

Green Innovation and Employability in the Med through the Triple Helix



commissioned by
UfM, Union for the Mediterranean



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List of abbreviations

| | |
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| AFD | Agence Française de Développement |
| ALECSO | Arab League for Education, Culture and Science |
| CB | Capacity Building |
| CBHE | Capacity Building in the field of Higher Education |
| EACEA | Education, Audiovisual and Culture Executive Agency |
| ECTS | European Credit Transfer and Accumulation System |
| ENIC | European National Information Centre |
| ESN | Erasmus Student Network |
| EUA | European University Association |
| FAQ | Frequently Asked Questions |
| GANTT | Generalised Activity Normalisation Time Table |
| HE | Higher Education |
| HEA | Higher Education Academy |
| HEI | Higher Education Institution |
| H2020 | Horizon 2020 |
| ICM | International Credit Mobility |
| MENA | Middle East and North Africa |
| MHESR | Ministry of Higher Education and Scientific Research |
| MoDEE | Ministry of Digital Economy and Entrepreneurship of Jordan |
| MUR | Ministry of University and Research and Development |
| QA | Quality Assurance |
| R&D | Research and Development |
| R&I | Research and Innovation |
| NSC | National Steering Committee |
| ISC | International Steering Committee |
| SWOT | Strengths, Weaknesses, Opportunities, Threats |
| UNDP | United Nations Development Programme |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |


About this study



The greening of the economy is a shared goal for advanced and less advanced economies alike, particularly where sustained and inclusive employment is an objective for policy-makers. However, the challenges of such greening, and the implications for employment and skills, vary across regions and countries. This is particularly true in the Southern Mediterranean region whose "green needs" are very evident, such as water scarcity and climate change, to mention just a few. Against this backdrop, we see the green economy not only as a challenge but also as a great opportunity. Consensus is growing in terms of the objective of zero emissions from fossil fuels and its impact on climate change trajectories. Breaking the link between economic growth and energy use is the only possible way to reconcile environmental and economic sustainability in the coming decades. Supporting countries in a strategic green transition requires policy coherence between ministries to foresee how market changes will impact employment and inclusive growth.

Policy institutions can also learn from organisations in the private sector and from universities as to how to bring policy coherence to their work structures, providing a framework that supports green talent and competences, from those in the early stages of education to those of older workers. All jobs need to be part of the process, not just those linked to renewable energies but to all sectors and at all levels, with a view to aligning skills provision and demand with green market innovations. 'Green job' is surely a loose term (Kouri and Clarke, 2014): so far it has been used both in relation to employment in activities related to pollution control, energy efficiency and waste management, as well as in a broader sense, that is, for occupations in agriculture, industry and services that contribute to preserving or restoring the quality of the environment.

Within this context, universities should be responsible actors in their societies as they are directly involved in generating new knowledge and in teaching and shaping young people to become leaders, entrepreneurs, scientists, professionals and responsible citizens towards a greener and sustainable economy.



Their role retains particular importance in the Euro-Mediterranean region, an area where challenges on youth employment, socio-economic development, and environmental sustainability are strongly intertwined.

Against this backdrop, the study aims at mapping and assessing existing policies and instruments that facilitate access to the employment of graduates and researchers in the Mediterranean region and at highlighting how to support the development of a sustainable and green economy through innovation research and regional dialogue. Its goal is to support the Secretariat of the Union for the Mediterranean (UfM) in analysing and evaluating strategies, policies, programmes and key projects in three pilot Med countries by assessing their socio-economic impact, gaps, and bottlenecks, and championing a shift towards sustainability through the triple helix model of innovation.

For the purpose of paving the way for regional actions, the study has selected and focused on three UfM Member States, Italy, Jordan and Tunisia, and has been crafted through a co-creation approach with the key support of national focal points, along with the regional and national steering committees. Desk research, interviews with national and regional stakeholders and roundtables in each target country, have been organised in cooperation with the relevant institutions, which we thank for their support and availability.

The study sets forth detailed country analysis with a focus on green transition policies and tools, complemented by a wide range of inspiring and scalable practices at national, regional and Euro-Med level. Country-specific recommendations were designed to address national challenges. At the end of the research and consultative process, a number of common themes and recommendations for the Euro-Mediterranean region were also identified, with the aim of enhancing employability in the region.

We are still far from the finishing line and this report has the ambitious goal of being a building block for those willing to further explore the issue.

This study aims to fully achieve the SDG 4 “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”, but also SDG 8.6 “Reduce the proportion of youth not in employment, education or training (NEETs)”, and it is fully in line with the UfM Ministerial Declarations on Research and Innovation (2022), and on Employment and Labour (2022). It is also part of the UfM initiative on the innovation-employability nexus that is financially supported by the German Development Cooperation, which we thank for their continuous support.



Foreword

by the Secretary General of the UfM
Nasser Kamel

In the Euro-Mediterranean region, younger generations remain a beacon of hope to achieve a much-needed green transition. In order to support them in this endeavour, academia, governments and industry have a clear role to play through policies and initiatives that lead to green innovation and employability.

This study unveils not just the obstacles but the immense opportunities ahead of us to build more resilient societies and economies by taking full advantage of cooperation in higher education, research and innovation aiming at changing the ways our societies advance for the betterment of people's lives and the natural environment, as recognised by the UfM Ministerial Declaration on Research and Innovation (June 2022).

The necessity to harmonize economic growth with environmental sustainability transcends boundaries between advanced and developing economies. This is particularly evident across the Mediterranean, where pressing green needs such as water scarcity, energy and food security and the far-reaching impacts of climate change call us to reimagine our path forward.

This study is therefore not a mere compendium of the many positive transformative actions already existing in our region.

By navigating the intricate landscape of green transition policies, skill development, and the pivotal role of universities, it is a call to action, presenting the green economy as an unparalleled source of opportunities.

While the study explores the specific contexts of Italy, Jordan, and Tunisia, it presents many analyses and recommendations that could be applied to the broader region. The inclusion of diverse perspectives, based on interviews, consultations, and roundtables, ensures that this study reflects the aspirations and concerns of a broad spectrum of stakeholders.

The employment landscape for the youth in the Mediterranean stands at a crossroads, marked by a persistent gap between the skills acquired through education and the evolving demands of the job market.

