

# TRANSITION: INNOVATION



1 | 2022

Green innovations for local transformation processes:  
European startups as drivers of transition

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GreenTecLab



Volume 1 | 2022 of TRANSITION is based on the experiences and results of the GreenTecLab (GTL) project. The project “GreenTecLab – Empowerment for green startups to foster climate protection and sustainability” has been funded since the end of 2020. This project is part of the European Climate Initiative (EUKI). EUKI is a project financing instrument by the German Federal Ministry for Economic Affairs and Climate Action (BMWK). The EUKI competition for project ideas is implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. It is the overarching goal of the EUKI to foster climate cooperation within the European Union (EU) in order to mitigate greenhouse gas emissions.

#### Project partners



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GreenTecLab aims at supporting local ecosystems and new cultures in organisations and institutions.



# Green innovations for local transformation processes: European startups as drivers of transition

As part of the GreenTecLab (GTL) project, the European Climate Initiative (EUKI) is supporting the development of regional ecosystems for green social entrepreneurship in Spain, Greece and Slovakia and, through them, startups with social and environmental business or project ideas that want to improve climate protection in their regions through social innovations. We analyse how green startups can be a driver of transition towards greener economies in local environments and how international networking and exchange of experience can support this. We define barriers and potentials in building ecosystems for innovative, sustainable business initiatives and for startups in different sectors and regions.

The EU wants to be climate neutral by 2050 and faces the challenge of empowering all regions in Europe to cope with that target. In all European countries, and not only in the metropolitan regions, we need a boost in innovation for new markets, business areas, services and forms of production in order to transform trade, industry and services in a climate-neutral way, to develop new narratives and cultures in the economy and to enable organisations and institutions to contribute to the social and ecological transformation of societies.

GreenTecLab aims at supporting local ecosystems and new cultures in organisations and institutions. In four regions of Europe (Nitra and surroundings (Slovakia), Crete, Attica (Greece), Cádiz region (Spain)) local and mobile support structures have been established and have been supporting potential founders and project ideas on site through a systematic training and coaching programme, the GTL "journey". For this purpose, local key partners were integrated into the project in the regions, who develop and strengthen their capacities to support green startups and projects, in

order to provide a focal contact point for green startup activities in the region even after the end of the project. All local ecosystems, the GreenTecLabs, are networked via a virtual platform for international exchange, joint trainings and peer or expert support. All the tools created in the project are also available to them after the project ends. Many startup ideas have already been motivated in the first year of the project. A total of around 20 projects in the three countries have been supported since 2021. The startups that will join in 2022 can already benefit from optimised offers, as experiences are collected and analysed by the project team, changing needs are constantly redefined and challenges are reassessed. At the pain points of local ecosystems, identified in the project, spin-off activities have already emerged to develop approaches to solutions.

The contributions collected in this issue provide an overview of the activities in the regions. They give a voice to the different target groups of GTL in order to also attract new partners and participants in the four regions and in other countries and regions. We report on challenges and success stories from the perspective of the startups, but also of the local stakeholders in the ecosystems and the international networks. Above all we intend to explore the question of how green business ideas, innovations and projects contribute to supporting an ecological, social, cultural and economic transition in the regions. GreenTecLab supports ecological innovations against the background of holistic transformation processes in societies. Only through a deep shift of economies, cultures in institutions, organisations and civil society and the framework conditions for social cohesion in our societies will we be able to achieve our climate goals in Europe and beyond.

Silke Steinberg, Rüdiger Klatt



# EUKI – Climate action connecting Europe



The European Climate Initiative (EUKI) supports and empowers climate action projects across Europe to accelerate the transition to climate neutrality. On behalf of the German Federal Ministry for Economic Affairs and Climate Action (BMWK), the EUKI publishes an annual call for proposals. Together with the BMWK, 20 to 30 project ideas are then selected to receive support from the EUKI in the following years. This support ranges from funding to educational resources, to ensuring the projects can have a lasting and meaningful impact.

## EUKI and GreenTecLab

In early 2020 the research institute FIAP (Forschungsinstitut für innovative Arbeitsgestaltung und Prävention) from Gelsenkirchen in Germany participated in the fourth call of proposals of the EUKI. Its project about “Green Business Ideas for Climate Protection and Agricultural Economy”, later called GreenTecLab (GTL) has been selected and started its work in November 2020. Together with its four implementing partners German-Hellenic Chamber of Industry and Commerce (Greece), City Council of Cadiz (Spain), Asociación de Investigación y Cooperación Industrial de Andalucía (AICI) (Spain) and PEDAL Consulting (Slovakia) FIAP supports green startups and project ideas, addressing creative young people with technical competences who are interested in or motivated for green ideas. It particularly encourages young women to develop and implement green business ideas.

The development of new services and business ideas has the potential to create new, green jobs while at the same time supporting consumers in the use of climate-friendly technologies. To advance this process, it is essential to support young people in these regions in shaping structural change into new labour markets.

Another measure implemented by the project is to set up a transcultural “GreenTecLab” in form of an interactive, virtual coworking platform. The platform features virtual conferences, meetings, training courses and individual consultations in order to establish a network and knowledge exchange between and among the European partners and potential founders in the target regions.



Where do we support? Source: EUKI

### How do EUKI support climate action?

Each year, promising projects, like GTL, that are striving to develop solutions to the global climate crisis are selected for EUKI funding via our call for project ideas. Since 2017, 157 projects have received EUKI funding. In total, the EUKI has a funding volume of 79 million Euro. Beyond financial support, we also personally assist projects in their professional development, offer knowledge and capacity building and welcome new members into our large EUKI climate community. There is an abundant diversity of EUKI climate projects when it comes to partnering countries or cities, scales and topics of action.

EUKI provides a space for transnational climate cooperation and networking for our active and engaged community of over 300 organizations in 31 European countries. EUKI connects climate actors, encourages inter-European dialogue and knowledge exchange, creating a network where both small and large NGOs (Non-Governmental Organizations) are welcome.

### Where do we support?

Thinking European and acting locally, EUKI projects are contributing to climate action across the continent, from capital cities to small rural towns, from countries to regions. Our geographical focus is primarily in CEE (Central and Eastern Europe) countries as well as the Baltic states and

EU accession countries. We want to leverage the unique potential that each region offers for climate action and support the commitment of local communities. Currently, the EUKI is active in 25 EU and six Western Balkan countries. We strive to connect climate actors at the national, municipal, civil society, economic and education policy level.

### Who do we support climate action?

The size of EUKI projects ranges too, from medium to small-scale projects (120,000 € – 1 Mio €), we want to encourage all climate action potential equally. We actively strengthen smaller organisations so that their climate action ideas can become big. We understand the importance of supporting grassroots initiatives and it is our ambition to help small-scale projects stand on their own feet to find further funding and continue to grow and thrive. Presently, over 300 organisations are implementing EUKI projects, among them non-governmental organisations, national, regional or local authorities, nonprofit enterprises and educational institutions.

### What do we support?

EUKI projects work in 8 main clusters: Climate Policy, Energy, Buildings and Municipalities, Mobility, Agriculture, Soils & Forestry, Awareness, Climate-Aligned Finance and Sustainable Economy.



*EUKI project Boschi per la Biosfera by Giacche Verdi Bronte and Manfred-Hermsen-Stiftung*

With their results and impacts, EUKI projects contribute to the goals of the European Green Deal. Some examples: Within the framework of the EU Commission's climate policy guidelines, some projects are working to successfully implement the "Fit for 55" package and the associated legislative processes. Energy production and consumption account for more than 75% of the EU's greenhouse gas emissions. In order to achieve Europe's climate targets for 2030 and climate neutrality by 2050, it is imperative that we decarbonise the EU's energy system. The EUKI therefore also supports projects for dialogue formats and strategy development on the coal phase-out and structural change, promotes energy efficiency measures in various industries and advises end consumers on investing in renewable energy plants. The EU's "Farm to Fork" strategy is part of the European Green Deal and aims to make food systems fair, healthy and environmentally friendly.

The Common Agricultural Policy (CAP) also plays a crucial role in shaping the EU's climate policy. This is why some EUKI projects bring together key stakeholders in this field to facilitate knowledge sharing and support the implementation of promising approaches to mitigating climate change. The EU Commission also presented building guidelines according to which the climate neutrality of all buildings in the EU is to be created by 2050, another area where EUKI projects are active.

From rolling museums engaging youth in Lithuania and Latvia about climate change to carbon sequestration on organic farms in Slovenia and Serbia – EUKI projects cover a

range of European climate activities. Behind each project there is a story, and most importantly, behind each project there are people, who have a vision for a sustainable Europe. We enable the realisation of their ideas with which they serve their local communities and contribute to the mosaic of Europe's climate-neutral future.

### EUKI Academy

The EUKI Academy was founded with the aim to facilitate a deeper cooperation and learning experience within the EUKI community. By offering this additional support we wish to strengthen the funded projects and the transformative change in the target countries. The programme of the EUKI Academy is designed to encourage public discussion and information-sharing about key climate topics such as Energy efficiency, energy security, digitalisation for a greener future, funding opportunities and more. At the same time, our offer aims to strengthen the institutional capacity of EUKI project organisations through targeted trainings in areas such as finance management or public relations.

The EUKI Academy organizes, often in cooperation with EUKI project implementers, web seminars, community events and networking conferences in specific countries. Once a year, the Academy hosts the EUKI Annual Conference, which took place only virtually last year and is planned as a hybrid event for September this year. EUKI organisations will be invited to Berlin and parts of the conference will be streamed live online. Current and past webinars and tutorials produced by the EUKI Academy are available at the EUKI website.

### Climate Action is an opportunity

Creating a sustainable and climate-neutral Europe is our collective project. The European Climate Initiative plays a small but significant role in the endeavor. It is our aim to unite European integration with climate action. Building strong networks from one project to another and from one country to the next creates a powerful community. We believe it is with this community that we can reach even our most ambitious climate goals.

### Explore the EUKI

Organisations interested in applying for the next call for proposals this year in autumn, will find more information about the funding procedure on our website. The call will also be announced via newsletter and we regularly share updates on our social media channels: Twitter, Facebook and LinkedIn.

Organisations looking for collaborators to bring a climate action idea to life can also check out our community list filled with potential partners. Useful and informative reports, guidelines, analyses, and policy recommendations from EUKI projects can be found in our publications section.

Now is the time to jointly take climate action. From politicians, NGOs, educators, scientists, industry workforce to consumers: It will take our collective contribution to achieve a sustainable transformation. Climate action has the potential to foster European technological leadership, boost innovation, open new markets, and create jobs. The ecological, social, and economic opportunities of climate action are limitless – it is up to us to unlock them.



Annual Conference 2021; left: Verena Ringler, host; right: Erian Veliaj, mayor of Tirana, Albania

# GTLs virtual platform to connect European green entrepreneurs

## Opportunities and challenges at a glance

To overcome the European and global challenges of climate change and to move towards the goals of the European Green Deal, to make the EU economy modern, resource-efficient and competitive, the GTL project has been establishing local hubs since the beginning of the project, to support green, sustainability-oriented entrepreneurs in the partner countries of Greece, Spain and Slovakia.

To fully unlock the untapped potential for growth and social inclusion that lies within Europe's green entrepreneurship, the Virtual GTL – a virtual network for green startups – has been developed. It is an agile project which adapts continuously to the needs of the startups. The purpose is to unite the potentials of sustainability-oriented entrepreneurship from all partner countries, to identify and harness synergies across national borders, to ensure a joint support infrastructure as well as to establish a European network for green entrepreneurs. The most eminent aspect is the exchange of experiences to empower the start ups to learn from each other and of course to motivate each other. It is a virtual form of peer-to-peer collaboration and coaching.

In the context of the EUKI Speedexchange on 18 May 2022, FIAP presented the Virtual GTL. Silke Steinberg and Romina Große (FIAP e.V.) talked with Tanja Maximo, Anselm Bareis and Oliver-Andre Hoelcke (Deutsche Gesellschaft für internationale Zusammenarbeit, GIZ) about their experiences in setting up the platform. In the dialogue, they highlighted the great chances and potentials offered by a digital European network, but also reflected on the challenges they encountered during the implementation and showed perspectives on how these barriers can be overcome in the future.



Below you will find an interview excerpt from the EUKI Speedexchange "GTL Platform: Challenges & Potentials of Collaboration Software for Climate Projects and Green Entrepreneurship".

### Tanja Maximo, GIZ:

What I have learned so far about your project is that GTL is about supporting startups in the green economy. Can any of you briefly explain what exactly the GTL platform is and the intention behind it?

### Romina Große, FIAP:

Our GTL platform was set up to complement the local hubs in Greece, Spain and Slovakia and to initiate European wide networking to enhance innovation in the green entrepreneurship sector. The aim of the virtual GTL was to strengthen the collaboration among the startups from the different countries. On the other hand we wanted to ensure that all startups have access to a notable pool of experts in the field of green economy. This is especially important for the rural regions we are working with. These regions are lacking access to innovation and a wide range of experts, and so, to overcome this, the Virtual GTL became an important instrument. The Virtual GTL is based on Wordpress and basically consists of two sections – a public and a private section for registered users.

In the public area you find the basic information on the local GTLs and our offerings on the journey through the GTL startup program. We together with all partners also publish regular news articles. You can also find Information on open calls that may be of interest to startups.

In order to use our comprehensive training materials for developing green business ideas, users must register for the private area. Then they have full access to presentations and tools on various topics – starting from classic entrepreneurial material to specialized information on the demands of the green sector. To enhance the digital collaboration we provide access to Microsoft Teams software for our participants free of charge. There we have created individual startup channels where the participants can organize their workflow on business idea development. In addition, there is a transnational startup channel that participants can use to network across Europe and exchange ideas with other startup, mentors or technical experts.

**Tanja Maximo, GIZ:**

Okay, so I guess connecting people who work in rural areas and sharing info materials are two key factors of the Virtual GTL. Are there any more reasons why we have to do collaboration and specifically digital collaboration and why is it necessary in the development of green business ideas?

**Silke Steinberg, FIAP:**

This is a very important question. As we said the regions we are working with don't have access to real technological or social innovation. And technical innovation always needs social innovation to be implemented. Innovation is generated in collaboration, heterogeneous actors have to come together to co-develop solutions on the background of their diverse experiences and knowledge.

Our belief is, that green and social innovation depends on collaboration; you need different approaches, different perspectives, different knowledge, and competences. Collaboration is a fundamental principle of joint value creation that can result in a common complex idea, but is hard to develop or implement alone.

Digital collaboration in particular is a great potential for our rural regions. With the use of our platform we want to foster the process of open innovation and agile development of new sustainable services and products in these regions. They receive innovation impulses via the platform.

**Tanja Maximo, GIZ:**

So basically many heads make this one great idea. What positive outcome can be pointed at this stage of the GTL project and which benefits are still expected for the future?

