greek VET sector and beyond.

Threats

- **Institutional commitment for exploitation:** Without institutional commitment, it will be hard to promote the uptake of project results. However, this threat is considered low due to the implementation team's good communication with the University of Thessaly decision-makers and the organisation's commitment to innovation and excellence through pedagogical innovation.
- **Unequal access:** Urban schools may benefit more from dissemination and follow-up actions than rural or underserved areas, reducing equitable impact.
- **Policy shifts:** Changes in education policy or institutional leadership may deprioritise green and digital topics, making exploitation efforts more difficult. However, this threat is considered low due to the University of Thessaly's long-term commitment to digital and green innovation and the alignment of institutional practices to Greek and EU green and digital strategies.

5.2 SWOT analysis at ATS

Strengths

- **Tailored dissemination strategy:** A well-structured dissemination strategy tailored to Romanian VET stakeholders ensures the project reaches the right audiences with targeted messaging. Strategic online and offline events increase visibility and engagement, building a community around biomimicry and sustainability in education.
- **Local and regional targeted events:** Local and regional events in Romania will broadly reach the target VET sector and lifelong learning community, facilitating widespread adoption of the Let's Mimic digital learning intervention.
- **Adoption and network mobilisation:** The dissemination and exploitation plan demonstrates how the platform will be adopted in Romania in VET schools and other educational settings.

- **High-quality promotional materials:** The project benefits from high-quality promotional materials that clearly and effectively convey key messages, ensuring the project's goals and outputs are easily understood by a broad audience.
- **Experience and engagement:** ATS's prior experience in EU project communication supports creating a structured dissemination plan. The partner's active communication channels and a large, diverse internal audience provide a strong foundation for initial outreach.

Weaknesses

- **Challenges in generating attention:** Amidst the wide range of EU-funded projects, educational initiatives, and never-ending technology solutions, it may be difficult to create strong and sustained attention. The growing number of academic projects, especially related to sustainability, can lead to information overload, making it harder for the project to stand out.
- **Specific target audiences:** Despite a strong dissemination plan, some specific target audiences may be hard to reach, particularly those not active on social media or engaged with the digital channels used for dissemination.
- **Dissemination and institutional challenges:** Teachers may not prioritize dissemination due to their full workloads. Institutional policies may limit long-term incorporation unless aligned with formal curricula.
- **Logistical and presentation issues:** Events require significant logistical effort and promotional work, which can strain staff resources. Partners may be unsure how to present technical biomimicry results to non-expert audiences.

Opportunities

- **Broader outreach and dissemination:** dissemination and exploitation events can enhance project outreach and be combined with other activities such as workshops, round-tables, interviews, etc. The ATS training centre can promote biomimicry stories, project activities, and piloting through regular events.
- **Regional and international adoption:** Regional piloting and multiplier events will facilitate broad adoption of project results in the Romanian VET sector and beyond.

There is potential for international dissemination through EU projects, international conferences, and collaborations with other educational institutions.

- **Appeal to various sectors:** The project's focus on sustainability and innovation can attract interest from businesses, NGOs, and governmental agencies, providing opportunities for collaboration and increased visibility.
- **Building recognition and engagement:** Establishing a strong visual identity can help build recognition and attract broader educational interest. Aligning branding with sustainability values enhances relevance. Sharing results through educational media outlets increases visibility, and engaging students in content creation fosters ownership and develops communication skills.

Threats

- **VET school's commitment and equitable impact:** Promoting project results can be challenging without institutional commitment. In Romania, this threat is mitigated through strong communication with teachers and school leaders, who are involved from the beginning of the project implementation period.
- **Policy changes and leadership shifts:** Changes in education policy or institutional leadership may deprioritize green and digital topics, complicating dissemination and exploitation efforts.
- **Visibility and engagement challenges:** The dissemination and exploitation efforts may struggle to stand out amidst a high volume of content related to sustainability and education, especially on crowded social media platforms. Oversaturation of online content could make attracting attention difficult without a targeted strategy. Irregular or poorly managed updates may make the project appear inactive to stakeholders.
- **Event timing and attendance:** Poorly attended or low-visibility events may hinder dissemination and exploitation efforts. External events such as exams, holidays, or political contexts may affect event timing and impact. It may underperform if the dissemination plan is too generic or lacks specific local actions.