We hope this study serves as a tool guiding decision-makers, policymakers, educators, and businesses towards cooperation for a future where the green economy is not just a goal but a reality. Let it encourage concrete actions, cross-sector collaborations, and policy coherence, in support of the quest of the Euro-Mediterranean region toward a sustainable and bright tomorrow.





Foreword

by the UNIMED Director **Marcello Scalisi**

In more than thirty years of activity, UNIMED – Mediterranean Universities Union – has pursued academic cooperation as an instrument at the service of the Euro-Mediterranean cultural dialogue, as a bridge between Europe and the Southern shore of the Mediterranean basin.

We are going through difficult years marked by conflicts and migration phenomena which exasperate the political debate day after day. The reasons that led to the foundation of UNIMED in 1991 are even more important and relevant today and all of us, the associated universities and team members of UNIMED, are called to persist in our daily commitment to seeking solutions and weaving a close and positive dialogue between universities of the two shores of the Mediterranean basin.

Recently, many of our efforts and actions have addressed two important priorities: employability and entrepreneurship and capacity building and research actions in the environmental field.

A large number of activities that showed, in both the above cases, how necessary a change in approach are no longer oriented towards transferring skills from the countries of the European Union to the countries of the southern shore of the Mediterranean, but rather towards collaborating and working together to find possible common solutions to shared challenges.

This study that UfM has asked UNIMED, which analyses the topic of green innovation and employability through the triple helix in three countries of the Euro-Mediterranean region, shows how this new approach is not factually justified, but absolutely essential. Our thanks go to the UfM for having, with this report, contributed to a necessary and urgent reflection on Euro-Mediterranean green innovation cooperation. It is our expectation that, this report will allow the

actors involved in this complex and challenging cooperation to further reflect on how to improve the impact of our work for the benefit of the Mediterranean Generation. It is clearly evident how collaboration between the industrial sector, local actors, governments and universities needs to be increasingly implemented and effective. None of these actors alone can create innovation. The complexity of the challenges that our societies are facing on the issues of energy, climate change, food security, water scarcity and all other environmental issues require us all to take a step back in order to move forward.

I thank all the universities, academic and governmental institutions that collaborated in the drafting of this report. Their commitment has assured us that international cooperation is fundamental to try to rise up the big challenges we face. This study should be considered as a starting point, but a particularly important one.

The Union for the Mediterranean and in particular the Higher Education and Research Division plays a pivotal role in the construction of a dialogue and political space in the Mediterranean region.

It has been very clearly written in the conclusions that we have a positive feeling about this important subject of green innovation and employability. All the actors involved are committed to improve dialogue and synergies at local, national and regional level. As UNIMED, we'll continue to serve our academic community and institutional partnerships to achieve the goal of contributing to a robust and remarkable Mediterranean Generation. We need a Mediterranean youth community capable of managing our differences and to use them as assets and not as an obstacle to crafting positive policies in our common region, the Mediterranean.

Executive Summary

Albeit youth in the Southern Mediterranean is the most educated generational group¹ ever, young graduates in the region, especially in North Africa, experience the highest level of unemployment among higher education graduates in the world, at 25% according to the United Nations Development Programme (UNDP)².

One of the reasons for high levels of unemployment for Mediterranean youth is a persistent gap between the skills acquired at universities and the requirements of businesses.

Despite numerous initiatives over the past twenty years, this is especially pronounced when it comes to highly qualified university graduates and young researchers.

Furthermore, green economies and the shift towards sustainability (e.g. on agri-food systems, blue economy, water management, digitalisation, culture and creative economy) can offer research and innovation the opportunity to contribute to creating new qualified jobs based on knowledge, when properly deployed.

The EU's Renewed Strategy for the Mediterranean recognizes the need to work on skilling for green jobs and the green economy, and it highlights that "Enhanced research and innovation, including association to the Framework Programme Horizon Europe, leads to more resilient and inclusive growth, as well as the creation of

sustainable employment opportunities." In this context, the Union for the Mediterranean (UfM) has engaged in an initiative called "Reinforcing the innovation-employment nexus in the Mediterranean", with the support of the German Development Cooperation, which promotes collaboration between all the stakeholders involved in addressing unemployment of highly qualified graduates.

The development of high-level skills through university degrees, PhDs, and research initiatives is an essential cross-cutting tool supporting the implementation of an inclusive, sustainable and green economy in the Euro-Mediterranean region.

That is why it is important to renew a call to action: policymakers, industry, academia and civil society need to collaborate and redouble their efforts to address the challenge, despite the previous lack of success in improving youth employment outcomes in the region.

The study targets decision makers in higher education institutions, research institutes, policymakers, governments, ministry representatives and the business sector, as well as intermediary institutions (e.g. employer associations, innovation centres, clusters).

¹ Kocoglu, Y. (2014) « Formation et emploi des jeunes dans les pays méditerranéens », rapport OCEMO 2014, <https://ufmsecretariat.org/wp-content/uploads/2015/04/Etude-OCEMO.pdf>

² Arab Human Development Report 2022: Expanding Opportunities for an Inclusive and Resilient Recovery in the Post-Covid Era; United Nations Development programme.

The goal is to support UfM in analysing and evaluating strategies, policies, programmes and key projects in the Mediterranean region. As a methodology, the Authors selected three pilot UfM Member States (Italy, Jordan and Tunisia) on the basis of regional balances, and because they represent very different education and economic models. In order to draw lessons at regional levels, the Authors analysed a selection of policies, initiatives and projects to assess the socio-economic impacts, gaps, bottlenecks and opportunities put in place to better improve the employment of young graduates and the shift of their economies towards sustainable development through the triple helix model of innovation. This methodology has been designed to be scalable, and can be further **expanded to include additional UfM Member States**, further contributing to create **a body of regional recommendations**.

The analysis in this Study shows that green policies are more and more embedded in education, innovation and economic development policies in the assessed countries, reaching important achievements. Nevertheless, this path towards joining economic growth and sustainability must be strengthened, and we see an important added value for sectorial dialogue as such being advanced at regional level, as presented in the regional recommendations.