**Romina Große, FIAP:**

I think the most important aspect is that collaboration enhances knowledge and creativity. What we experienced so far is that these are key elements in developing successful

business ideas, because you have to draw a holistic picture of the market to address the needs of your target group. That is why we believe that the benefits of digital collaboration are important for our startups.

What is also positive about our Virtual GTL is that it is multilingual. This helps to overcome language barriers. And what works really well are our 'GTL Knowledge Pills', a format of short presentations on green entrepreneurship topics. We have created them together with all our partners and they are available on the Virtual GTL in all languages. Through this we raise awareness to the wide range of opportunities in the green sector and it is an easy way for our participants to find access to important topics. This is an important benefit, because collaboration also requires broadening the horizon to other relevant topics and actors. Only the knowledge about corresponding topics initiates the desire for collaboration in order to optimize one's own idea.

**Tanja Maximo, GIZ:**

What are points that are easily replicable when starting a collaboration platform?

**Silke Steinberg, FIAP:**

In my opinion our approach to co-create the platform and the whole project, together with all our partners, is really important and replicable. In the beginning we thought our platform will be designed in a completely different way, but now we are in an agile process where we adapt the Virtual GTL and the whole project process to the needs of the co-operation partners and our participants. I think in the IT sector this approach is obvious already, but this agile and open way of working with the partners, with adaptable objectives, is very important and recommendable in all sectors.

**GTL SERVICES**  
What we offer

You want to know how to successfully implement your business idea and become a successful green entrepreneur?

**Inspiration & Motivation**  
Find motivating success stories of green start-ups and entrepreneurs, as well as inspiring trends of the green economy.

**Collaboration**  
You want to work in a team to develop your business idea or network with other start-ups? We offer you the opportunity to collaborate via MS Teams.

**Training**  
You want to expand your knowledge and skills in the field of green entrepreneurship? Here you will find training materials for all phases of business idea development. From classic entrepreneurship training to technical training and market entry evaluation.

**Mentoring**  
Mentors provide start-up assistance. Here you find technical experts and experienced entrepreneurs who can support you in the different stages of your project. Learn from their experience.

**Tanja Maximo, GIZ:**

The Virtual GTL thus enables collaboration between partners and startups and benefits from continuous adaptation to the demands of users. But I guess you came across barriers and obstacles when implementing the platform. Can you shed light on what that means specifically and what you have learned in the process?

**Silke Steinberg, FIAP:**

To put it in a nutshell, the national collaboration, which often takes place in person, works well. But on the international level it was really hard to motivate the startups to collaborate. But you know, we only started in recent years with our first startups and only now they are in a stage, where they have concretised and defined their business ideas. Now they have become more open for international cooperation because they are more aware of their idea and their needs. Also the language barrier, at first, was very high, as we are not only working with academically educated people. We also work with vocationally trained people and for them it is often hard to speak English. The participants are not very confident and think their English is not good enough, but we experienced that they get more confident when only speaking in bilateral exchanges.

What was also hard was to get feedback from the participants. We want to include them in the process of the Virtual GTL development to address their specific demands. It took us a long time to find structures to motivate them to give their feedback and to initiate developments of the platform. What we have learned, however, is that challenges are also always chances and we remain focused on further developing the Virtual GTL to make it sustainable.

**Tanja Maximo, GIZ:**

Before we come to the end of our Interview maybe you can tell us your “big AHA”, that is your big learning curves when creating this platform, like what you would recommend to other projects and what they need to take into account when setting up a such a platform.

**Romina Große, FIAP:**

In my opinion one important aspect is to plan the development of the platform well. To really serve the demands of your customers you need some time. So if you want to save some resources, it might make sense to postpone the development of such a platform a little later in the project, because then you already know the exact demands of your target group and you can integrate them better into the development itself.

One other aspect is the choice of the tool. For us it was obvious to use an established collaboration tool like Microsoft Teams. During the project we experienced that not all of the startups were open for this software, because some already worked with other softwares. So, for the future we need to think about whether we should really select a fixed tool for collaboration or whether we should focus more on the training of various methods of digital collaboration and empower participants to use tools that suit their needs.

**Silke Steinberg, FIAP:**

I would like to add one more aspect, which is especially important with respect to our target group. It is very crucial to connect the work of the Virtual GTL to the on-site work of the local partners, because they have to address the startups of their regions. Despite the Virtual GTL, you need to offer Face-to-Face Meetings and Trainings. When the first barrier is overcome and you know each other, it is much easier to continue with digital collaboration, but in the beginning, especially the young people, needed contact persons, somebody who guided them through the process. For example last week we were on Crete where our first GTL startups already launched their business. There we experienced the close relationship between the startups and the local partners. That is why we believe that startups need both – local support and collaboration in the region, but also international collaboration for further inspiration and support – to successfully implement their business idea.

**Tanja Maximo, GIZ:**

Thank you very much for giving us this very informative presentation of your Virtual GTL. So we can summarize that on the one hand it is a great idea to bring people together to advance the process of generating that one great entrepreneurial idea, but on the other hand it is a work in progress.

*The interview shows that the Virtual GTL for green entrepreneurship offers a lot of potential. However, it also clearly reveals, that it is a long process to develop a platform in such a way that it is actively used and meets the needs of the potential users. The goal is to develop the Virtual GTL beyond the project and to establish it in the European green startup scene. GTL already motivated over 50 founders to start their startup journey. If they feel at home at the virtual GTL this digital pillar of the project is successful.*



# The startup ecosystem in Greece and the role of the German-Hellenic Chamber of Industry and Commerce



In recent years, what is happening in the fields of economy and commerce has brought new standards to the business sector. The global financial crisis and its consequences have opened the way for innovative forms of business to appear. More specifically, startup businesses have become a trend during the last decade, since it became really necessary for everyone to come up with new ways of employment. Of course, Greece could not remain unaffected by that international phenomenon, and startups came to fill the blank space that the traditional types of business left. The establishment of startups created not only a new category of business, but, an “ecosystem”, or “startup Ecosystem”, which is gradually and rapidly evolving, always in combination with technological development, fundamental for the startups.

In Greece, the majority of startups were established by people of a young age, who wanted to create something new from scratch, whether it was thanks to their creativity, motivation or inspired by other international examples, or because they were disappointed by standard forms of business. Most startup headquarters are located in Athens, with Thessaloniki close behind. Tourism seems to be the field that concentrates the leading number of startups with 13,9%, followed by informatics and communication with 9,4%. Agri-food sector and health & life sciences share third place with 8,6%.<sup>1</sup>

Concerning the establishment of startups in Greece, we have to mention the initiative of the Greek Government with the creation of the online platform “Elevate Greece” (national startup point), which according to its website *“aims to map the startups and support their development, with an ultimate aim: the emergence of a powerful innovation ecosystem”*.<sup>2</sup> Through this online platform, the Greek startups are able to apply for official certification by the General Secretariat of Research and Innovation, an administrative authority of the Ministry of Development and Investments. Other important forums that attract a high number of startups are the “Thess INTEC:

Thessaloniki Innovation & Technology Center” located in a venue ceded by the Greek state at the “Alexander Innovation Zone”<sup>3</sup>, as well as the “Innovation State”<sup>4</sup> in Athens.

The utilisation of technology and communication are basic tools for startups, while the internet and social media play the role of a bridge between such businesses and consumers. A lot of startups have international goals, but at the same time they lack technical efficiency. Moreover, plenty of startups state that they do not profit at all. Undoubtedly, anything new will face difficulties until it is well-established.

For this reason, it would be really helpful for the debutant startppers if they were acquainted with the “startup Ecosystem” and that they became familiar with it. The “startup Ecosystem” is constantly changing so young entrepreneurs ought to know how to adapt such changes. This way, they secure the sustainability of their startup entrepreneurship, as well as their environmentally friendly orientation. However, are there suitable forums or institutions with the appropriate knowledge that will contribute to the implementation of such an attempt?



By continuously keeping up with the developments and adapting to the ongoing changes, the German-Hellenic Chamber of Industry and Commerce has been running the GreenTecLab project in Greece during the past 2 years. It is also held in Germany, Spain and Slovakia, under the coordination of the FIAP Research Institute (Research Institute for Innovative and Preventing Job Design). The Project is funded by the European Climate Initiative (EUKI), that is a project financing instrument by the German Federal Ministry for Economic Affairs and Climate Action (BMWK). The aim of this project is the creation of an infrastructure that will support green businesses and innovative actions through the education of young and creative people involved in startups.<sup>5</sup>

In Greece, GreenTecLab is under the auspices of the Ministry of Environment and Energy and is supported by many Institutions, for example by the Heinrich Böll Institute. The project has been implemented in Athens and Crete, areas with a plethora of startups. Through GreenTecLab, local entrepreneurial workshops are created in order to help and socialise young people with “green” and sustainable business ideas, as well as to provide them with personal coaching and continuous support. Furthermore, new job vacancies and chances for the future are created through a virtual platform with local, national and European partners, for the development of common ideas, information and education.

The German-Hellenic Chamber of Industry and Commerce within the context of the GreenTecLab project, co-operated with another 3 institutions in order to organise the “green”

entrepreneurship workshops in 2021. To begin with and in co-operation with Technical Institute of the Chamber of Commerce, Herakleion, Crete, online workshops about green startups were hosted and ideas were pitched, with the 5 best ideas presented being awarded. The workshop focused on the agri-food sector and ecotourism, and a second round of workshops and pitches will take place again in 2022. They will be addressed to entrepreneurs, students, young scientists, representatives of organisations or businesses, unemployed people, producers, incubators, academic institutions, local teams, entrepreneurship, business counselors and startuppers from Crete.

Later, in November 2021, in co-operation with the Piraeus Chamber of Handicrafts, “green” entrepreneurship workshops were hosted, with students of vocational high schools, aged between 16 and 18 years, the target group. Some of them are about to be awarded for the best entrepreneurial ideas in a contest. Pitches for the students are planned to take place in the middle of 2022, where they will present their entrepreneurial ideas in such topics as: environment, smart city/harbour, innovative products and advanced materials.

Furthermore, the German-Hellenic Chamber of Industry and Commerce supported the bootcamp trainings and Pitches of “GreenTec Challenge”, which is implemented by the National (Metsovian) Technical University of Athens (NTUA) and is mainly addressed to students. The main aims of this programme are education, counseling, promotions of initiatives in these topics: “Environment”, “Energy”, “Smart & Sustainable Cities”, “Innovative Green Products & Advanced

Materials”, “Tire Handling”, “Fossil Raw Materials”, “Blue Growth” and “Sustainable Tourism”.<sup>6</sup> The German-Hellenic Chamber of Industry and Commerce was responsible for the topic and the award of “Blue Growth”. The Chamber is definitely present in the implementation of all these efforts and supports the creativity of young people.

The German-Hellenic Chamber of Industry and Commerce supports the efforts of the startups businesses in Greece. Considering the exhibitions, big exhibition organisations offer the chance of participation with low-cost fees to startup businesses. In the context of GreenTecLab offers mentoring with guidance infrastructures in Athens and Crete, as well as Peer-Coaching. Last but not least, the

Chamber has a really important role, as a bridge connecting startups with companies in Greece and Germany. The Chamber has a big international Network and many Networking Events are organized, like the “Innovation Forum” that is organized every year in cooperation with the Embassy of the Federal Republic of Germany in Athens. During the “Innovation Forum”, companies operating in Greece and Germany share successful case studies in innovation. Best practices from both countries relating to new technologies, investment prospects in the field of innovation, and ideas for example on how artificial intelligence should be applied are presented. The “Innovation Forum” seeks to highlight the ingredients that led to recipes for success and to strengthen Greek-German partnerships.

The German-Hellenic Chamber also holds a special committee about startups. Thanks to the initiative of the Chamber, a platform for discussion and exchange of experience about the ongoing challenges of the sector is offered.<sup>7</sup> Its mission is to create a network where the startups co-operate, share the best practices and their expertise and discuss about legal and funding issues that the newly-established businesses face, in order to provide them with advice and low-cost solutions. The committee operates in plenty of fields. For example, it supports the exchange of technical efficiency between startups and institutions of the field and defines potential and chances for even more development of the startup businesses, taking into account what is happening in the global market. Moreover, it suggests solutions for the improvement of competitiveness and promotes possible cooperations, making good use of the events it participates or/and hosts. It has to be noted that representatives of newly-established startups and institutional representatives participate in this committee.

To conclude, it is clear that education about startup businesses and “green” and sustainable orientation of business are more than necessary in order to survive in the conditions of modern reality. Young entrepreneurs have to keep up with all the upcoming changes and evolvements if they want their star-ups to be sustainable and profitable. The seminars of the GreenTecLab project offered by the German-Hellenic Chamber will take place in 2022 as well, aiming to supply the employees with all the important education and counseling about startups. The main goals are to help them achieve the best possible sustainability for their startup businesses and their environmentally friendly functioning, as well as to reward the most innovative ideas. As a Chamber of Commerce and Industry, we are interested in supporting business in Greece in national and also local contexts. We see the startups and the emerging eco-system as an engine and a prerequisite for a sustainability and future-oriented economy that responds to the challenges of our time with innovative ideas.



<sup>1</sup> Nikolaidis I. (2022). startup businesses in Greece, diaNEOsis (ORGANISATION OF RESEARCH AND ANALYSIS) <<https://www.dianeosis.org/2022/01/oi-neofyeis-epixeiriseis-stin-ellada/>> (online: January 2022)

<sup>2</sup> Website: <https://elevategreece.gov.gr/el/>

<sup>3</sup> Website: <https://www.thessinnozone.gr/thessintec-2/>

<sup>4</sup> Website: <https://gsri.gov.gr/protovoulies-draseis/chropei/>

<sup>5</sup> Website: <https://griechenland.ahk.de/gr/ekpaideysi/greenteclab>

<sup>6</sup> Website: <https://greentechchallenge.gr/>

<sup>7</sup> Website: <https://griechenland.ahk.de/gr/meli/epitropes-melon/startups>

# Public funded project as driver for a new economy and a fairer society

## Introduction

The European Union has established very ambitious goals for the next medium and long-term period. It aims to cut in half the amount of CO<sub>2</sub> production by 2030 and to become completely carbon neutral by 2050. In addition to these already extremely bold objectives, the EU would like to boost the efficient use of resources by moving to a clean, circular economy and stop climate change, revert biodiversity loss and cut pollution<sup>1</sup>. The roadmap is the European Green Deal, a plan to transform these global challenges into opportunities across all policy areas and making the transition just and inclusive for all.

The Green Deal aims to achieve 100 billion euros in investments in the following 7 years to face global challenges. This money is granted to Consortia of organizations that commit themselves to contribute to solve the problems thanks to their knowledge and expertise establishing detailed plans to achieve their objectives. These plans are carefully evaluated and then, one or more are selected for funding. PEDAL Consulting is one of the many organizations that are operating in this business and that is working on these challenges every day.

In the framework of the GreenTeLab project this article is showcasing two European Projects where PEDAL is either coordinating or being part of project consortia, linked to the Horizon2020 funding scheme (the one recently substituted by Horizon Europe) as an example on how public funded projects are driver of a new economy and a fairer society and they can contribute to building an ecosystem where innovation and sustainable development can bloom.