5.3 SWOT analysis at Virtual Campus

Strengths

- **Clear dissemination plan:** The project has a well-structured dissemination plan that ensures targeted communication of the project's outputs to relevant stakeholders, including educational institutions, policymakers, and the general public.
- **Effective use of social media**: Through strategic social media outreach and posts, the project can increase its visibility and engagement, reach a broad audience, and build a community of interest around biomimicry and sustainability in education.
- **Utilising multiplier events to engage stakeholders:** A regional multiplier event in Portugal will help reach a broad audience within the target VET sector and lifelong learning community.
- **Promotional materials:** The project benefits from high-quality promotional materials that clearly and effectively convey key messages, ensuring a broad audience understands the project's goals and outcomes.

Weaknesses

- **Challenges in reaching target audiences:** Despite a strong dissemination plan, it may still be challenging to reach certain target audiences who are not active on social media or engaged with the digital channels used for dissemination.
- **Saturation of information:** The growing amount of educational projects, especially related to sustainability, may lead to information overload, making it harder for your project to stand out and attract attention.

Opportunities

- **Explore national and regional VET events:** These events can contribute to broader project outreach and can be combined with other dissemination activities.
- **Expanding outreach through international collaborations:** Beyond the local and national level, there is potential for international dissemination through EU projects, international conferences, or partnerships with other educational institutions that could amplify the project's reach and impact.

- **Cross-sector visibility:** The project's focus on sustainability and innovation can appeal to sectors beyond education, such as businesses, NGOS, and governmental agencies, providing additional opportunities for collaboration, sponsorship, or increased visibility.

Threats

- **Competition for attention in the digital space:** The project may face challenges in standing out amidst a high volume of content and initiatives related to sustainability and education, especially on crowded social media platforms.
- **Unequal access:** Some schools may benefit more from dissemination and follow-up actions than others, reducing equitable impact.

5.4 SWOT analysis at INFODEF

Strengths

- **Diverse dissemination channels:** Multi-format communication (website, social media, newsletters, events) ensures broad outreach.
- **Strategic exploitation planning:** Focusing on post-project sustainability strengthens the project's long-term impact potential.

Weaknesses

- **Limited resources for outreach:** Budget constraints may restrict the reach of dissemination activities beyond partner countries.
- **Audience segmentation:** Without precise targeting, dissemination efforts risk being too broad and diluted.

Opportunities

- **Positioning biomimicry leadership:** Establishing a leading voice in biomimicry education could attract further partnerships and projects.
- **Stakeholder networking:** Building alliances with sustainability-oriented networks and vocational institutions enhances visibility and scaling.

Threats

- **Competing initiatives:** Other green education projects might saturate stakeholders' attention.
- **Funding dependency:** Lack of secured funding post-project could weaken the long-term continuation of the platform and materials.

5.5 SWOT analysis at Yakacik Mesleki Ve Teknik Anadolu Lisesi

Strengths

- **Strong communication experience:** Experience in project communication will support the creation of a structured dissemination plan.
- **Large internal audiences:** A large, diverse internal audience, comprising students, teachers, and families, provides a strong foundation for initial outreach.
- **Existing communication channels:** The school maintains active communication channels (website, social media) to support the dissemination of information.
- **Post-project adoption:** A strong vocational orientation supports the practical adoption of biomimicry modules into ongoing programs.