Considering the specificities of the three target countries but also their common features, the study affirms that it is worthwhile launching a **regional platform** on innovation-employability that could facilitate networking among the universities and academic institutions, starting from the three target countries (Jordan, Tunisia and

Italy) by sharing knowledge, good practices, and know-how on green transition. The setting up of a **Network** of Mediterranean innovation centers, Incubators and start-ups should be envisioned starting from the experience of the three countries involved in this study, but with the broader aim of targeting the whole Euro-Mediterranean region. Structuring multi-country **projects** aimed at sharing practices on green innovation and employability is recommended by selecting pilot universities for each target country and a number of industries and companies according to the national priorities which together can apply an industrial doctorate model not only at the national but also at the regional level.

Taking stock of the new UfM Roadmaps on Research and Innovation that focus on topics closely connected to green innovation (climate change, renewable energy, and health), and that build on existing research and innovation initiatives such as PRIMA, it is recommended to showcase the potential of green innovation towards employment, economic growth and sustainability by organising as a follow-up action the organisation of a **regional conference** on green innovation. This regional event could be a moment for agreeing among partners and stakeholders from the triple helix on potential actions and projects selecting those to be carried out as a priority. The rationale is to start piloting follow-up initiatives with the aim to extend them to other countries in the Mediterranean region that are interested in green transition.

Other iterations of this pilot study could be replicated and expanded to other UfM Member States, based on the expressed interest of the parties.

Acknowledgments

The publication benefited greatly from the contribution of the members of the three National Steering Committees from Jordan, Italy and Tunisia: namely Hussam Khasawneh and Rasha Smadi from the Higher Council on Science and Technology in Jordan, Marilena Rossano from the Italian CNR and Mourad Bellassoued and his team Hayet Souai and Saida Rafrafi from the Ministry of Higher Education and Scientific Research in Tunisia.

Thanks to them, the authors were in touch with the stakeholders in the respective countries with whom interviews were conducted and roundtables were organised.

In this regard, the authors want to thank

all the stakeholders and actors who were interviewed in Jordan, Italy and Tunisia as well as all the key players and participants who attended the three round tables on the field and the final conference where the results of the study were presented.

Finally, a warm thanks goes to the International Steering Committee composed by Zoe Lucon, Aurelian Baudoin from ANIMA network, Ronan Miclet from IRD, and Vito Intini from UNDP who reviewed the study at the interim and final stages providing with their inputs and feedback.

The UfM and the authors would like to warmly thank them.





Introduction

One of the reasons for high levels of unemployment for Mediterranean youth is a persistent gap between the skills acquired at universities and the requirements of businesses.

Albeit youth in the Southern Mediterranean is the most educated generational group¹ ever, young graduates in the region, especially in North Africa, experience the highest level of unemployment among higher education graduates in the world, at 25% according to the United Nations Development Programme (UNDP)².

The development of high-level skills through university degrees, PhDs, and research initiatives is an essential cross-cutting tool supporting the implementation of an inclusive economy in the Euro-Mediterranean region. Additionally, the development of new regional solutions fostered by the daily work of young researchers and students, creates new business opportunities, from which society at all levels could benefit.

Despite significant resources being invested in the education/research sectors, young graduates and researchers often face challenges in finding or creating meaningful job opportunities, increasing un- and underemployment, brain drain and waste of knowledge. It is therefore essential to bring the private and the higher education sectors even closer to increase employability of graduates and researchers through an inclusive multi-

level approach which encompasses higher education stakeholders, civil society, governments, companies, business accelerators, development institutions and the scientific community at large.

In recent years, policymakers have intensified their efforts to reinforce interactions between higher education institutions and the economic sectors, with the goal of facilitating innovation and economic inclusion of youth in the Mediterranean by promoting careers and creating start-ups. Different frameworks have been employed in this regard, including the model of the triple helix of innovation, which refers to a set of interactions between academia, industry and government to foster economic and social development.

Following general global trends, education has played an increasingly important role in preparing the Mediterranean youth for successful careers. In the previous decades, having an academic qualification was often enough to ensure a privileged access to more options in the job market. This is increasingly not the case any longer and access to the labour market progressively requires an active role by universities, governments, and industry. Furthermore, green economies and the shift towards sustainability (e.g. on agrifood systems, blue economy, water management, digitalisation, culture and creative economy) can offer research and

¹ Kocoglu, Y. (2014) « Formation et emploi des jeunes dans les pays méditerranéens », rapport OCEMO 2014, <https://ufmsecretariat.org/wp-content/uploads/2015/04/Etude-OCEMO.pdf>

² Arab Human Development Report 2022: Expanding Opportunities for an Inclusive and Resilient Recovery in the Post-Covid Era; United Nations Development programme.

innovation the opportunity to contribute to creating new qualified jobs based on knowledge, when properly deployed. The EU's Renewed Strategy for the Mediterranean recognizes the need to work on skilling for green jobs and the green economy, furthermore highlighting that "Enhanced research and innovation, including association to the Framework Programme Horizon Europe, leads to more resilient and inclusive growth, as well as the creation of sustainable employment opportunities."

Greening/sustainable development was also identified as a key challenge for the future of education in the 2023 Report on the Public Consultation in view of the 1st Union for the Mediterranean Ministerial Conference on Higher Education³.

In terms of its underlying policies, the study is in line with:

- The conclusions set by the Euro-Mediterranean Ministerial Conference on Higher Education and Scientific Research (Cairo, 2007);
- The Ministerial Declaration of the UfM Employment and Labour Ministers (Marrakesh, 2022);
- The Ministerial Conference on Research and Innovation (Paris, 2022), particularly with the three research priorities of climate change, renewable energy, and health; as well as
- the recommendations of the Joint Communication "Renewed partnership with the Southern Neighbourhood: A new Agenda for the Mediterranean" (2021).

It also follows the specific recommendations of "UfM Forum on Green Innovation and Careers for Empowering the Mediterranean Youth: Triple Helix in Action", co-organised by UfM and Jordan's Higher Council for Science and Technology (HCST), and supported by the German Development Cooperation. This event was hosted in the ESCWA⁴ Conference "Arab SMEs Summit: Opportunities Beyond Borders"⁵, held in Amman on 30 October - 1 November 2022, and where the following topics were discussed:

- how government-academia-business cooperation is being advanced in the region,
- how innovation can support a green transition, and
- how to foster innovation, skills and employability to support Mediterranean citizens.