### SEIFA project

The Sustainable Energy Investing and Financing Activation (SEIFA) project creates incentives for private investors to finance modernization of industrial companies, energy supply facilities, and energy service companies. The project's main objective is to establish a Fund that will invest with a focus on industrial companies. The Fund aims to create a Net-zero carbon emission and a fully Environmental, Social and Governance (ESG) compliant portfolio.

One of the most innovative and interesting part of the project is its Regional Focus. It mainly focuses upon the region of the Central and Eastern Europe (CEE region), including twelve Member States of the EU: Bulgaria, Croatia, Czech Republic, Estonia, Germany, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia. SEIFA also involves neighboring countries of the participating countries (EU Associated).

The reason why SEIFA is targeting these countries lies in the fact that the CEE region economy is relying almost completely on a bank-based financial system, therefore represents a limitation to growth. The capital stock in CEE is less than 50% of the EU average and the investment gap is particularly present in the private sector. In some CEE countries such as Slovakia, almost 75% of the overall investments comes from the public sector that cannot support the increasing need for funding. Consequently, a stronger diversification of the financial sector is necessary<sup>2</sup>.

In the CEE region there is a shortage of investments that is unlikely to be sustainable in the long term without negative implication for growth. Moreover, several factors suggest the persistence of this gap in the future:

- The capital endowment of CEE countries remains well below the EU average and the level of investments is still inferior to what was experienced in countries that have successfully graduated from medium to high income. Catching up will require a long period of higher investments.

- Investments are still below the pre-crisis level in a number of CEE countries. It is yet unknown whether that is a permanent or temporary factor, but the crisis has led to an increase in risk premia and Western European countries being more careful.

- The progress in reforms has slowed down or is even being reversed in many CEE countries.

- The current geopolitical situation is amplifying these problems, making it even more necessary to achieve energy security and overcome the need for fossil fuels from foreign countries.

The SEIFA project is aware of these challenges that could be summarized in a combination of low profitability, low attractiveness of bank loans and limited private resources. As a result, companies are largely unwilling to shift to renewable energy in their production processes. SEIFA turns these enormous problems into development challenges.

Another important reason related to the regional focus is that most of the built environment (industrial plants and energy facilities) in the CEE region has reached the end of the cycle, it needs to be renewed to be competitive and sustainable in the future. Therefore, the implementation of renewable energy in industrial processes is an area with large potential for improvement in the CEE region. To ensure the effectiveness of the work, SEIFA is focusing on developing strong local teams in the target countries, with good and extensive connections and substantial capacities on the ground. These entities have demonstrated that they can help an equity instrument, like the EIF Fund, to have a powerful impact and to achieve its goals, especially in a long-term perspective<sup>3</sup>.



<sup>1</sup> [https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en)

<sup>2</sup> Deutsche Borse Group. Trading venues. Retrieved at 1/08/2020 from: <https://www.deutsche-boerse.com/dbg-en/regulation/regulatory-dossiers/mifid-mifir/mifid-mifir-virtual/mifid-i-to-mifid-ii/market-structure/trading-venues>

<sup>3</sup> European Investment Bank (2018), Slovenia Overview. [https://www.eib.org/attachments/efs/eibis\\_2018\\_slovenia\\_en.pdf](https://www.eib.org/attachments/efs/eibis_2018_slovenia_en.pdf)



The SEIFA project, thus, makes a strong emphasis on building capacity for and supporting regional and national project aggregators as well as establishing new operational financial mechanism specifically for sustainable energy projects in the CEE region.

### **W4RES project**

The uptake of Renewable energy is not only related to the industrial sector, but there is also a compelling need for an increase in the adoption of Renewable Heating and Cooling solutions in households. The topic is relatively new, the urgency of adopting RES started at the beginning of the century and it is still quite unclear (because of the lack of data) its acceptancy from the society, the boundaries in the market and the inclusivity of the RES domain.

W4RES, the Horizon 2020 project on Women for Market Uptake of Renewable Heating and Cooling (RHC), has produced reports with a focus on 8 diverse yet representative markets within the heating and cooling sector: Belgium, Bulgaria, Denmark, Germany, Greece, Italy, Norway, and Slovakia. The reports highlight the current European conditions hindering or favoring the uptakes of RES in heating and cooling; challenges and recommendations for the beforementioned countries; and, on how women can tackle market uptake barriers and drive the deployment of RHC solutions.

Unlike the SEIFA project, W4RES could not rely on available data to establish concrete actions from the beginning. To take informed decisions, the project started with surveys and research on 8 representative countries, then the report helped the consortium to design the right path for each country. Moreover, the collection of data highlighted different development degree in the uptake of RHC and the inclusion of the market for women. W4RES aims to learn from the differences and apply what has worked in the past in countries such

as Denmark and Norway (which have higher levels of RHC and gender equality) in countries that still have some difficulties like Slovakia, Italy, Bulgaria, and Greece.

The W4RES project has established the W4RES Observatory that is a global online hub showcasing national RHC networking initiatives, findings, good practices, and co-creation activities to define new measures to boost the RHC market uptake. Concurrently Regional Hubs will be established to engage regional stakeholders and, to facilitate the delivery of RHC market uptake support measures.

W4RES will select 50 European RHC projects led by women who will benefit from the W4RES's hands-on market update support services adapted to their challenges, for instance technical assistance and consultancies to help women to set-up and deploy gender responsive RHC solutions together with business and innovation support.

The consortium is quite widespread in Europe, and it aims to exploit its "size" to organize national campaigns oriented towards Civil Society, Market Actors, Academia, Authorities and Policy Makers to raise awareness about the challenges discovered in each region.

The final output of the project is an exclusive guide to show how policy makers can replicate W4RES's support measures, including actionable recommendations for more informed and gender responsive RHC policy, market support and financial frameworks.

### **Conclusions**

During the implementation of the GreenTechLab project in the three targeted countries (Greece, Spain and Slovakia) an issue turned out to be pivotal. The innovative and green startups that GTL is supporting can only be successful if they are surrounded by a well-functioning ecosystem. SEIFA and W4RES are contributing to building this ecosystem so-

wing the seeds of sustainability and gender equality, highlighting and ripping out the dangerous weed of the market's inefficiencies as and make the green transition bloom. Moreover, both projects are in line with the European Commission approach on the economic, social, and environmental challenges that are upon us. On one hand, SEIFA is leveraging well-known problems and boundaries of the CEE region (old built environment, lack of private investment and shortage of knowledge and incentives in the private sector) to drive the development of a new sustainable and fairer industrial sector. Increase investment sources and facilitate the access to them is a key to develop an innovative and dynamic ecosystem. On the other hand, W4RES has collected fundamental data on RHC market and, more importantly on the sector' boundaries for women. The W4RES project is aiming to increase awareness and provide guidelines for both helping the transition to a net-zero carbon heating and cooling system and developing a more inclusive market where women and men could cooperate to achieve this goal. Gender equality is a social and cultural constraint preventing the full potential of the energy market (and beyond), W4RES aims to break down the barriers building a fairer and just ecosystem where innovators can thrive.

Both projects are determined to tackle climate change and turn it into an opportunity for their targeted countries. They are aware that not every region has the same starting point and that some regions and sectors will face more difficulties to adapt. W4RES and SEIFA are also aware that EU is a frontrunner in climate action and that their actions will be taken as model from other countries like China and India. The European projects are helping us to make a step forward and prove that change is possible, and that a new economy will be beneficial for the people and for the planet.

# New markets in the energy transition: Energy efficiency of buildings and energy refurbishment

**State of the art from existing and ongoing european R+D and demonstration projects. Potentials for new companies.**

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## Introduction

At the present, 75% of the stock of existing buildings in Europe are energy inefficient. Moreover, 90% of them will continue to remain so until 2050. This, together with the fact that 2/3 of the energy consumption in buildings is due to the residential sector, leads us to the conclusion that the residential sector is responsible for 27% of the energy consumption in the EU.

The building renovation rate of 1-2% on an annual basis in Europe is very low and this is the reason behind the importance of renovating the existing building stock. (*Figure 1*)

The European Commission has established a legislative framework to promote the energy performance of buildings,

in particular through the Energy Performance of Buildings Directive 2010/31/EU (EPBD) and the Energy Efficiency Directive 2012/27/EU. In October 2020, the Commission launched its new Renovation Wave strategy as part of the European Green Deal, aiming at doubling the annual rate of energy renovation of buildings by 2030, to reach 3-4 %, and to promote deep renovation. Within this framework, the development of the market of deep modernization is a major challenge throughout Europe. It faces particular conditions in the Mediterranean region due to specific environmental and climatic factors, to the structure of the property and the built park, to socio-economic conditions, and the consequences of the economic crisis, that hit the European Mediterranean countries with a greater impact than the rest of the EU countries.



Figure 1. Example of energy building retrofitting. Source: <https://sustaintrust.org.nz/>



Figure 2. Participations in projects related to energy efficiency in buildings. Source: Own elaboration using EASME web tool

### State of the art – Projects of reference

Next figure shows the number of participations in projects related to energy efficiency in buildings from 2016 to the present in EU countries. (Figure 2)

It is important to highlight that a very high number of research, development and dissemination have been dedicated to this topic. In this article we are going to coment the most representative projects which have been organized in a timeline in the next figure. (Figure 3)

The **EASEE** project developed a holistic approach to the energy-efficient renovation of the envelope of multi-storey, multi-owner, hollow-wall residential buildings built before 1975.

In the **TURKEY** project, a digital tool was developed, aimed at single-family and multi-family homes, while considering improvements in energy efficiency and interior comfort.

The **EUCALC** project's building calculation model includes calculations of a country's energy demand based on the proportion of single-family and multi-family buildings and their respective energy needs.

The **EmBuild** project supported public authorities in South East European countries to prepare long-term strategies to mobilize investment in energy efficient renovations.

### Present and ongoing projects

**A2PBEER 2013-2018:** The main objective of the project is to implement the latest rehabilitation technologies so that public buildings are more economically and energy efficient.

**RIBuild 2015-2018:** The main objective of the project is to provide a solution to the stock of historic buildings that must be energetically rehabilitated with structural limitations due to age and heritage protection. We highlight, from the project, the extensive report of case studies including detail of the historical and patrimonial structural typology.

**ALDREN 2017-2020:** The main objective of the project is to increase the number of energetically rehabilitated tertiary buildings with the help of a simple improvement guide, that in turn will increase quality and comfort.

**TripleA-RENO 2018-2021:** The main objective of the project is to involve homeowners and developers in energy rehabilitation. They receive information on improved buildings in Europe while at the same time filling out a survey on the housing situation, managing to highlight the types of possible improvements.

**Med-ECOSURE 2019-22:** The main objective of the project is to energetically rehabilitate the universities so that they become public Living-Labs. Thus, the owners of other buildings of this type will have first-hand information to carry out such improvements.

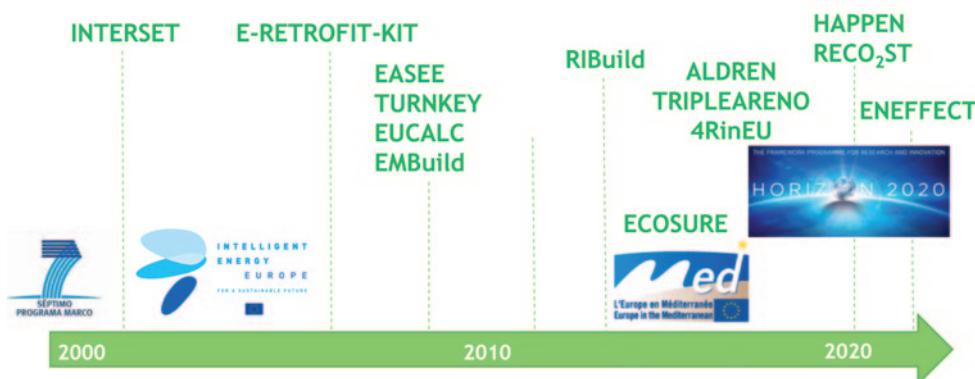


Figure 3. Timeline of energy efficiency project related to building renovation. Source: Own elaboration

**4RinEU 2018-2021:** The main objective of the project is to break the social barrier that undervalues investments in energy rehabilitation in the current housing stock in Europe.

**ReCO2sT 2018-2022:** The main objective of the project is to facilitate the systematic acquisition of information by the owners of the housing stock that needs to be rehabilitated. Within the project, the rehabilitation has been evaluated through different scenarios and the implementation of improvement measures in pilots.

**HAPPEN 2018-2022:** The main objective of the project is to promote an increase in the number of deep energy renovations in the current housing stock in Europe by creating a tool for optimal solutions, a network of pilots and the ZEB protocol applied to the regional Mediterranean climate.

### GreenTecLab connections

Within the GreenTecLab Project, entrepreneurship in the area of energy efficiency in buildings and energy rehabilitation has been promoted from the following aspects:

1. Presentation of the potential of this in seminars and conferences in order to motivate young people to develop their own business ideas. These ideas can be innovative, but also more conservative, as the distribution of innovative products not easily available in one region could be a starting point to establish a business without the need to innovate.
2. Specific training in energy for all initiatives arising from La Janda and Seville within the support program.

The following initiatives arose from the Seville pitch:

1. Use of drones for the diagnosis and optimization of energy consumption in buildings.
2. Creation of an app to find the best energy rate for both residential buildings (domestic consumers) and industrial buildings.
3. Implementation of green roofs in buildings.
4. Creation of an app to optimize energy consumption in buildings
5. Creation of a software and/or an app for the environmental management of business and buildings.  
Calculation of the carbon footprint.

### Conclusions

Due to a lack of information, there is a double risk for a new startup related to energy efficiency in buildings, of either offering an incomplete product when there is public information that would allow it to be improved, or of “reinventing the wheel”.

As has been demonstrated above, the wealth of results, products and existing packages ranges from residential buildings to office buildings through to educational buildings and hotels or historic buildings. Likewise the improvement solutions range from AC system-based technologies to measures focused on the epidermis passing through to the local generation of energy. Whatever the building or the abacus of renovation measures, we are sure that the information on previous projects may be of great interest to you.

A lot of the initiatives introduced by the GreenTecLab project deal with energy efficiency in buildings, during the development of the project we have tried to support them in offering really “new” or innovative products without monitoring or shortcomings. Many are still on their way to become a consolidated idea, others have the maturity to be launched and tested in the real world.

In recent times, there have been many previous projects related to energy efficiency in buildings ranging from pure research to dissemination, so it is important for any entrepreneurial initiative related to the sector to collect existing information to improve the product offered to its clients by gathering all the knowledge, and the practical applications created previously and that are available to said entrepreneurs.

The GreenTecLab project has directly supported young entrepreneurs to realize their ideas providing them with the knowledge of the existing background in the energy efficiency field. The objective of the text in this article is to partially translate this knowledge to those who did not follow the program. We hope to have reached this goal.