Weaknesses

- **Limited branding experience:** A lack of internal design or branding expertise may necessitate external support to create high-quality visuals.
- **Diverse departments' engagement in dissemination planning:** Initial dissemination planning may lack input from less-engaged departments, leading to underrepresentation.
- **Insufficient incorporation of outcomes into everyday practices:** Regarding post-project exploitation, institutional policies may limit long-term incorporation unless they are aligned with formal curricula and training programs.
- **Logistical challenges:** Organisation of multiplier events requires logistical planning and support.

Opportunities

- **Strong visual identity:** A strong visual identity can build recognition and attract broader educational interest beyond project partners.
- **Align with sustainability values:** Leverage the opportunity to align branding with sustainability values, thereby enhancing relevance and resonance.
- **Increased visibility:** Sharing results through national and local education media outlets increases visibility.
- **Student engagement:** Engaging students in content creation fosters ownership and learning-by-doing in communication skills. Students in media-related departments can contribute to content creation, enhancing engagement.
- **Certification opportunities:** The exploitation plan could include certification models, micro-credentials, or club activities for long-term integration. Linking outcomes to green VET policy priorities in Turkey could secure support from relevant authorities.
- **Partnerships with industry:** Multiplier events provide a platform for building partnerships with industry, academia, and policymakers, thereby enhancing the school's reputation as a forward-thinking, EU-active institution.

Threats

- **Inconsistency in dissemination:** Inconsistency in visual use across partners may dilute brand coherence.
- **Oversaturation:** Oversaturation of online content could make it challenging to attract attention without a targeted strategy.
- **Regularity in content publication:** If updates are irregular or poorly managed, the project may appear inactive to stakeholders.
- **Support from educational authorities:** Without local buy-in from decision-makers, results risk being shelved after the project.
- **Insufficient impact of multiplier events:** If events are poorly attended or lack visibility, dissemination and exploitation efforts may be ineffective. External events (e.g., exams, holidays, political context) may affect event timing and impact.

5.6 SWOT analysis at Etudes Et Chantiers Corsica

Strengths

- **Local outreach network**: ECC maintains strong ties with local stakeholders, including youth organisations, social inclusion actors, municipalities, and training providers. This enables effective regional dissemination of project outputs, including the platform, handbook, and training resources.
- **Proximity to end users**: ECC's close relationship with learners and educators supports authentic, grassroots-level communication about the project. This helps ensure dissemination activities are targeted, inclusive, and grounded in real VET needs and experiences.

Weaknesses

- **Limited communication capacity**: Although ECC has strong regional connections, its internal team may have limited time and resources to manage high-volume communication tasks, such as regular social media posts, multilingual press releases, or digital campaigns.
- **Technical messaging challenge**: Biomimicry is still complex and unfamiliar to many stakeholders. Explaining the project's added value in simple, engaging terms—especially to non-expert or rural audiences—may be difficult without tailored support materials.

Opportunities

- **Regional storytelling**: ECC can leverage its regional identity to tell compelling stories about how biomimicry is applied in Corsica, through learner projects, piloting results, or community engagement. These stories can increase resonance and make dissemination more memorable.
- **Multiplier events**: ECC can host impactful local events that bring together VET actors, environmental groups, and regional decision-makers. These events can showcase the platform and training tools, generate interest, and foster long-term partnerships for exploitation.

Threats

- **Event participation uncertainty**: Attendance at multiplier events or information sessions may vary depending on factors such as timing, workload, or interest among VET stakeholders. Competing initiatives or limited institutional support could reduce visibility or impact.
- **Sustainability of visibility**: After the project ends, maintaining visibility and continued engagement without dedicated funding or institutional embedding of biomimicry tools might be difficult. ECC's communication strategy must consider extending the impact beyond the project's timeline.

6. Conclusions

This document presents a SWOT analysis of the implementation of work packages conducted by each project partner. The SWOT analysis, developed as part of sound project management (Work Package 1), enables partners to consider and analyse strengths, weaknesses, opportunities, and threats related to the development of work package activities. Furthermore, it facilitates effective planning to ensure that strengths and opportunities are leveraged while weaknesses and threats are adequately addressed.