3 UfM (2023). Report on the Public Consultation in view of the 1st Union for the Mediterranean Ministerial Conference on Higher Education : https://ufmsecretariat.org/wp-content/uploads/2023/05/UfM-Public-Consultation-Report_final.pdf

4 United Nations Economic and Social Commission for Western Asia

5 <https://ufmsecretariat.org/research-representatives-meet-amman-green-innovation/>

1.1 Target, Objectives, Expected Results, and Conceptual Framework

The study targets decision makers in higher education institutions, research institutes, policymakers, governments, ministry representatives and the business sector, as well as intermediary institutions (e.g. employer associations, innovation centres, clusters).

The specific objectives of the current study are the following:

- **mapping and assessing the existing policies and instruments** that facilitate access to employment of graduates and researchers in the Mediterranean region;
- Supporting **the shift towards green (sustainable) economy sectors** by increasing appropriate skills, updating curricula, through linkage with the private sector, innovation and technology transfers;
- Developing **specific sets of recommendations at national and regional level** for supporting the shift towards sustainability through the triple helix.

The goal is to support UfM in analysing and evaluating strategies, policies, programmes and key projects in the Mediterranean region. As a methodology, the Authors selected three pilot UfM Member States (Italy, Jordan and Tunisia) on the basis of regional balances, and because they represent very different education and economic models. In order to draw lessons at regional levels, the Authors analysed a selection of policies, initiatives and projects to assess the socio-economic impacts, gaps, bottlenecks and opportunities put in place to better improve the employment of young graduates and the shift of their economies towards sustainable development through the triple helix model of innovation. This methodology has been designed to be scalable, and can be further **expanded to include additional UfM Member States**, further contributing to create a

body of regional recommendations.

The approach that has been chosen is the **Triple Helix Model of Innovation** which offers a framework that brings together three spheres that traditionally operate separately (**university, industry, and government**).

The Triple Helix Model theorizes that in a knowledge-based society, boundaries between different spheres are increasingly fading, giving rise to a system of overlapping actions: (a) universities and research centres are the source of new knowledge and technology; (b) industry operates as the centre of production; and (c) government provides an enabling environment (e.g. providing incentives, autonomy and stability).

The interactions between the three spheres provide an innovative environment where knowledge flows dynamically in all directions. And each sphere, while retaining its primary role and identity, 'takes the role of the other' – for example, universities support start-up creation in incubator and accelerator projects, thus entering into the industrial sphere. Academia has traditionally been viewed as a support structure for innovation, providing trained persons, research results and knowledge to industry. One of the main differences with the traditional perspective is that the Triple Helix Model⁶ sees academia as endowed with an equivalent status. In the Triple Helix Model, the university emerges as an influential actor and equal partner. Meanwhile, governmental agencies at regional, national, and transnational levels, seek to facilitate university-industry collaboration and business creation through regulatory frameworks, services, infrastructures, and funding schemes.

⁶ Union for the Mediterranean (2020). *Reinforcing the Nexus in the Mediterranean: A handbook for Academic, Industry and Policymakers*

INDUSTRY

RESEARCH OPPORTUNITIES
INDUSTRY TRAINING OPPORTU-
NITIES
RESEARCH GRANTS
PLACEMENTS



GOVERNMENT

POLICIES
GRANTS



UNIVERSITY

DISCIPLINARY AND INTERDISCIPLINARY KNOWLEDGE
INNOVATION AND KNOWLEDGE TRANSFER SKILLS



1.2 Methodological Note

The study relied on a structured methodology to conduct the research and data analysis by adopting a qualitative approach. Conclusions, at every step, were reached through the continuous involvement of the national steering committees from the three target UfM Member States and experts and stakeholders from the Euro-Mediterranean region, to validate the analysis in an ongoing process. The

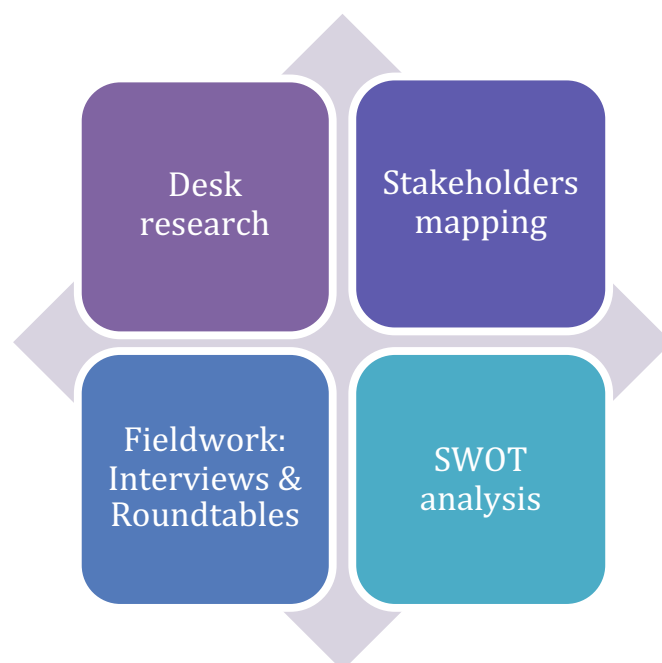
report is the result of a collaborative effort made by the UNIMED research team and a wide range of actors representing different interests and perspectives. Desk research, interviews and consultations were conducted in English, French, Italian and Arabic.

1.3 A Participatory Approach

A collaborative and participatory approach to validate results and develop recommendations, investigating challenges, opportunities, synergies, good practices, barriers and collecting inputs at each step of the research process, has been adopted. Several consultations were conducted, along with interviews and roundtables,

to make sure researchers were on the right track, involving the focal points of the study, the national and international steering committees.

To give a better idea of the working methodology, the figure below shows the different steps undertaken:



Desk Research and Context Analysis

Information sources through desk research were mapped and assessed, such as existing international projects, reports, studies, strategies, ongoing initiatives including public financial instruments in support of the greening of the economy and fighting unemployment deepen the understanding of:

- green innovation and employability in the target countries through the triple helix approach and the classification of practices, policies and initiatives which constitute the background of the investigation;
- the national and regional environment in which these latter take place.