### References

- EASEE project. 2012-2016. (Grant agreement ID: 285540) was funded by the 7th FP of the European Commission.
- TUNRKEY project. Grant agreement ID: 839134. Program. H2020-EU.3.3. – SOCIETAL CHALLENGES – Secure, clean and efficient energy
- EUCALC. H2020 research and innovation programme under grant agreement No 730459.
- EmBuild. H2020 research and Innovation programme under grant agreement No 695169.
- A2PBEER. Seventh Framework Programme, under Grant Agreement No. 609060.
- RIBuild 2015-2018. H2020-EU.3.5. – SOCIETAL CHALLENGES – Climate action, Environment, Resource Efficiency and Raw Materials
- ALDREN 2017-2020. H2020-EU.3.3. – SOCIETAL CHALLENGES – Secure, clean and efficient energy
- TripleA-RENO 2018-2021.
- H2020-EU.3.3. – SOCIETAL CHALLENGES – Secure, clean and efficient energy
- Med-ECOSURE 2019-22. ENI CBC MED programme.
- 4RinEU 2018-2021. H2020 research and innovation programme under grant agreement No 723829.
- ReCO2sT 2018-2022. H2020-EU.2.1.5. – INDUSTRIAL LEADERSHIP – Leadership in enabling and industrial technologies – Advanced manufacturing and processing
- HAPPEN 2018-2022. H2020-EU.3.3. – SOCIETAL CHALLENGES – Secure, clean and efficient energy

# Cross-national startup cooperations as a driver of the green transformation in Europe



Against the background of current social and ecological crises, business ideas that are only economically viable and promise profits are coming under pressure to justify themselves. It is possible that in the future every startup will have to define itself far more than before by its contribution to climate protection and social sustainability. The question of the ‘price’ that employees and nature pay for innovation will become a condition for the viability of business ideas.

And the challenges of society and environmental protection do not stop at national borders. Therefore, despite the difficult global political situation, cooperation and co-creation across national borders remain extremely important as a platform for the dissemination and evaluation of new ideas that link societal and ecological progress across (national) borders. Moreover, the ‘wheel’ does not always have to be ‘reinvented’ locally, regionally and nationally when there are already successful startups in other regions.

The value of international exchange is not new, but it is complicated and questioned by the current crisis experiences of a post-global world.

This is where the GreenTecLab project comes in: It supports ‘green’, sustainable startups and not only shows the founders the economic viability of their ideas, but also integrates ecological and social issues into the startup process itself.

In our tool ‘Green Canvas’, for example, we have adapted and further developed the well-known instrument of the Business Model Canvas to these questions. In the so-called ‘Knowledge Pills’ we try to condense the generated knowledge and new startup ideas into easily accessible ‘knowledge bites’ to enable learning processes at the European level.

Our approach is to pursue a strategy of European exchange in order to spread new ideas more quickly and to promote synergies and cooperation between founders. We have realised this in our transnational “virtual hub”. This integrates the local or regional startup centres of the project in Greece, Spain and Slovakia into a common, virtual platform.

Here, the founders we support find the opportunity to stimulate startup processes and ‘internationalise’ new ideas on a European level, e.g. by exchanging knowledge about the dos and don’ts of a startup or by discussing the transferability of local or regional startup ideas to neighbouring European countries.

**Why are collaboration-promoting projects like GreenTecLab important? There are several reasons.**

1. Most startup ideas are not really new, seen on a European or global scale. However, they are innovative under local or regional conditions, i.e. they respond to a local challenge in a local market. It is therefore worthwhile to look for existing solutions or other startups in the European context. Usually there are already experiences about technical and social challenges of startup ideas and their solutions, which can stimulate networking and cooperation in partnership. An example: A founder wants to develop a contribution to the circular economy by upcycling whey in an agricultural region in Southern Europe. So far, most of the whey in this region is disposed of as waste. He is developing a technology in which biomass from agriculture is used as an energy source to produce high-quality protein powder from whey. GreenTecLab's European research identified Wheycation (<https://wheycation.com/>) in Switzerland, a company that is already successfully processing and marketing whey into protein products and protein shakes in the region. Both sides can benefit from a partnership or even direct cooperation: The southern European startup can learn from the processes, technologies and product development strategies already tested at Wheycation. On the other hand, the upcycling of whey must take place locally and regionally and must also be marketed there. So there is no need to fear a direct competitive situation because the products are primarily geared to the local and regional market. The cooperation creates a win-win situation from which both sides can benefit.

2. Innovative startups are often closely tied to national cultures and regulatory systems. Therefore, it is a good idea to look for startups that are already functioning in other national contexts in order to consider, via direct or indirect cooperation, the creation of an 'offshoot' or a national (or local or regional) startup of one's own that is adapted to the needs and market requirements of the respective country. Here is another example: The newly founded company Sustayn (<https://sustayn.de/>) wants to establish effective and attractive sustainability through an employee app to make companies sustainable from within. The app offers employees the opportunity to initiate and implement changes for more sustainability in the company through their own sustainable actions (e.g. cycling to work) according to the crowdfunding principle. In this way, employees are motivated with playful elements to contribute to more sustainability in the company. The APP also builds on an established culture of participation in German companies that may not exist in other countries. Furthermore, the actions for more sustainability are specifically adapted to the German corporate and employee reality. However, a country-specific adaptation through cooperation and exchange with in-

terested startups from other countries could help to develop country-specific adapted versions of this APP, which also uses the crowdfunding principle to initiate more co-determined sustainability in companies. An indispensable prerequisite for this to take place is European networking of the startup scene, such as GreenTecLab is striving for.

3. Another aspect is that in most cases innovative services and products are created more or less simultaneously in different countries. In times of global networking, nothing spreads faster than a good idea. A good idea is therefore rarely exclusive, but its implementation often is, because, it depends on minds, competencies, capital and implementation concepts that differ to a greater or lesser extent. Yet startups aiming at a global market can benefit from this simultaneity. Another example: AVAILY AG, which sees itself as the "AirBNB" for decentralised workplace management. Their APP helps companies or co-working spaces to market office workplaces. Because from AVAILY's point of view, employees expect remote work concepts that enable hybrid work 'anywhere'. The digital platform therefore wants to broker professional office workplaces and support companies and coworking spaces in the use of their vacancies. By avoiding unnecessary commutes, AVAILY also contributes to the decarbonisation of businesses. What is clear is that such a desk-sharing offer should reach every employee everywhere, if possible on a large scale, and to integrate as many available providers as possible. This requires considerable investment and a broad campaign. Currently, similar services that support hybrid forms of work are emerging in different places and countries. On the one hand, the cooperation that GreenTecLab offers in this context aims to realise as many similar approaches and startups as possible in different countries through exchange of experience and transfer, to drive standardisation and to open the markets for the new idea. On the other hand, cooperation platforms such as GreenTecLab are intended to enable mergers and motivate capital providers to invest in the market on a large scale.

These examples show: Already in the first year since the founding of the virtual GreenTecLab, the potentials of European cooperation in 'green' startup funding can be seen. We have shown that a transnational virtual hub can become the engine of European 'green' startups. This involves the adaptation of new ideas for local and regional markets to other contexts, the Europeanisation of green ideas through transnational startups and the creation of European markets for services and investments.

Especially in the area of knowledge-intensive, digital service ideas for the European startup scene, the exchange can be fruitful, promote sustainability and contribute to European cooperation and economic development.

# Startup ecosystem and “green” entrepreneurship on the Island Crete

Sarina Thiele, Head of the Department of Education, German-Hellenic Chamber of Industry and Commerce,  
Michalis Katharakis, Head, Technical Institute of Heraklion Chamber & The Team of the startup Crete Hinterland

During the last few years, the German-Hellenic Chamber of Industry and Commerce is closely co-operating with the Technical Institute of Heraklion Chamber in the fields of vocational education and training, as well as in the implementation of projects about the protection of environment and energy saving. The Heraklion Chamber and the Technical Institute of Heraklion Chamber, which are very active institutions and implement important projects, are two essential partners of the German-Hellenic Chamber for projects on Crete. Also in the project GreenTecLab these two organizations are the important contact points for the implementation of the project. The German-Hellenic Chamber and FIAP are closely collaborating with the two organizations.



## Technical Institute of Heraklion Chamber (TIHC):

- 20,000 business members from all sectors of the local economy
- 60.000 trainee-hours per year
- 120 different educational programs
- 18 highly educated personnel (Ph.D., MSc., MBA)
- 500 contractors teaching staff
- 10 fully equipped 25-seat training rooms
- 68 years of experience in VET
- 6 Certifications in computer skills, Languages, Welding, Transportation, food handling, work safety
- EVS Certified Member
- Experienced provider in soft skills training and development

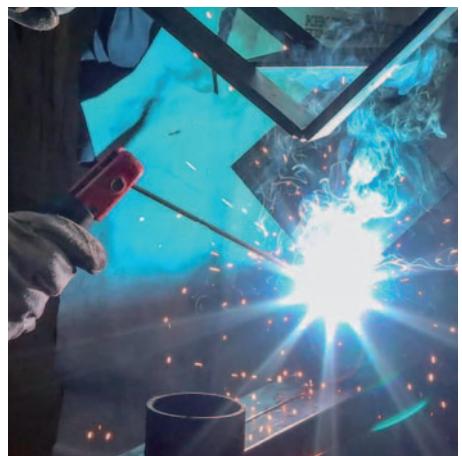
**Heraklion Chamber** ([www.ebeh.gr](http://www.ebeh.gr)) is one of the largest Chambers of commerce in Greece (one of top five), accounting for more than 20,000 members from all sectors of the local economy. It is an autonomous, non-for-profit institution, established in 1950 as a daughter company of Heraklion Chamber with a Decree from Greek National Economy of Ministry in 1950.

## Technical Institute of Heraklion Chamber (TIHC) ([www.katartisi.gr](http://www.katartisi.gr))

may serve as an excellent partner on dissemination activities in EU projects, including congress or conference organization on the island of Crete, dynamic website development. It can also serve as a partner on Vocational Education and Training delivery in a variety of topics ranging from soft skills development to train the trainers adult learning. As TIHC Works in close collaboration with Heraklion Chamber it also may serve as the ideal partner on business motivation and development in a variety of topics like tourism, food, entrepreneurial skill development and small business cluster development. TIHC operates in a national level in the sectors of: Informatics, Tourism & Services, Economy & Business Administration, Transportation & Technical Professions, mechanics and electronics and its activity accounts for more than 60.000 trainee-hours per year in more than 120 different educational programs. TIHC employs 18 highly educated personnel (Ph.D., MSc., MBA) while it is partnering with over 500 contracting teaching staff. TIHC owns 10 recently renovated fully equipped (Wi-fi, overhead projectors, distant learning systems, sound proof) 25-seat training rooms,

including 70 computers for trainees and fully equipped metal welding lab, food and beverage lab and electronics lab.

TIHC implements innovative adult-learning fully participative training models and is certified on computer skills, metal welding, English speaking, transportation, and food handling. Several actions on adult consulting have been also delivered during the last three years that gave TIHC a vast experience on entrepreneurial needs and horizontal skills development. The Technical Institute of Heraklion Chamber works in close cooperation with the Technological Educational Institute of Crete, the University of Crete, The Science and Technology Park of Crete. TIHC has direct access via the Heraklion Chamber in a series of European Networks that supports SMEs with the most important being: The Enterprise Europe Network (EEN), Insuleur-Network of the Insular Chambers of Commerce and Industry of the E.U., Arab-Hellenic Chamber of Commerce and Development. TIHC is an examination centre for the IELTS certification exams and an examination centre for the Open University of Cyprus.



**Thiele:**

Is there already an ecosystem of Startups in Crete? Which actions are implemented by the Technical Institute of Heraklion Chamber in the field of entrepreneurship?

**Katharakis:**

Entrepreneurship in Crete focuses on 2 main factors: agri-food and tourism. In recent years, it is noticed that young people are tending to make a good use of their skills and talent in order to run new business actions and initiatives. A common characteristic of these new initiatives is the existence of capabilities and knowledge, with which in a contemporary and competitive way, are aiming to be incorporated into the production as innovative and to make business procedures contemporary. Since 1950, the Technical Schools have been offering educational programmes to the local entrepreneurship, which enable the continuous update of knowledge and capabilities under the requirements of market and society. The support for the entrepreneurs as for the initiatives that they take on, requires competitive knowledge and advanced technical efficiency. The Technical Schools contribute to this direction with a lot of educational programmes every year for hundreds of students that trust them.

**Thiele:**

Which are the challenges that are faced by people from Crete who wish to establish a Startup?

**Katharakis:**

The decision of activation into the arena of entrepreneurship is indissolubly connected with the risk of danger. Especially when that business activity is taking place in the area of an island, challenges are even bigger considering isolation and the lack of access to central infrastructures, markets and delivery networks. The strengthening of interconnection between research activity and the market is a really important challenge in order to boost the importation of innovation into daily business activities and, this way, help differentiation and surplus value of products to be reinforced.

**Thiele:**

How does the Technical Institute of Heraklion Chamber support the ideas that distinguished ideas of GreenTecLab Crete 2021?

**Katharakis:**

The Technical Institute of Heraklion Chamber offers consulting to all the ideas that were presented during the GreenTecLab workshop of 2021. Moreover, they gave the opportunity of participation into free educational programmes to the distinguished participants of the contest and, at the same time, they offered networking between the participants and the network of co-operating businesses of the Technical Institute as well of those of the Heraklion Chamber.

**Thiele:**

What is the importance of green entrepreneurship in the Cretan eco-system?



Entrepreneurship in Crete focuses on 2 main factors: agri-food and tourism. In recent years, it is noticed that young people are tending to make a good use of their skills and talent in order to run new business actions and initiatives.

### **Katharakis:**

All economies in our modern world are confronted with the challenges of climate change. In Europe, the European Green Deal has set ambitious targets for an emission-free Europe. The local economies have to adapt to these goals. For Crete, this means that green innovations are needed in the main economic sectors of the island, i.e. agri-food and tourism, in order to enable the Cretan economy to contribute to the European climate goals. It is precisely these green innovations that are needed in local economies that GreenTecLab is trying to initiate.

### **Thiele:**

In 2021 the Project GreenTecLab organized digital Bootcamp trainings and Pitches on Crete. You are one of the teams that participated at the Bootcamp trainings and made a Pitch at the 24.06.2021 in Heraklion Crete. Which are the basic factors of your business idea and was GreenTecLab able to contribute in the implementation your idea?

### **Crete Hinterland:**

In spring 2021, we created a team inside the Evening Vocational High School of Platanias, with an ambition of promoting the hinterland of the Municipality of Platanias. The motivating force for its creation is the love that we have for our land, the land in which we were born, we grew up and live. We want our young people to be proud of their land, to be able to find a job and to stay in their villages. To be educated properly and according to the latest standards in every field and to make their money by cultivating the land of their ancestors, showing respect to the environment and to the island. We want the guests of our land to take back home our experiences that are full of colours, scents, music, tastes, pictures and sound when they'll be leaving. To take back home a piece of the authentic Crete.