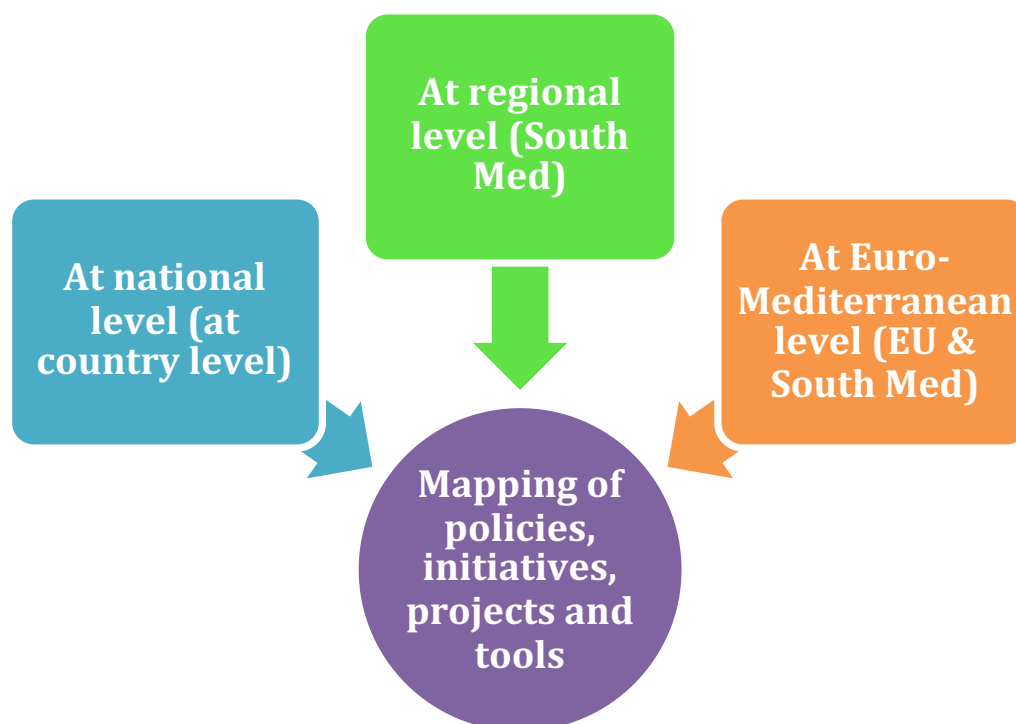
Secondary sources have been identified through:

- internal consultation

- suggestion by the National Focal Points
- suggestion by the National Steering Committee members
- suggestion by the International Steering Committee members
- resources presented by relevant regional stakeholders.

The mapping of the ongoing initiatives, studies, projects, policies, and programmes in the three target countries of the study follows three criteria that have been chosen by the UNIMED team:

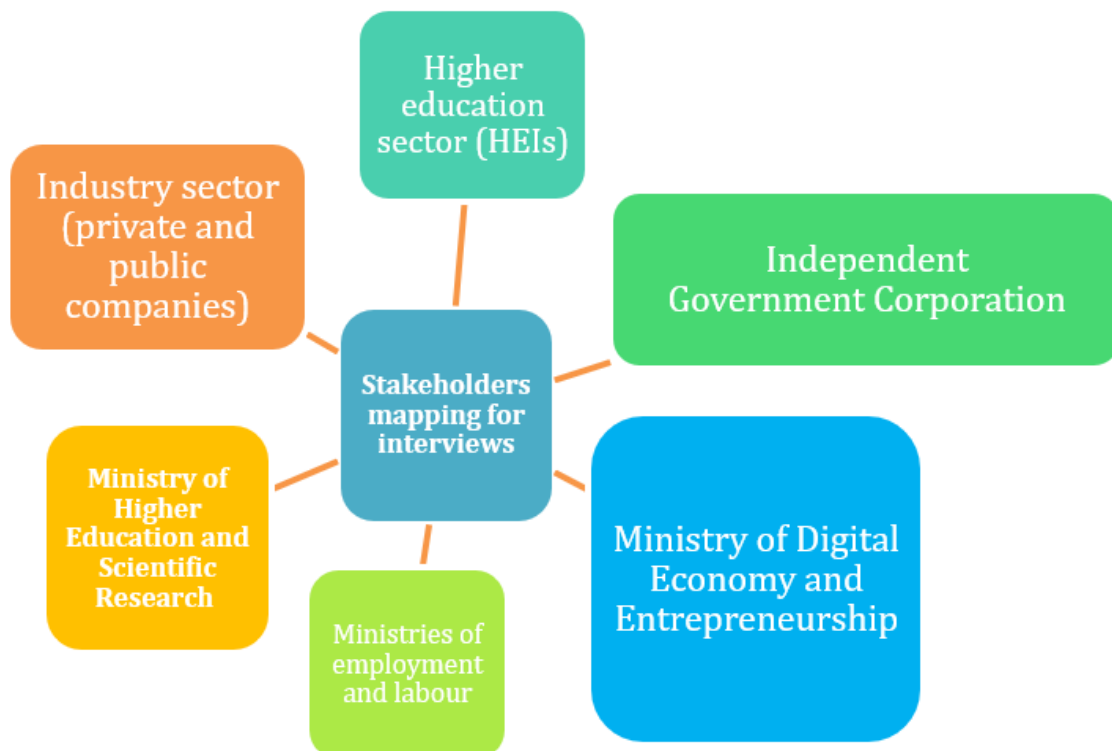
- at national level thus at country level;
- at regional level thus at South Mediterranean level, and
- at Euro-Mediterranean level thus at EU and South Mediterranean level.



Stakeholders Engagement for Interviews

Complementing the desk research, consultations were performed with relevant stakeholders in the field of higher education in the Euro-Mediterranean region. A large number of stakeholders in the three target countries (Italy, Tunisia and Jordan) was identified, **with more than 30 interviewed**. The main goal of the interviews was to identify what the respondents deemed useful to boost the dialogue between research, industry and decisions-makers towards green economy, what current practices and strategies they deemed to be worth upscaling, as well as the key challenges to face. Based upon their role, nature and competences, the research team grouped the stakeholders into five main categories,

making sure that each category was sufficiently represented. The identified categories are: Research Community, Higher Education Sector, Policy Makers represented by different Ministries, Business and Industry. Stakeholders were contacted in order to conduct an interview and to gather key information about their perception, knowledge and opinion in relation to the topic of green innovation and employability in the Euro-Mediterranean region. The engagement of stakeholders provided also an opportunity to start reflecting on the recommendations: suggestions were collected, inspiring practices were discussed, opportunities were offered.



Interviews and Roundtables

The interviews were conducted mainly online between May and July 2023. Below the list of topics and areas that were covered during the interviews:

- Higher education strategies with regards to youth and graduates' employability;
- Curricula development and the mismatch with the labour market in terms of skills and competencies;
- Impact of cooperation programs in the field of Higher Education especially related to improve the dialogue with the private sector and to boost youth employability and innovation (like analysing European funded projects (E+CBHE, ICM, Marie Skłodowska-Curie actions), in the past five years;
- Strength and weaknesses of national strategies on green innovation and employability, to be intended as analysis of policies and approaches related to this nexus;
- Regional synergies, complementarities and inclusive projects to boost employability, to be intended as identification of practices to be upscaled;
- Good practices about green transition;
- Obstacles and problems in inter-connecting academia, industry, research, civil society, government in the pilot countries at national and regional levels.

In cooperation with the relevant UfM National Focal Points for the Study, **three roundtables were organised in Rome, Amman and Tunis between June and July 2023** to further gain an in-depth understanding of the topic, the main challenges and gaps in green innovation and employability strategies and processes.



1.4 Structure of the study

After this **introductory chapter**, this study presents five main blocks: three are dedicated to the pilot countries analyses by highlighting the general outcomes of the study through desk research, interviews and roundtables carried out in each of the countries and by providing a SWOT analysis⁷ for the three of them.

The outcomes of the the country analyses are focused on the following aspects:

- **Background** to setting the scene of the target country
- Main **challenges** with regard to green innovation and employability
- **Policy tools and instruments** on green innovation and employability
- **Results and findings** as impact of policies and challenges, therefore at policy and implementation level

After the country analyses, a chapter on the main **recommendations** both at national and regional levels is provided as starting points, and is intended to support the role for action of each pillar of the triple helix and provide operational ideas for

the future.

At regional level, the chapter provides some insights on the role of international organizations and other regional actors, such as networks, in a long term perspective.

To conclude, there is a chapter dedicated **to mapping existing practices on green innovation and employability at national, regional and Euro-Med level.**

Finally, it must be noted that the views hereby expressed are the Authors' alone based on the above-mentioned methodology, and do not necessarily constitute the view of the interviewed experts – except when directly quoted – or of any mentioned institutions.

⁷ It is the abbreviation for strengths, weaknesses, opportunities, threats: SWOT

Box 1

Innovation-Employability Nexus Initiative

In the Mediterranean, unemployment is higher among those with tertiary education than those without it, reaching a 30% average across the region. This problem is socially complex, suffers from many interdependencies and multiple causes, and has no single solution. While connectivity between academia, industry and government is critical to power innovation and employability, HEIs and research centres are seen as key drivers of change. In this context, the UfM has engaged in an initiative called 'Reinforcing the innovation-employability nexus in the Mediterranean', with the support of the German Development Cooperation, which promotes collaboration between all the stakeholders involved in addressing unemployment of highly qualified graduates.

Despite numerous initiatives over the past twenty years, youth unemployment has been persistent in many areas of the region, including in the Southern and Eastern Mediterranean, where unemployment rates are particularly high. This is especially pronounced when it comes to highly qualified university graduates and young researchers.

That is why it is important to renew a call to action: policymakers, industry, academia and civil society need to collaborate and redouble their efforts to address the challenge, despite the previous lack of

success in improving youth employment outcomes in the region.

Investment in research, innovation and entrepreneurship has proven to play a significant role in economic and social development in both developed and developing countries. Academia has a pivotal role both in terms of supply, by producing employable graduates, and in terms of demand, through innovations and start-ups. Innovation and entrepreneurship have been identified as another way to create jobs.

In this context, university has become a focal point in orchestrating a multi-actor innovation network. Businesses and governments consider the research community and its members as ideally suited to 'connect the dots' because they are impartial, driven by curiosity and long-term perspectives, rather than by commercial interests and short-term goals⁸. In order to deliver on these expectations, universities and research institutes have to be highly responsive, adaptable, strategically directed, autonomously governed, and densely interlinked with regional partners as well as international networks.

⁸ Reichert, S. *The Role of Universities in Regional Innovation Ecosystems*. European University Association www.eua.eu (2019).



2.0 COUNTRY ANALYSIS JORDAN

"Between National Innovation Strategy, Technological Transfer and Innovative Research: Joint National Efforts and Future Challenges".

2.1 Background

In general terms, Jordan is exposed to different stressors, such as limited natural resources (for example, water, energy, raw materials), external pressures (regional political instability, refugee influx), and internal socio-economic challenges (poverty, high unemployment levels, and economic performance).

Before the outbreak of COVID-19, poverty levels were already relatively high, with a poverty rate of 15.7% in 2018¹. The economic and social impacts of COVID-19 have been felt throughout the country, with unemployment increasing to 23.9% in 2020. Disruptions and an increasingly complex global scenario further compound internal and external pressures in Jordan, particularly on youth.

Youth unemployment in Jordan keeps being a major hindrance to sustainable economic growth: in 2019, 40.6% of all 15–24-year-olds were unemployed, while by the end of 2020, it reached 50%.

Despite relevant national-level plans that comprise Jordan's Economic Modernisation Vision 2033, the Government Priorities Strategy, the National Green Growth

Plan for Jordan and the Growth and Reform Matrix - whose focus is to engage young people in their communities, and provide opportunities for young people, via employment services and innovation opportunities - the disconnect between academia and industry is still highly significant.

Jordan's Economic Modernisation Vision 2033 centers on the slogan of "A Better Future", and is based on two strategic pillars: accelerated growth through unleashing Jordan's full economic potential; improved quality of life for all citizens, while sustainability is a cornerstone of this future vision². According to the new national vision, more than one million young females and males will be accommodated in the labor market by 2033 and Jordan's ranking in the Global Competitiveness Index will expect to be improved to the top 30 percentile. This national vision 2033 focuses on green growth and in particular on these assets: resource efficiency, climate resilience, nature protection and human well-being.