Thus, an idea for a social cooperative enterprise with the name Crete Hinterland – Endochora came to life. By being people with no previous experience in enterprises, we didn't know how our idea could be implemented. Then, we were informed about the bootcamp trainings and Pitches in Heraklion, Crete, in the framework of the GreenTecLab Crete 2021 project for which we applied. During the bootcamp trainings about green entrepreneurship, we learnt the basic steps of how it is possible to transform a simple idea to a business proposal and after that, a business product. Thanks to the tools which we were taught, our idea had a business plan and canvas, terminologies that were unknown to us until then. After the completion of the workshops and after our top 5 finish in the contest, the team of GreenTecLab did not stop showing its support to our ideas and to our team. Mr. Manousakis, Mrs. Silke and our Sarina were vulnerable partners throughout this experience!

In Crete Hinterland you are going to find trips in nature, visits to wineries, cheese-making businesses, olive yards, canyon crossing, easy climbs at the footpaths of the White Mountains (Lefka Ori), visits in authentic villages with stops at points of interest, acquaintance with local traditional professions, nights of food tasting, participation in workshops of self-produced products and education seminars. Our goal is, through the activities, to be able to create an efficient guesthouse for young people in the heart of the Regional Unit of Chania, by making good use of abandoned buildings of our municipality.

One year after the completion of seminars, Crete Hinterland – Endochora was an idea that turned into reality and at the moment it has status, headquarters, a business plan, a business proposal and a business product, and it is ready to begin its trip to the magical world of entrepreneurship.

### **Crete Hinterland Team:**

Emmanouil Roumeliotakis  
 Korina Korkakaki  
 Maria Malandraki  
 Dimitris Petroulas  
 Spyridon Kouris  
 Eleni Kotsaki



**RE-THINK!**

Ideas Forum  
Wednesday, 29 June 2022  
Thessaloniki

# A GREEN COMPASS FOR GREECE

Society, Economy, Ecology

Thessaloniki Concert Hall - M2  
(25th Martiou st. and Paralia)  
9:30-17:00

Free entry upon registration  
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Anniversary events  
10 years

HEINRICH BÖLL STIFTUNG  
THESSALONIKI  
Greece

5th floor  
Maurice Saltiel Hall

What could the creation of the first hotel with a zero carbon footprint mean for the future of a tourist-heavy Crete? And how can an agri-farming region use residues from tree pruning and cheese-making to produce a high-quality product such as whey, without any energy burden? These and many other things are not just interesting ideas and sketches on a piece of paper. They have already become reality or they are in the process of being implemented through the GreenTecLab project.

## From whey to socio-ecological transformation

GreenTecLab is part of the European Climate Initiative (EUKI) and is being implemented in Crete, as well as in Andalusia, Spain and Nitra, Slovakia. It supports green startups and projects, actively encouraging young people – especially young women – to develop and realise green business ideas. It provides free seminars and workshops on green entrepreneurship, helping participants to develop their business idea, cost it, improve their competitiveness and innovation, learn about ways to save energy and protect the environment, learn about good practices and meet other startups from all over Greece. It also organises a business ideas competition every year and awards the five most innovative proposals, which it supports by offering the winning teams one year of mentoring to find the right funding, to promote the idea (marketing), to learn about global markets and to network with the right people, institutions and investors. An important part of this objective is achieved through the five winning teams travelling to Germany for a few days to meet other startups there, discuss with them their current challenges and start building a network for future collaboration.

### The rural-urban divide and transformative social innovation

This is where the role of the Heinrich Böll Foundation, Thessaloniki office, comes in, funding this trip as these costs in the original project were not covered by EUKI funding. Supporting this project is in line with one of the aims of the Heinrich Böll Foundation, which is to bring the rural-urban divide into the public debate, to add value to rural areas of Greece (in this case Crete) and to provide

opportunities for young people there to participate in the green economy and entrepreneurship.

More specifically, concentration of population, power and opportunities in the big urban centers is a typical characteristic of Greece that poses a clear and multi-faceted urban-rural divide. In addition, the long financial crisis and the demographic challenge set the future perspectives of Greek rural areas at risk. Schools are closing, enterprises are shutting down, young families are moving to bigger cities. At the same time, major challenges are also arising in the large urban centres that are receiving this population (e.g. housing, waste management, etc.). Developing and strengthening green and social startups can help to alleviate the pressures currently facing local communities by providing employment opportunities and responding to social needs in ways that do not harm the environment.

In general, partners and groups participating in the activities of the Heinrich Böll Foundation have the opportunity to take an active role in a participatory socio-ecological transformation that responds to the issues of a just energy transition and circular economy, at local, national and European level, as well as to gender issues.

The Foundation promotes transformative social innovation, characterised by the empowerment and interconnection of local and supra-local networks, while its involvement is not limited to the successful completion of a project, but instead contributes to a long-term and open planning focusing on meeting social needs.



### The specific social features of startups

The Heinrich Böll Foundation attempts to highlight alternatives and policies that lead to the transformation of the Greek economy and society towards a model of ecological development, gender democracy and intercultural inclusion. It works, among other things, for a just ecological transformation of the society and the economy, with its main characteristics being energy equality, carbon neutrality, reduction of plastic waste, circular economy, green community development. Green and social startups, precisely because of their specific features, can make a positive contribution in this direction by responding to multifaceted social and environmental challenges. They are characterised by innovation, without which economic activity is unable to adapt to the rapid evolution of the climate crisis facing the planet and of course Greece, while at the same time they promote alternative business models of circular economy that generate value at the local level.

In particular, green and social startups are differentiated from other business initiatives because they are able to address local needs in partnership with local communities, mobilise financial and non-financial resources and empower local communities. They thus demonstrate that they can deal with international challenges at the local level while at the same time having high levels of social innovation, i.e. a focus on new ideas, new products and services, new social relations and social practices.

## Linear production-consumption model and climate challenges

The vision of the Green Deal, the strategy announced by the European Commission to make the European Union 'climate neutral' by 2050, is summarised in three objectives:

- Zero net emissions of greenhouse gases by 2050
- Economic growth decoupled from resource use
- No people and no regions left behind.

In order to achieve all three objectives in a balanced way, fundamental changes are needed in the current economic model of our societies, which is based on the principles of the market economy and follows a linear production-consumption model. In this model, the dominant unit of the economy is the enterprise, which has as its primary objective the creation of profit for its owners/shareholders. Both the success and the very survival of the enterprise are identical with the maximisation of profit, which is achieved if the enterprise produces and sells more and more products. Similarly, in this model the individual is only valuable when he or she acts as a consumer, as a buyer of the company's products.

At the same time, the way our economy works today, the production and consump-

tion of products, is also linear: we take raw materials from nature, make products, use or consume them, and discard them when they no longer work or are no longer needed. This model has huge demands on natural resources, energy, and water, and creates pollution and mountains of waste to manage. It is also extremely wasteful, as it considers as 'waste' and 'rubbish' materials that could be reused by re-entering the production chain.

In contrast, in a circular economy model, 'waste' is minimised as the products we use either last longer, are repaired, biodegraded or used to create new products.

In short, if the 'green transition' is simply the transformation of businesses into 'green' industries that seek to sell more and more 'green' products to those people who have the money to buy them, nothing substantial will change: our economy will continue to consume more and more natural resources while those who were marginalised in the past will continue to remain so.

## Circular economy, cosmopolitan production, climate neutrality

This transformation from a linear to a circular economy supports the transition towards climate neutrality as it requires significantly less energy resources to maintain it (less carbon

emissions) but also generates less waste, the management of which, whatever it is (landfill, incineration or even recycling), is a source of environmental pollution.

Climate neutrality will be achieved through the green transition, which must be socially and economically just. This means that the creation of new jobs and economic opportunities is a one-way street for this transformation of the economy and is already being promoted by the central European and national mechanisms. New needs for services and products will enrich the standardised way of production and sale, giving a new impetus to the way economic transactions are perceived. Production chains that are as localised as possible can meet local needs with a smaller ecological footprint, thus helping to protect the environment. 'Cosmopolitan' production ('cosmopolitanism': 'design global, manufacture local') can help to create another economic model that respects the environmental and social limits of the planet. This is the direction in which the GreenTecLab project is moving, which is why it is supported by the Heinrich Böll Foundation.

 **HEINRICH BÖLL STIFTUNG**  
The Green Political Foundation



## Heinrich Böll Foundation

The Heinrich Böll Foundation, headquartered in Berlin-Mitte, is a political foundation close to the party Bündnis 90/Die Grünen. It develops and promotes issues of contemporary political ecology, such as sustainable development, democracy, human rights, participatory processes and gender equality. Its broader objectives are political education of individuals and communities, international understanding and socio-ecological transformation of the economy. To this end – and often through the creation of networks – it works to strengthen ideas, policies and strategies and to disseminate good practices from around the globe. It operates in around 60 regions of the world and has offices in 34 countries.

The Heinrich Böll Foundation's office in Greece has been operating in Thessaloniki since June 2012. Through a wide range of activities – educational programmes, studies, research, conferences and debates, publications, support to civil society organisations – it attempts to demonstrate alternatives and highlight policies that lead to the transformation of the Greek economy and society towards a model of ecological development, gender democracy and intercultural inclusion. The fields in which it is active are ecology, democracy, social solidarity economy, migration, foreign and security policy. It has recently taken on a regional role through activities and partnerships in Bulgaria.



Serhat Ünaldi

# The Grove Crete

## State-sponsored greenwashing?

### How misguided tourism policies make it difficult for green startups to get off the ground

On the need to think holistically, intersectorally and qualitatively about sustainability in the hospitality industry



*In 1983, U.S. student and environmentalist Jay Westerveld was vacationing in Fiji. Although he was staying in a small guesthouse, he fetched fresh towels at the sprawling Beachcomber Resort next door. As he did so, he noticed a sign asking guests of the resort to reuse their towels to avoid having to wash them daily – for the sake of the environment. Jay paused and pondered, for the resort was about to expand even further along the surrounding coral reef, significantly impacting the environment. He concluded that environmental protection is often used as a fig leaf in tourism and he invented a term for it: “greenwashing”. Given the continued focus of sustainability-minded investors and policymakers on large-scale projects, the term has lost none of its relevance.*

This is a lesson we have learned as founders of a green tourism startup on the south coast of Crete over the past two and a half years. With THE GROVE CRETE, we aim to offer a genuine alternative to established mass tourism, which – besides bringing financial gains – causes immense costs for Crete’s environment and society. Negative effects include the ecological and visual destruction of coastal landscapes by tourism mega-projects, accompanied by increased pressure on public services, such as water supply and waste disposal. The concentration of tourist offerings on the coasts weakens social structures and traditions in the island’s rural hinterland, since especially young people take up volatile, seasonal employment in hotel complexes. Particularly resorts that rely on mass tourism by offering low prices and all-inclusive services – incentivizing guests to remain within the hotel complexes – hamper the sustainable development in Crete. This stock-taking does not even include the greenhouse gas emissions from international supply chains, or from the construction, operation, and demolition of large hotel facilities, let alone from air travel.

Fortunately, more and more young Greeks are discovering the potential of a sustainable turn in tourism. They are securing for themselves a share of the vastly growing market for services that focus on experiences of nature and local production and products. From cocktail bars serving creative mixed drinks based on goat’s milk, raki and thyme, to providers of original Cretan experiences such as soap making, pottery or Cretan cooking, to fashion brands that re-

vive local weaving traditions with a modern twist, the range of offerings is growing, albeit at a low level. Through personal networks, these passionate players are coming together, exchanging ideas and realizing together the opportunity that lies in the preservation of nature and tradition for them and their guests. Catalysts are needed to transform this organic process into an organized turnaround in Mediterranean tourism.

THE GROVE CRETE aims to become one of these hubs for sustainable hospitality. Crete’s first near-zero energy hotel certified by the German Passive House Institute is to be built on a pristine part of the south coast between Agia Galini and Agios Pavlos – with the aim of becoming energy positive over the life cycle of the building, i.e. having produced more electricity and heat through renewable energies than was consumed during sourcing, construction and operation. In doing so, we are pursuing an intersectoral concept that encompasses sustainability in all its aspects, making full use of latest technological innovations.

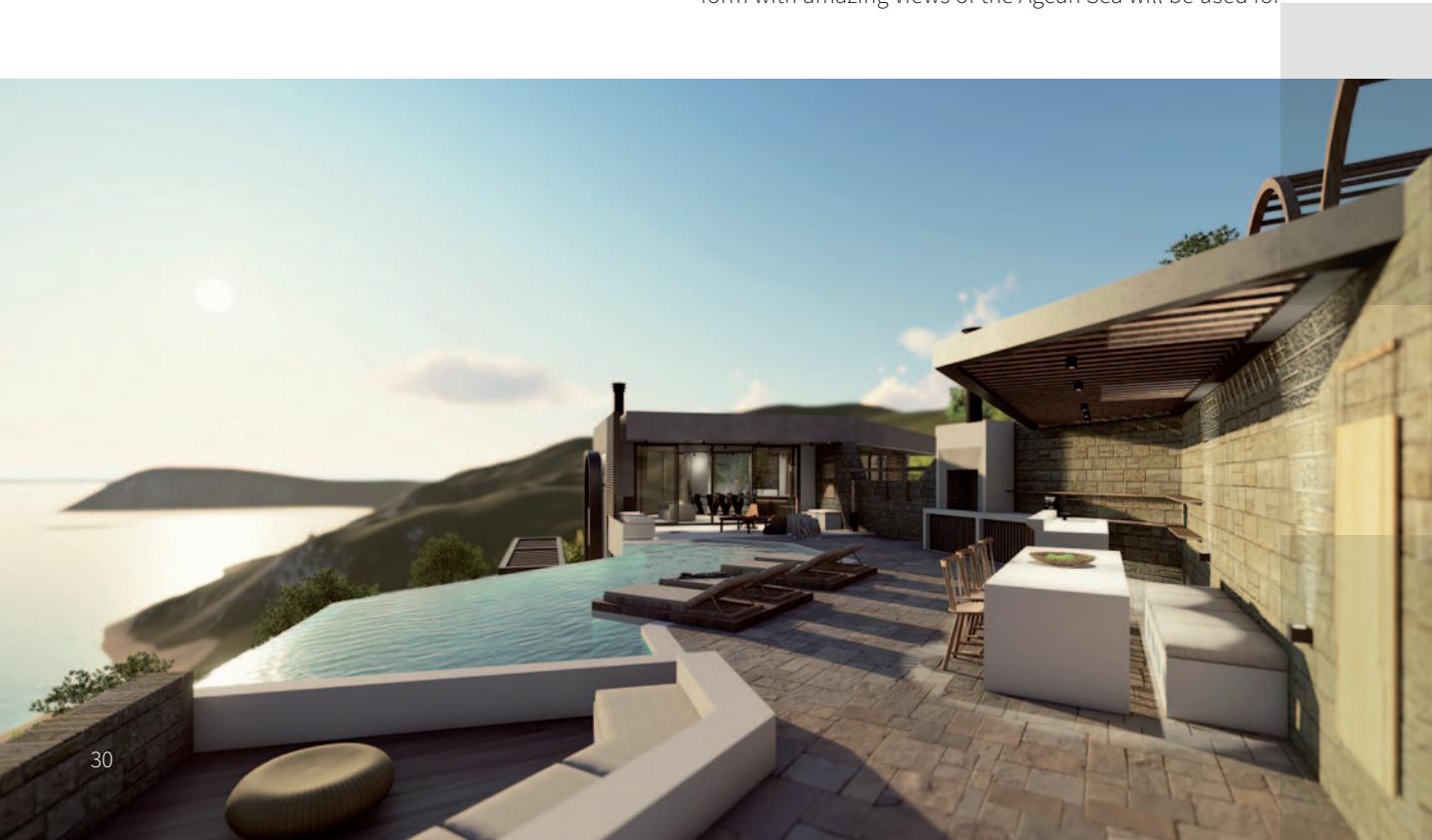
The energy supply will be provided off-grid by innovative solar technology solutions, a heat pump, a combined heat and power plant that can be converted to green hydrogen use, and a battery for electricity storage. A cooperation is planned with the Hamburg-based solar company SunOyster, with THE GROVE CRETE becoming a pilot project. At the same time, the 4,100 square meter property is to be reforested with an olive grove and fruit trees, supplemented by a herb and vegetable garden. Signs along a trail through

the garden will explain the benefits of the native plants to guests. An olive tree integrated into the hotel's interior serves as a symbolic fusion of nature and culture and as an eye-catcher not only in the company logo but also in the hotel lobby. To promote more carbon sinks, we aim to cooperate with reforestation programs on the island and give guests the opportunity to compensate for the CO<sub>2</sub> emissions caused by their travel. Such a localized offer highlights cause and effect more adequately than impersonal offsetting services via online portals, while at the same time forging closer bonds between guests and Crete, thus making repeat visits more likely. Guests who choose to travel by bus or train, as well as ferry, receive a discount on their booking.