In spite of recent national efforts that

1 https://databankfiles.worldbank.org/public/ddpext_download/poverty/987B9C90-CB9F-4D93-A-E8C-750588BF00QA/AM2020/Global_POVEQ_JOR.pdf

2 <https://www.jordanvision.jo/en>

were put into place to deal with green issues, our analysis has shown that there are still many constraints Jordanian youth is facing ranging from the need for confidence-building measures (through soft skills, for instance) to having the appropriate know-how and knowledge of how to apply it in the job market.

In particular in order to boost youth employability on the one side, and to cope with the economic and social challenges from climate change, water scarcity, energy etc, on the other side, Jordan has recently introduced some policy tools and initiatives which seek to achieve a greener economy and provide youth and graduates with new “green” jobs.

A series of policies have been launched trying to link sustainable development and green economy as drivers against unemployment and low economic growth, for instance through the **National Green Growth plan** ³.

In order to address the highlighted challenges and shortcomings more structurally, the Higher Council for Science and Technology (HCST) established the National Centre for Innovation (NCI) as a part of the Jordanian Government’s efforts to promote the transition to an innovation-based economy, which is set forth in the policy tools section.

The NCI is the first organization in Jordan to address these challenges. As a part of its mission, the NCI acts as the referral hub for all activities in the country related to innovation and private sector development by coordinating national and international administrative, financial and technical services, with a view to nurture and support innovation advancement.

The NCI provides also legal/regulatory advocacy and advisory services to small and medium enterprises while creating a feedback mechanism to the government to ensure best practices and transparency. Finally, all coordinating activities of the NCI are wrapped into a robust technology platform that combines existing data resources with the data to be collected in order to coordinate resource referrals, monitor and evaluate innovation activities and other key performance indicators reflective of economic shifts towards innovation.

The NCI creates an institutional environment for new and existing innovation-focused entities with a view to improve collaboration and adopt innovation practices for implementation by establishing a National Centre for Innovation Administration and Advocacy Office within the Higher Council for Science and Technology headquartered in Amman, with satellite offices throughout Jordan.

At global level, every year, the **Global Innovation Index** ⁴ ranks the innovation performance of nearly 130 economies around the world where it is possible to see the innovation index for Jordan. In 2023 Jordan ranks 71st among the 132 economies featured in the GII 2023. As shown in the table below, Jordan ranks 70th in innovation inputs, while it ranks 76th in innovation outputs.

³ The Green Growth National Action Plan 2021-2025: lays out pathways for sustainable development that will increase resilience, strengthening Jordan's capacity to contain shocks and recover from catastrophic events such as COVID-19.

⁴ Data from the World Intellectual Property Organization (WIPO) which is the global forum for intellectual property policy, services, information and cooperation: <https://www.wipo.int/publications/en/details.jsp?id=4679>

| | GII Position | Innovation Inputs | Innovation Outputs |
|------|--------------|-------------------|--------------------|
| 2020 | 81st | 77th | 81st |
| 2021 | 81st | 79th | 81st |
| 2022 | 78th | 71st | 78th |
| 2023 | 71st | 70th | 76th |

2.2 Main Challenges to be addressed in Jordan

According to Article 6 of the Statement of General Entrepreneurship Policy 2021, the Jordanian government is focused on accelerating companies based on innovation and modern support technologies. Furthermore, the Ministry of Information and Communications Tech's title and mandate have been indeed updated to be Ministry of Digital Economy and Entrepreneurship MoDEE for this purpose. In accordance with the Jordanian constitution, and Law No. 19 of 2019 (the law amending the Government Departments and Institutions Restructuring Law), the phrase "Ministry of Information and Communications Technology" was removed wherever it appeared in any other legislation and replaced with the phrase "Ministry of Digital Economy and Entrepreneurship MoDEE". MoDEE undertakes the mandate of the Ministry of Information and Communications Technology and shall be considered its legal and de facto successor. Moreover, the Jordanian government approved the open government data policy in 2017, which aims to facilitate access to open government data,

to increase transparency and confidence in government performance and increase the participation of civil society in the policy and decision-makings processes, in addition to creating new resources for entrepreneurs, and encouraging business and creativity and investment in the country. To achieve the policy objectives, the Ministry issued instructions for publishing "Open Government Data on the open government data platform" in 2019 in the Official Gazette No (5561) page (660-663). The government issued the Jordanian open data license on 20/08/2019; the License was circulated to all government entities to adhere to its content, aiming to promote the use of open government data, and grant beneficiaries the freedom to share, modify, use and re-use the published datasets for any purpose without restrictions, taking into account a number of requirements of privacy, protection and franchise rights as conditions of use⁵. However, despite all the above-mentioned governmental efforts to make available national data and statistics, pursuant to

⁵ Open Governemnt Data: Procedural Framework for Measuring and Evaluating. The Quality of Governmental Open Datasets 2020 on the following link: https://www.modee.gov.jo/ebv4.0/root_storage/en/eb_list_page/ogd-qualityprocedure.pdf

the feedback provided by the interviewed academics, difficulties were encountered in having access to data of government institutions.

The majority of the interviewed actors believe that the main obstacles the Jordanian research system is facing with regards innovation, technology transfer and employability, include the following:

1. **Lack of funding for research and innovation at universities**
2. **Academia and business are two isolated realities that have very little connections**
3. **Resistance to change in the education and higher education teaching mechanisms**
4. **Brain-drain phenomenon**
5. **Constraints arising from the legal framework**

Firstly, the **inadequate allocation of funds for research** and development creates a major hindrance to the pursuit of innovative projects and the advancement of technologies. With limited financial resources at their disposal, researchers face constraints that limit the scope and scale of their research initiatives, impeding progress in the fields of innovation and technology transfer.

The availability of research grants, especially for applied and commercialized research is always limited.

Secondly, the relatively **weak industry-academia collaboration** is considered by the majority of the interviewed stakeholders as a crucial point that needs to be further improved.

The **Director of the Entrepreneurship and Innovation Centre of the University of Jordan, Dr. Yazan Al Zayn**, said: "We are trying to bridge the gap between industry and academia".