To optimize water management, water is partially sourced from a rain cistern and – along with grey water – treated accordingly. The pool is operated year-round, making regular emptying unnecessary. Biological alternatives to chlorine will be used, as well as a pool cover against water loss from evaporation. In this context, it is worth noting that the potential water resources in the region are astonishingly plentiful. An unexplored karst system feeding the nearby Kourtaliotis spring could supply all the freshwater needs in south-central Crete.<sup>1</sup> Unfortunately, this potential remains untapped. The reasons for episodes of water scarcity are many, ranging from convoluted legislation to ambiguous responsibilities of public services to a lack of understanding of modern water management. The agricultural sector is the largest consumer of water in Crete (78 percent), with private consumption – including tourism – accounting for only one-fifth. Nevertheless, we are aware of our responsibility and will therefore focus on a holistic approach to water management, to the prevention of pollution and to waste production. Food waste will be composted or fed to farm animals. Olive wood will be pressed into pallets for heating the hotel's own fireplace in winter.

For the selection of products and services, we will apply a simple rule: Supply chains are Cretan first, Greek second, and European third. From building materials to interior design and culinary delights to the excursions and workshops offered, local solutions always take precedence. This avoids gray energy from long transport routes, minimizes the impact of disruptions in global supply chains, strengthens local production and tradition, and reduces regional disparities between hinterland and coast. While buffets at many resorts feature at most a "Cretan corner" in addition to pizza, lasagna and instant scrambled eggs, all food at THE GROVE CRETE is sourced from our own garden or surrounding mountain villages. Local artisans are given the opportunity to use the hotel rooms as showrooms by providing design pieces to decorate the interior. Guests have the option of using an iPad in their rooms to place orders via the hotel's web store for items they particularly like, including olive soap made in-house. In cooperation with a local fashion label, THE GROVE CRETE will offer its own line of textiles, while the pool bar will serve "signature cocktails" developed in cooperation with a mixologist from the provincial capital of Rethymno.

All excursions and artisanal workshops are carefully curated. They will guide guests away from established routes and the well-trodden paths and run-of-the-mill excursions. Instead, they will put a spotlight on those sustainability-minded networks mentioned above. From young artist couples who extract their own clay for pottery from Cretan soil (while the recent closure of the only commercial supplier on the island has prompted the majority of potteries to order from Italy), to winemakers dedicated to producing natural wines, to the local hunter who teaches guests about the interconnectedness of man and nature. All excursions are carried out with an electric van charged at the hotel's own station and powered by the Aegean sun, or with electric Vespas. Within the hotel premises, a multi-purpose platform with amazing views of the Aegean Sea will be used for





Fortunately, more and more young Greeks are discovering the potential of a sustainable turn in tourism. They are securing for themselves a share of the vastly growing market for services that focus on experiences of nature and local production and products.

wedding ceremonies, massages, yoga and cooking classes, music and self-exploration workshops. Our services will be provided year-round, in line with the Greek government's goal of addressing the problem of seasonality in tourism. To this end, the attractions of the seasons will be explicitly marketed – such as the opportunity to participate in the olive harvest in the hotel's own grove in winter and follow the process from olive to oil.

THE GROVE CRETE's approach is deliberately ambitious. We are convinced that combating climate change will not succeed through incremental progress. Holistic approaches are needed, but are more promising on a small scale, thereby attracting imitators and thus transforming entire sectors. The curated offerings we have in mind – which require personal connections with guests, partners and suppliers – are hardly feasible on the scale of a large resort. In any case, the Greek tourism industry is dominated by micro-enterprises, as a recent Alpha Bank paper on the subject makes clear. Small family-run hotels account for 98 percent of the sector.<sup>2</sup> At the same time, however, the authors note a trend toward larger hotels, with growth in facilities with more than 250 rooms exceeding 17 percent (2012-2019), while small hotels stagnate. The promotion of large-scale projects by government, banks, and investors is surely due to the assumption that large resorts create more jobs and promise higher returns – an assumption that at least holds true for direct jobs created. Small hospitality enterprises create only 52 percent of direct jobs in their sector. However, this number overlooks the disproportionately greater potential for small establishments to become nodes of local networks of sustainable tourism providers, creating quantitatively competitive and qualitatively better and more fulfilling indirect jobs.

Moreover, investors and banks need to base their risk assessment on high demand volatility and its impact on occupancy rates of larger hotels in the face of international disruptions. Global pandemics, political and economic crises have a far greater impact on occupancy rates of large resorts. Smaller hotels, on the other hand, face fewer problems filling their rooms. For example, even during peak season at the height of the Covid pandemic, some larger hotels in Crete remained closed, while smaller boutique hotels barely felt the impact of lower demand. Accordingly,

it is important to question the trend toward larger hotels – not least to avoid missing out on the sustainable turn in customer demand. Alpha Bank notes that customers are increasingly "going green" and preferring small-scale hotels. In addition, the article underlines that the local population should be included in the product design of tourism providers.

Unfortunately, government programs to promote and finance tourism are rarely if ever tailored to projects like THE GROVE CRETE. The recently passed Greek Development Law (4887/2022) targets conventional hotels with three stars or more, complex facilities and guesthouses with 20 rooms or more. Although subchapter Iota of the law focuses on alternative forms of tourism, it is still unclear what requirements must be met in order to be eligible for funding under the listed categories of agritourism, wine tourism, geotourism or multifunctional farms. It is at least doubtful that services outside the actual hotel premises meet the requirements, even if the hotel is planned as a node of a network to promote just such offers. Ideally, the integration and utilization of local fauna, flora and crafts as well as the transfer of knowledge about them may be sufficient to qualify for funding.

Another fund recently set up by the Greek Ministry of Agriculture to promote green rural tourism initially read like it was tailor-made for projects like THE GROVE CRETE. However, we seem to narrowly miss the criteria, as only projects with five rooms and ten beds or more will be funded. THE GROVE CRETE will indeed offer ten beds, but in four rooms. Of course, tenders must establish exclusion criteria. But it is worth considering whether limits might not be better drawn as a ceiling to limit the size of projects, instead of excluding small enterprises. This is particularly true in view of the high investment costs for sustainable buildings and technologies, which are less significant for large-scale projects in relation to the entire investment amount than they are for small projects – and therefore represent a disproportionately higher hurdle. To make matters worse, the understanding among local bankers and investors of comparatively high financial volumes and novel business concepts of sustainable boutique hotels is still limited, as their experiences relate to conventional hotel financing.



When granting subsidies, loans and investments to hotel projects, the question should be from now on to what extent large-scale facilities fit into sustainability goals at all, if these goals are defined holistically, intersectorally and qualitatively – in other words, goals that combine a sustainable building powered by renewable energies, circular economy solutions, organic cultivation and measures to strengthen the social structure, quantity and quality of jobs in the surrounding area. Is it enough to install solar panels on a roof? Or is this just a modern incarnation of a sign encouraging guests to use their towels more than once?

By opening up national and European funding programs to small and micro enterprises, governments should promote sustainable tourism on a small scale, even if this may seem counterintuitive at first. At the same

time, sustainability needs to be thought in as large and comprehensive a way as possible. This includes positioning Greece as a leading voice in the ongoing discussion on the Europeanization of passenger rail transport – especially with regard to the expansion of the night train network. It is one of the sad chapters of European mobility history to have discontinued connections such as the “Hellas Express”, which until the late 1980s still connected Dortmund with Athens. Competition from low-cost airlines and the war in Yugoslavia dealt a death blow to rail travel between Central Europe and the Balkans. However, in view of sustainable mobility demands among a growing number of travelers, a resumption of the connection could become an unbeatable location advantage – and thus meet a holistic offer as expected by THE GROVE CRETE’s target group. A linked journey by night train and ferry – the latter to be converted to hydrogen propulsion in the medium term – would prepare Greek tourism for the future.

“Small is beautiful” instead of “bigger is better” – projects like THE GROVE CRETE are currently trying to prove the truth of this claim by economist E. F. Schumacher. We are not alone in this. Many dedicated individual actors and boutique hotels are striving for change – not just to siphon off a market segment, but out of inner conviction and love for

their island and its people. Despite the challenges we were asked to address in this article, our motivation and gratitude for being part of a growing community that thinks in alternatives far outweighs the hurdles along our path. Our community is dedicated to the preservation of Crete’s natural resources and its social structures, while also recognizing their economic potential. Unlike greenwashing, however, the latter is not the core of a green-painted business shell, but merely an equally important goal alongside ecological and social sustainability.

<sup>1</sup> Steiakakis, E. (2018): *Evaluation of Exploitable Groundwater Reserves in Karst Terrain: A Case Study from Crete, Greece*, Geosciences, 8: 19.

<sup>2</sup> Adamopoulou, E. u. a. (2022): *Greek Tourism Industry Reloaded: Post-pandemic Rebound and Travel Megatrends*, Alpha Bank Economic Research and Analysis, May.



Hartwig Berger, Berlin/Paterna de Rivera

# Green startups for the environment and climate protection

## Projects in rural towns in Andalusia

### On the economic structure of the region

The region of “La Janda” is a loose association of eight municipalities in the Andalusian province of Cádiz with about 100,000 inhabitants. Until a few decades ago, its economy was mainly agricultural. This was dominated by an extremely unequal distribution of land with large domains and primarily agricultural workers without land. Consequently, since 1960, the municipalities in question have been among the places with the highest proportion of migrant workers in Spain. Predominantly young men secured the livelihood of their families with work in industrial companies, in construction and, here seasonally, agriculture in Western Europe. The migration of labour to the economic centres in Spain, such as Madrid or the industrial belt around

Barcelona, took place partly within families and mostly on a permanent basis.

In the meantime, the picture has changed. Above all, the importance of agriculture as an employment sector has declined. The villages located closer to the coast are characterised by the offers of tourism, but often with wage dumping, wage fraud and seasonally limited work. In all communities, a wide range of small and micro enterprises have developed, often as family businesses, only rarely with a significant number of employees and a stable sales market. Thus, a high proportion of the population lives by commuting to the industrial zones and to the urban belt around the Bay of Cadiz and the Strait of Gibraltar.

*The team of young energy consultants in the project “más trabajo con menos energía”*





*The class developed a proposal for the use of solar energy on the roof of their school in the YESclima project*

### **The challenges of environmental and climate protection**

The region of La Janda, as is the case for most of the Mediterranean region, is highly endangered by the effects of the worsening climate catastrophe. Reckless overexploitation, especially by large-scale agrarians, is an additional driver of environmental impact. Field margins, scrub forests, wild scrub and overgrown fallow land have been removed despite the high risk of erosion, slopes are tilled, refuges of life are destroyed, fields continue to be irrigated from groundwater despite an alarming decline in it, and impoverished due to overuse, compensated for by the introduction of more and more fertiliser, which in turn increases nitrate deposits in the groundwater. This vicious circle of overuse sooner or later leads to widespread desertification.

The entrepreneurial task is therefore to transform the cultivation and use of land in ways that go beyond the organic farming that is already developing. It is important to protect the landscape from increasing erosion, to enclose the fields with rows of trees and hedges and thus at the same time create habitats for birds, insects and soil animals. The fertility of the soils can be increased again through agroforestry and humus enrichment through the introduction of plant charcoal, drought-resistant cultivation can be favoured and irrigation, as far as unavoidable as in vegetable cultivation, can be reduced by means of the "drip method" or through rainwater utilisation.

At first glance, the status and perspectives of the climate-friendly conversion of the energy sector in La Janda appear more favourable. For some time now, there has been an impressive number of large-scale wind farms there, whose yield exceeds the regional electricity demand many times over. However, the model of citizen energy in the wind energy sector, which has been so successful elsewhere, is unknown here. The wind farms are all owned and operated by the large national energy companies such as Iberdrola and Endesa. Moreover, they have been built on the fields of the estates, so that profits and rental income, instead of staying in the region, go outwards or to the class of big agrarians.

The use of solar energy has so far lagged far behind its potential, even though the La Janda region offers excellent opportunities here in comparison to the rest of Europe. With more than 300 sunny days a year and 1.8 times more intensive solar radiation than Berlin, for example, the installation of photovoltaic parks promises guaranteed yields. Thus, in addition to existing PV fields, a number of large-scale projects are in the pipeline. What is missing so far is a connection with land use and, from an environmental point of view, valuable wasteland by means of vertically placed or elevated solar modules.

Above all, however, the national regulations coming into force in 2019/2020 to promote self-sufficiency and the decentralised use of solar energy on and at buildings offer promising prospects for companies and homeowners (whereby the houses of the local communities are quite predominantly self-owned and were partly also self-built). Taking advantage of and seizing these opportunities opens up important environmental-economic terrain for the immediate future. This is also where the first initiatives of community self-organisation can be found.

Other areas relevant for climate and environmental relief are the building structure and the disposal of waste and residual materials. The vast majority of residential buildings in La Janda are primarily cost-saving, mostly built by self-help and family groups, but thus less protected against heat and cold than conventional rural construction methods. This applies similarly to public buildings. In the towns of La Janda, as well as in the urban belt around the Bay of Cádiz, there are hardly any noticeable efforts to better prepare the towns and buildings for the emerging periods of extreme heat through measures of unsealing, greening and rainwater management. In all these areas, there is a wide field of entrepreneurial activities under the banner of energy saving, climate protection and climate adaptation.



The same applies to the waste management sector. Approaches towards a circular economy are not yet to be found in La Janda, and much more could be done in the targeted use of available materials to strengthen the regional economy. One example is the use of regionally available natural materials for house construction and thermal insulation. Above all, however, the way organic waste has been handled up to now is harmful to the climate and the economy. It is still disposed of unused or, with the corresponding release of the greenhouse gas methane, landfilled. This is where business areas for a regional circular economy are more than obvious.

Tourism, by far the most important economic sector in the communities on the coast and near the coast, is to be seen as ambivalent from an environmental economic point of view. The tourism and second-home industry for foreigners has led to extensive development in the coastal area, which often does not spare nature-sensitive zones, supplemented for example by an overabundance of golf courses with corresponding consequences for the landscape and water balance. Added to this is the arrival and departure by plane with collateral climate damage. Precisely because of this negative balance, initial approaches and efforts towards environmentally oriented tourism are an important sign of hope. Especially since they often go hand in hand with efforts for a generally moderate and environmentally friendly way of life.

### **Impulses for climate protection and ecological sustainability**

Since 2014, I have helped to initiate and accompany various initiatives by and for young residents in the La Janda region. A first step in 2013 and 2014 was to arrange training opportunities for young people from the region in Berlin in environmentally relevant sectors. A second step in 2014 was a training course for unemployed young people to become municipal energy advisors in their community. The course was run together with a young local engineer and was financed by the Heinrich Böll Foundation in Brussels and with crowd funding from Berlin. The course and results have been published.

A third step was to accompany a project of the European Climate Initiative EUKI, called “Young European Students for Clima” (YESclima) 2018-2020, which took place in parallel in Athens, La Janda and Berlin. In La Janda, under the guidance of a professor from the University of Cadiz, energy audits were carried out in 11 educational institutions of the 8 municipalities, which resulted in detailed, economically balanced proposals for climate-friendly measures. In at least one of the schools, this has led to comprehensive conversion measures. Here, too, reports on the results are available.

A fourth step is our participation in the transnational EUKI project “GreenTecLab” since 2021, where we work together with the Institute for Community and Social Work “Ramales” in La Janda, in cooperation with similar activities in Cadiz and Seville, in Greece and in Slovakia.

Under the title “Green Economy – a future for young people in La Janda?” we held a conference over five days in March/April 2021, which had to take place online due to the pandemic situation. Actors from the province of Cádiz gave presentations on the possibilities for local green initiatives within the framework of an economy of solidarity. From the presentations, we developed project and company proposals that were presented in three further online conferences in May 2021. The proposed “startups” included. Circular Economy, Energy, Green Cities and Buildings, Food, Agriculture and Tourism.

On the basis of these activities, participants decided on a total of seven projects for “green startups”, which will subsequently be advised and accompanied. A first evaluation with an international jury took place in October. In the first quarter of 2022, two accompanying institutes in Seville and Cádiz offered modules for targeted training for the projects. In addition, Ramales continues to advise the projects on site.

In a further step, we are currently setting up a green internet forum for the La Janda region. The aim is to collect and disseminate proposals and activities related to environmental and climate protection. Young residents of the region in particular are invited to use social media to exchange projects and initiatives and, if necessary, to cooperate here.

# Startup support in Slovakia

The use of the term startup originally became commonly used in the US in 1997-2001, which was a period of so-called unhealthy rapid growth of technology and software companies. The original connotation of a startup was a recently founded, technology-oriented company that is characterised by high growth potential. Startups still do not have a widely agreed, clear definition, and the fulfilment of the content of this concept from the point of view of legislation, policies of public institutions, investors, academia and innovative entrepreneurs themselves often emphasises different qualitative and quantitative aspects<sup>1</sup>.

The OECD gives a very broad definition of startups, according to which it is a company that has been founded less than two years ago<sup>2</sup>. KPMG (2016), in its annual, thematic publications, defines startup as a „young company that uses innovative technologies, disrupts current business models and has global growth prospect<sup>3</sup>“.

The definition of a startup in Slovakia is currently specified in the legislation by the Law No. 290/2016 Coll., according to which it is a private for profit company with created mandatory initial capital, with its headquarters in the Slovak Republic, which has not been established for more than 36 months ago and which is in the hands of individuals who are its founders, and it is an innovative enterprise, a micro-enterprise, a small enterprise or a medium-sized enterprise<sup>4</sup>.

An analysis by the Slovak Alliance for Innovation Economy (Sapie) from 2017 states that at that time there were only 253 innovative, fast-growing projects in Slovakia. Other available information and statistics show that startups in Slovakia are still a very small part of our economy. Dealroom.co, together with Google

and atomico, register only up to approximately 600 startups in our country in 2021. This data is confirmed by the Concept for the Support of the Startup Ecosystem in the Slovak Republic. See Graph 1 below.

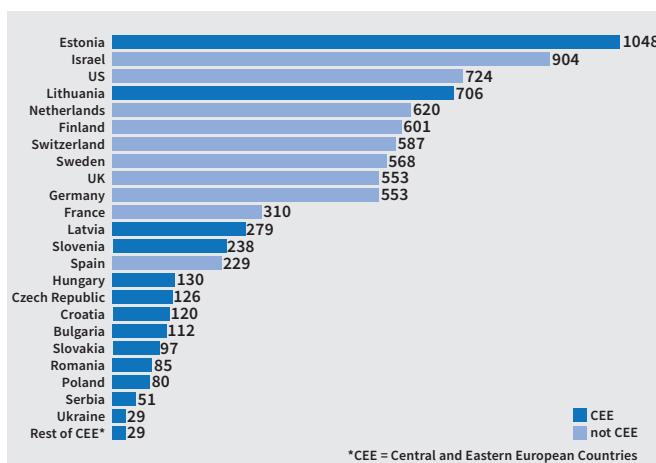
According to information from Startup Weekend, only 36 percent of the startups that presented their ideas are able to survive the next 3 months. Despite this, up to 80 percent of the innovative entrepreneurs who attended these events express their interest in continuing their entrepreneurial activity within the startup or at least with their team<sup>5</sup>. This confirms that there are many dedicated starting entrepreneurs in Slovakia, but a very weak startup ecosystem to better support these projects or increase their chances of survival and success.

The analysis conducted by Dealroom.co with the participation of Google and atomico in 2021 also shows that Slovakia is at the bottom not only in the EU-27, but also in the whole Europe in terms of investment in startups. While in our country the average investment is 29€ per inhabitant, in Estonia, which is considered the country with the best-established startup ecosystem, investments in startups are as high as 1968€, which is approx. 68 times higher than in our country. (Graph 2)

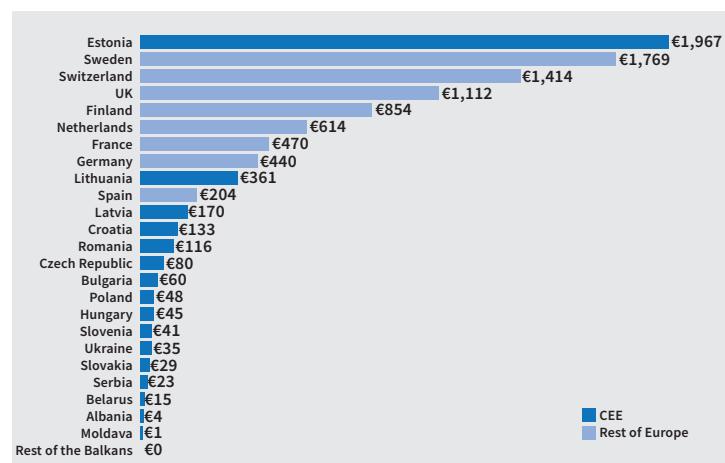
Other leading positions are occupied by long time innovation leaders such as Sweden, Switzerland, Great Britain, Finland and the Netherlands. In contrast, only non-member Balkan countries remain behind Slovakia at the bottom of the ranking.

As the authors Kučera, J. – Nemec, J. (2021) state, it would be practically impossible to secure public policy objectives without public funds. In countries that have embarked on the path of systematic and massive support for innovation and startups, we also find so-called unicorns, which means companies that have reached a capitalization of more than 1 billion USD. Estonia has had 7 of them since 2000 (e.g. Skype, Bolt, Wise), the Czech Republic 4 (e.g. kiwi, rohlik, jet brains).

As Peter Kolesár (2021) from CIVITTA states, high quality education is important for the development of startups and innovation potential, as it produces not only technically competent people, but also people, who are



Graph 1: Number of startups per 1 million inhabitants,  
Source: Dealroom.co, 2021



Graph 2: Venture Capital, startup funding per inhabitant,  
Source: Dealroom.co, 2021

SiLaMED – honey with added value containing extracts of various herbs that target and enhance the positive effects on metabolism or immunity.



not afraid to transform ideas into projects. Also, an enlightened public administration that tries to bring together a community of innovators, listens to what they need, and tries to scale initiatives that work across the country. It works, and Slovakia can learn from this<sup>6</sup>.

It is important to understand that multinational investors are also building their research centres or investing in collaborations, venture capital or public-private partnerships, not where they have large production halls, but in countries and regions that produce a lot of technology startups in areas, where they need them, where they have high quality education, science and research. Today's trend is mobility, green and sustainable solutions, circular or sharing economy, food security, energetics, ICT solutions and applications moving towards augmented or virtual reality, bigdata, etc.

Access to funding is also important. It was identified as a problem by up to 85% of startups in Slovakia. However, 56% of the contacted startups said that they had increased the number of employees in the last year before the survey took place. Up to 90% of the surveyed startups planned to hire new employees in the next twelve months. But despite these figures, the overall level of jobs created by startups in Slovakia remains low<sup>7</sup>.

Within the activities of the GreenTecLab (GTL) project, in Slovakia, the location of Nitra was selected, which is known for its orientation towards the AgriFood sector as well as green innovations and green solutions. In cooperation with the Slovak University of Agriculture in Nitra, a training programme and following support for a total of 9 startup ideas were implemented in the period of 2021–2022, 8 of which have actually completed the programme to the current stage, and are currently continuing to build their green and/or technology business. The most interesting startup ideas supported are:

- **VelesFarming** – a hydroponic farm at the stage of a functioning prototype, focused on the growth of micro-plants and rare plants for the use in the gastronomy and pharmaceutical industry, which thanks to the mentoring received in the GTL programme secured an investment in the amount of 200 000€.

<sup>1</sup> SBA. 2018. Analýza start-upov na Slovensku. Strategická časť. Available online: [http://www.sbagency.sk/sites/default/files/5\\_analyza\\_start-upov\\_na\\_slovensku.pdf](http://www.sbagency.sk/sites/default/files/5_analyza_start-upov_na_slovensku.pdf)

<sup>2</sup> OECD. 2016. Entrepreneurship at a Glance 2016

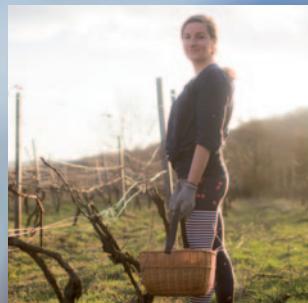
<sup>3</sup> KPMG SLOVENSKO. 2016. Startup Ecosystem Survey. 2016

<sup>4</sup> Zákon č. 290/2016 Z. z. o podpore malého a stredného podnikania a zmene a doplnení niektorých zákonov v zmysle neskorších právnych predpisov (k 21.7.2020)

<sup>5</sup> SBA. 2018. Analýza start-upov na Slovensku. Strategická časť. Available online: [http://www.sbagency.sk/sites/default/files/5\\_analyza\\_start-upov\\_na\\_slovensku.pdf](http://www.sbagency.sk/sites/default/files/5_analyza_start-upov_na_slovensku.pdf)

<sup>6</sup> Forbes. 2021. Lovec jednorozcov: Ak neprepojíme výrobcov s inováciami, zostaneme montážnou halou. Available online: <https://www.forbes.sk/lovec-jednorozcov-ak-neprepojime-vyrobcov-s-inovaciami-zostaneme-montaznou-halou/>

<sup>7</sup> KPMG Slovensko. 2016. Startup Ecosystem Survey.



consultations and promotion beyond the borders of the Slovak Republic.

- **Galux** – ecological cleaning using modern German hot water technology without the use of chemistry and with minimum amount of water. Thanks to GTL, it has received marketing consultations to start this business.

As per the feedback received during the final regional pitching event that took place on the 21 June 2022, participants really valued the opportunity to take part in the programme and the received support has helped each of the projects to take their project to the next level. Most of them already have a finished product or service with market potential, which they will start to fulfil with the help of the programme.

Because of the unused potential of startups in Slovakia, there is room for their further support, cooperation, networking, or schemes that would be able to support such enterprises and bring to the market products and services with high added value and market potential. Slovakia should focus on supporting startups in the already mentioned areas of technological and green topics, e.g. following the example of the GreenTecLab support, also supporting partnerships between large enterprises, SMEs, universities, research and development organisations and regional and local government.

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- **SHUFLIK** – an innovative eco-friendly packaging designed mainly for food delivery services, which, thanks to the GTL programme, obtained a business plan and started external production of its product through a social enterprise.
- **VoVreci** – an innovative sharing economy portal focused on renting construction machinery in order to save time, finances and natural resources by sharing modern equipment, which, thanks to GTL, has obtained legal advice to create its Terms of Use.
- **EcoPortal** – an innovative participative portal connecting people in the field of green solutions, from private enterprises, clusters, local and regional government to national agencies supporting green solutions and projects. GTL has supported wider networking and promotion of the portal.
- **Coffee byproducts** – innovative caffeinated beverages from the waste of coffee production, which thanks to GTL have received consultations to obtain a trademark and a possible patent.
- **SiLaMED** – honey with added value containing extracts of various herbs that target and enhance the positive effects on metabolism or immunity. Thanks to GTL, they have gained the possibility of better marketing and promotion of the product.
- **Organic winery Barnáková** – fully organic, based on tradition and the natural way of growing grapes and making wine. Thanks to GTL, it has gained marketing

#### Literature

- Dealroom.co. 2021. Coming of age: Central and Eastern European startups. Available on: <https://dealroom.co/uploaded/2021/10/Dealroom-CEE-report-2021.pdf>
- KPMG SLOVENSKO. 2016. Startup Ecosystem Survey. 2016
- Kučera, J. - Nemec, J. 2021. Financovanie športu z verejných prostriedkov v Slovenskej republike. In: UNIVERSITAS MATHIAE BELII ACTA AERARII PUBLICI. Vol. 18. No. 1, p. 4 – 23. ISSN 1336-8818.
- OECD. 2016. Entrepreneurship at a Glance. 2016
- SBA. 2018. Analýza start-upov na Slovensku. Strategická časť. Available online: [http://www.sbagency.sk/sites/default/files/5\\_analyza\\_start-upov\\_na\\_slovensku.pdf](http://www.sbagency.sk/sites/default/files/5_analyza_start-upov_na_slovensku.pdf)
- Zákon č. 290/2016 Z. z. o podpore malého a stredného podnikania a zmene a doplnení niektorých zákonov v zmysle neskorších právnych predpisov (k 21.7.2020)
- Forbes. 2021. Lovec jednorožcov: Ak neprepojíme výrobcov s inováciami, zostaneme montážou halou. Available Online: <https://www.forbes.sk/lovec-jednorozcov-ak-neprepojime-vyrobcov-s-inovaciami-zostaneme-montaznou-halou/>



Aida Muñoz Maqueda, IFEF, Cadiz

## Blue Economy, an opportunity to explore

The Blue economy sector generates, develops and enhances ideas that contribute to the sustainability of a vitally important resource, the sea, and is inspired by contributions that a circular economy approach and a commitment to the environment offers today's society.

### Cadiz, a history connected to the sea

Cadiz, the oldest city in Europe, has been closely associated to the sea ever since it was founded by the Phoenicians three thousand years ago. Its unique society, life and economy have been shaped by a marine environment that has both sustained and limited it, provided opportunities for expansion and been a source of wealth. Today, Cadiz must continue to look to the sea to provide it the opportunity to consolidate a new economic model, more responsible and more sustainable. The same sea that is visible from everywhere in the city must continue to drive its development. That is why the project Green-TecLab (GTL) and its local hub in Cadiz are collaborating with IncubAzul which focuses on the Blue Economy. In Spain and in Greece the Blue Economy is one of the target sectors of GTL.

### IncubAzul

Cadiz is the birthplace of IncubAzul, a project intended to be a flagship model for the promotion of the Blue Economy throughout Spain. With its principal focus on the seas and oceans, it seeks to cultivate the conditions required to attract and foster talent and ideas. It is a response to the real need to attract entrepreneurs, create spaces to develop synergies, and facilitate the arrival of dozens of new and attractive initiatives.

IncubAzul aims to promote innovation and technology transfer to micro, small and medium-sized enterprises in the Blue Economy sector in Andalusia, understood as a sector that is formed by different interdependent

subsectors that are all intrinsically connected to the sea, and rely on common skills and shared infrastructure, as defined by the European Commission in its policy paper "Blue Growth opportunities for marine and maritime sustainable growth".

This sector encompasses subsectors as diverse as marine bioresources and aquatic products, aquaculture, fisheries, the extraction of marine mineral resources, long and short-haul shipping, maritime transport services for passengers or goods, coastal tourism, recreational ports and sailing, offshore wind energy, ocean renewable energies, blue biotechnology, desalination, coastal protection, and monitoring and surveillance.



The IncubAzul Open Future Programme (hereafter, the Programme) is a comprehensive acceleration programme in which **the participants will** share physical and virtual spaces with other promising startups. A collaborative work environment and support to develop a business project will be provided, **with the collaboration of Telefónica** which will lead, develop and drive Open Future for those projects selected to participate. The programme boasts a team of highly esteemed mentors and specialist advisors who will help elaborate and implement a tailored work plan for business promotion, sales and communication, media coverage, networking sessions and conferences.

#### A different space

(<https://www.incubazul.es/en/audiovisuales/>)

The technological business incubator will be located in a unique building made from disused containers and is financed with European funds within the framework of the *Feder Operational Programme of Andalusia 2014–2020*, through the INCYDE Foundation of the Chambers of Commerce. This incubator aims to be the seed of an industrial environment that will be seen in the blue economy as a way of development with enormous potential, as well as a commitment to the environment.

The building itself is a symbol of the circular economy: Its original and novel design is an example of sustainability since it is made from recycled sea containers, which usually have a life-span of ten to fifteen years.

Its innovative building concept promotes co-working thanks to its versatile distribution of space, involving large shared areas and an open design that integrates the outdoors with terraces on all floors. It makes excellent use of natural light sources and takes advantage of the sun to supply efficient energy in all areas.

#### Cooperation with GTL: An opportunity for international exchange in the Blue Economy

IncubAzul shares the values and beliefs that GTL stands for. Climate protection requires green, technical innovations in all areas of the economy. Innovations are created in collaborations. Heterogeneous knowledge is brought together to drive sustainability and progress. The cooperation of the projects carries these ideas across national and sectoral borders. Both projects (IncubAzul and GTL) share the objective to create a habitat where projects are developed, as well as resulting in ecological, economic and social development.

GTL supports new startups in the areas of blue and green economies to foster climate protection and sustainability, so it is an opportunity to generate synergies and complement efforts. One aspect of the added value GTL offers, is the international exchange of innovation and experiences. As well, in Greece the Blue Economy is one of the GTL topics. The project connects Spanish and Greek startups to foster blue innovation management in order to strengthen climate protection. The GTL experts support collaboration among startups to empower them to develop co-creatively ideas for the European Economy and to build up new research and business cooperations.

Another aspect that GTL brings to the collaboration is the development of structures for interdisciplinary cooperation between the startups. Here, too, there is a lot of potential in the Blue Economy that is to be implemented in cooperation with IncubAzul.





Romina Große, Rüdiger Klatt, Elisabeth Meyer, Silke Steinberg, FIAP e.V.

# Lessons learned: What green startups need to unfold their transformative potential

## Potential of green startups to foster a green transition of economies and societies

The GreenTecLab project was initiated out of the conviction that green startups can contribute significantly to accelerating the necessary ecological, social, economic and cultural transition. In recent years, various disruptive catastrophes have shown that only a fundamental, holistic transformation of economic, financial and social systems will allow our societies to continue to exist. In view of the climate goals (e.g. of the Paris Agreement or the European Green Deal) and the prevention of an ecological collapse, we need an enormous speed in the decarbonisation of our societies. Furthermore, we need rapid changes in all aspects of society to guarantee that it will be a fair and socially just transition.

Gradual, incremental changes, are neither helpful in achieving the climate goals nor in implementing a culture of sustainability in social systems. We need solutions that make existing paradigms obsolete. We need disruptive technologies and disruptive social innovations that help us redefine the pillars of our societies. It is about using systemic innovations to implement a culture of sustainability across society. Only then can transition succeed.

Entrepreneurship offers an excellent approach to motivate social, cultural, political and economic development in this direction. Systemic innovation requires transdisciplinary cooperation of different actors, it requires the willingness to take the risk for new solutions. It requires a set of new competences and the implementation and application that we need to break away from the paradigms of the capitalism of the industrial age, which were focused on making profit out of natural resources without taking into account

what this means for the natural environment and for future generations. The spirit of that traditional capitalism is opposed to the culture of sustainability. Startups can provide exactly these conditions.

Startups are often run by young people with a high awareness of the needs of the green transition. They are willing to engage with new cultures and they are especially ready to collaborate in order to map transdisciplinary contexts together with other actors.

Based on the UN Sustainable Development Goals, four impact areas can be identified in which systemic innovations are required to ensure a successful transition: cities, land-use, materials, finance. In all four areas, it is startups that provide new solutions, which is particularly evident in Scandinavian countries (<https://nordic.climate-kic.org/news/how-start-ups-can-accelerate-the-green-transition/>)

The GreenTecLab project focuses on non-innovation intensive regions in Europe. These are often rural regions with poor access to innovation, but also regions where climate-damaging sectors are economically very successful and where it is important to build networks to enable sustainability oriented transformations. The project has shown that the transformative potential of startups can only unfold and evolve if the framework conditions are suitable. Suitable conditions and solutions are identified in the course of the text.

Green startups also have enormous economic potential for local environments, as they are startups in future markets (Fichter, & Olteanu, 2021)). This economic potential is extremely important for the acceptance of the new solutions and the motivation of existing enterprises to collaborate with the startups and also to reorient their own processes. For many actors, economic success is the decisive argument that can convince them to break new ground. Startups thus become drivers of the transformation of the local economy.

### **Challenges faced by green startups**

The aim of the GreenTecLab project is to develop the described potential of green startups as a transition engine in non-innovation-oriented regions. Some of the implementing regions are far removed from the innovation scene in Europe's metropolises; on the other hand, there are often traditional sectors in these regions that are economically successful, but at the same time severely compromise ecological and also social sustainability. So in all three project countries a reorientation of agriculture and food production, but also of the construction and building sector, and subsequently of the energy sector, is urgently needed. In the area of services, the tourism sector in Spain and Greece in particular needs a cultural turnaround. In all these areas, sustainable business ideas for innovative services and products have been and are being developed in the project that anchor transition-oriented solutions in the local environments. The project accompanies and supports the potential founders in the development of their ideas. In the process, challenges have emerged that require overarching approaches. These challenges can be divided into three clusters.

### **Challenge one: Low level of technical innovation**

In addition to university students, the project particularly addresses young people who are aiming for or have already started vocational training (for example, there is close cooperation with vocational training institutions in Greece and Spain) and also target groups who have difficulties entering the local labour markets. In all three countries there is high youth unemployment, which can benefit from the Entrepreneurship approach. Especially with the latter target groups, the need for increased knowledge and experience transfer with regard to technical, green innovations becomes clear. Often, new technological approaches that support climate-friendly performance of certain processes are not used because they are not known.

### **Challenge two: Skill gaps**

Skill gaps are already recognized as crucial bottleneck in sectors such as renewable energies, resource efficiency, renovation and construction of buildings but also in the field of sustainable agriculture and food production. Not only existing enterprises have to fight against a lack of skills also for startups this is a barrier. Skills for the green transition are based on new occupations and new occupational specialisations, but also traditional job profiles need greening and also modernisation in terms of digital skills. Startups in green, technical fields need upskilling and reskilling of their staff in order to be able to cope with the innovation requirements in the field of green technology. So education and also well working, modern VET systems are a key element for green startups and green ecosystems. But skills for the green transition are sometimes rather acted than learned. They are interdisciplinary and developed co-creatively. "GreenComp The European sustainability framework" highlights e.g. the importance of transversal skills beside technological skills to empower sustainable development and to reach a balance between economic, ecological and social interests (Bianchi, Pisiotis, & Cabrera Giraldez, 2022). Cooperation with existing international enterprises, with international experts and of course with customers is seen as important for green startups to develop their sustainable ideas and to support the green transition of economies and society. For this, they need interdisciplinary skills that can be summarised under the term entrepreneurial skills and which are not taught in classical vocational and academic training. This is a serious gap in education

systems. For example, in order to develop the product or service idea with customers, communicative skills are necessary and the willingness to engage with a completely new perspective, namely that of the user. The customer-integrative development of the business idea leads to the adaptation of innovative green technologies through user-oriented services and to business ideas that work. The ability to speak the customer's language and to develop solutions together with them must be developed by the startups. The same applies to the cooperation with B2B relationships and the exchange with international experts and other startups.

### **Challenge three: Green Eco-systems**

The third challenge cluster that needs to be overcome in order to unfold the transformative power of green startups and to initiate truly disruptive social developments has emerged in the project work as a lack of a sustainability culture in local environments. Startups need ecosystems that support their ideas and values. This includes institutional stakeholders, local organizations, but also civil society. The local ecosystems need to be developed in order to take up the business ideas of the startups and to drive forward ecological, economic and social transformations together with them. These ecosystems are often lacking in rural regions, but also in regions where traditional industries are firmly anchored and economic concerns come first.

### **Solutions that help unleash the transformative potential of green startups**

In order to improve the degree of innovation of new business ideas the transfer of knowledge and experience (among local actors/in dialogue with external experts) has to be supported. The target regions often have to fight for access to innovation because green innovative activities are concentrated in the urban, advanced regions. Braindrain worsen the situation.

One idea to improve the situation is to establish special local transfer spaces for (international and transdisciplinary) knowledge and experience transfer and co-creative development of new approaches and solutions. The transfer spaces should be supported by strong, local networks and set systemic transformation impulses on different relevant, social levels through the international, national and local exchange of knowledge and experience and through collaboration in exemplary transformation topics. These centers



for international knowledge transfer and local collaboration with regard to the transformation of the region could contribute to guaranteeing the connectivity of all European regions, even outside the metropolises, to innovation-oriented transition movements. They would help to provide young people in particular with access to technical and social innovations in local environments (for example through best practices, but also through workshops on new technologies).

They would involve relevant stakeholders and actors through participatory methods and innovative approaches to reconciling interests and conflict management. Transfer Spaces would help to establish "Green Transition Eco-Systems", to institutionalize social collaboration in the local environments and to implement innovative solutions and technologies.

Education is a pivotal element in greening economies and societies. In order to bridge the skills gap that green and especially green-tec startups are confronted with, new concepts are needed, especially in vocational training. Teacher education for competence in sustainable development and curriculums which upgrade new skills to new occupations, which involve innovative green technologies and transversal topics can be designed in international cooperation for VET. Also in the field of VET knowledge and experience transfer is needed. Another important aspect in this context is the attractiveness of vocational training in the three project countries. In new and existing companies in the green economy, it is above all vocationally qualified experts who are lacking. Greening can serve as a selling factor here. Green VET helps to redefine professions, it is an incentive and an opportunity to reposition VET and offer new careers to young people. For this, programmes need to be developed that inform about new green professions already at school, that show new careers beyond traditional job profiles and also motivate entrepreneurial activities.

Education is also a key to building a sustainability culture. Sustainability cultures must be holistic and involve all sectors of society and all relevant actors. It is about generating a new understanding for the use of resources, for economic processes and for social co-existence. Educational activities must support all social groups in building skills and knowledge for this change. At the local level, scenarios should be jointly developed that allow all social actors to contribute and realise their own ideas for a sustainable future. Green eco-systems should be designed in a participatory way in order to foster a new culture in the exchange of stakeholders and also in the exchange between stakeholders and civil society.

Startups can contribute to this process by involving users in local environments in the development of their service or product and by setting accents for a culture of sustainability. In this participatory development process, users contribute not only their needs but also ideas for solutions.

Service development also plays an important role in building local green eco-systems and sustainability cultures. Services can help to reduce barriers in the use of innovative green technology. They can increase the naturalness of using these technologies and motivate people to use them.

The solution ideas developed in the project form the basis for new spin-off projects and activities of the consortium. In our view, GreenTecLab has shown that the potential of startups for a holistic green transition of local environments, especially in structurally weak and rural regions, is not yet sufficiently exploited. In our view, there is still a lot to do.

#### References

- Bianchi, G., Pisiotis, U., & Cabrera Giraldez, M. (2022). GreenComp The European sustainability competence framework (No. JRC128040). Joint Research Centre (Seville site).
- Fichter, K., & Olteanu, Y. (2021). Green Startup Monitor 2021. GSM2021. Berlin: Borderstep Institut, Bundesverband Deutsche Startups e.V.



# TRANSITION: SYNTHETIC

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