Another major challenge that has been identified during the interactions through interviews and the roundtable is the **culture itself about research and development**. Jordan has indeed high-quality research institutes, but the "idea about research" has not yet spread out to the broader society, "*so there's a need to cultivate a stronger culture for research development in Jordan*", as pointed out by the Director of the Entrepreneurship and Innovation Centre of the University of Jordan, Dr. Yazan Al Zayn. This cultural resistance is also reflected in the limited awareness of Jordanian students of the policies pertaining to intellectual property and property rights. The commercialization of patents or inventions is also very difficult in Jordan and this could somehow cause some kind of obstacle to the research system.

In fact, **Muhammad Obaidat** of technological **iPark** stressed that "*The focus of innovation is not at the heart of each university*". However, there are initiatives in universities in Jordan to build innovation and entrepreneurship infrastructure. German Jordanian University, for example, is aiming to transform itself into an entrepreneurial university in Jordan and has developed programs to provide technical and financial support to entrepreneurs.

Although the education system in Jordan is relatively strong, jobs are limited. As a result, Jordan is experiencing a **brain drain phenomenon** because students try to look for a better life and working opportunities globally (in the United States and Europe) or regionally (in the Gulf countries).

Another major obstacle is related to the legal status of researchers in Jordan, which could be improved by overhauling

the relevant existing legislation. The academic programs offered to researchers, are not only based on research but also on teaching, preventing researchers from dedicating all their time to research.

Difficulty of accessing data is also limiting innovation's potential, which could be tackled by streamlining existing administrative procedures. For instance, at national level, buying machines from outside Jordan needed by the research units to do the research, requires approvals that may take up to six months in certain cases. Delaying or postponing research may sometimes have undesired consequences since time is a very critical factor for some types of research.

The regulatory framework could be improved by taking into consideration innovators' needs, as it limits the possibility of integrating industry and especially education, and getting the experts from the field to deliver lectures (another raised constraint).

Mohammed Obaidat, iPark, underlined that *"The thing in Jordan is that if you have a PhD, you should go back to academia. On*

the other hand, for example, in Italy or Germany or the UK, you can get PhD holders in the world of industry to go back and teach. In Jordan, we don't have that. So, we have to adapt. Even without a PhD, we can still teach some practical knowledge inside the University".

"Another very important thing that should be considered is the regulations that provide for starting a business and liquidating a business. A lot of professors shy away from the idea of starting a business because it might fail. The liquidation of a business is very complicated.

"On the other hand, when it comes to customs regulations, a lot of materials are not allowed into the country and you need permission to get them in. We need to have some sort of regulatory framework that would allow entrepreneurs, researchers and innovators to use this material either by changing the customs regulations, or by developing a way for universities to have access to the materials they need. This would require the university to work on the regulations internal policies".

2.3 Policy Tools and Initiatives

Despite these obstacles and gaps, some positive changes have been made by the government and relevant stakeholders like the HCST, by introducing a series of policy initiatives and programmes aimed at structuring innovation at national level, and harnessing its economic potential. Examples of the many existing efforts, policy tools and initiatives, as well as insights and findings on their impact are set out in the following paragraphs.

Scientific Research & Innovation Support Fund (SRISF)

The SRISF has been the main governmental fund since 2007 to support research and innovation by striving to build and strengthen research and development in fields that have great strategic value to empower Jordan in long term competition, especially in the fields of energy, water, environment, technological applications,

support and protection of intellectual property rights, as well as human resources development. Since 2018, “innovation” has supplemented its mission with a greater focus on applied and innovative ideas, and their commercialization process.

Industrial Research and Development Fund (IRDF)

The IRDF is affiliated to the Higher Council for Science and Technology with the objective of increasing the competitiveness of Jordanian industries through the utilization of science and technology.

The main functions of the IRDF are to support Jordanian industries, invest in science and technology, achieve a remarkable development in terms of production processes, industrial management, product quality and development, as well as improve the competitiveness and innovation of Jordanian industries⁶.

National Innovation Strategy 2013 – 2017 and National Centre for Innovation

The National Strategy crafted pursuant to the cluster method aims at enhancing the development of key sectors of the Jordanian economy. It pivots on the following priority clusters:

- Medical services and pharmaceutical industry
- ICT
- Clean technologies
- Architecture and engineering services,
- Education and career guidance services,
- Banking and financial services.

The national innovation strategy's vision is *“creating a Jordanian innovation-based economy”* and its mission is *“disseminating the culture of innovation, research and development, development of specialized human resources, and creating a favourable*

business environment”.

The NCI was the main accomplishment of this strategy: central to this success is the management of an online NCI coordination platform, the Jordan Open Innovation Platform (JOIP), which fills the gaps in market linkages and enables coordinated actions, direct engagement between private and public stakeholders and a truly open and free marketplace for innovation. JOIP envisions a Jordan where high-quality, cost effective, and easy to use innovation services are available to all stakeholders.

Innovative Start-ups and SMEs Fund (ISSF)

Established in response to the first recommendation of the Jordanian Economic Policy Council, the Innovative Start-ups and SMEs Fund (ISSF) is a private sector managed fund making investments in innovative start-ups and early-stage SMEs. The World Bank has invested USD 50 million in the Fund which was complemented by the Central Bank of Jordan with an additional USD 48 million bringing the total working capital of the ISSF to USD 98 million⁷.

The ISSF promotes entrepreneurship and contributes to job creation in Jordan by increasing private, early-stage equity finance for innovative small and medium enterprises (SMEs). In addition to early-stage financing, the ISSF encourages entrepreneurship across Jordan with outreach programs to entrepreneurs from lagging regions, underserved sectors and underserved groups such as youth and women entrepreneurs.

The ISSF aims at investing in Jordanian companies, providing investment support to partner investors, as well as improving the quality and variety of services provided by intermediaries and networks dedicated to the creation of deal-flow in Jordan's ecosystem⁸.

⁶ The Higher Council for Science and Technology

⁷ *idem*

⁸ ISSF website (www.issfjo.com)

General Entrepreneurship Policy 2021, by the Ministry of Digital Economy and Entrepreneurship MoDEE

The government, in cooperation and coordination with pertinent authorities from the public and private sectors, has prepared a General Entrepreneurship Policy and the National Strategic Plan for Entrepreneurship for the years 2021-2025, which were approved by the Council of Ministers in November 2021.

Based on this policy and action plan, the Council for Entrepreneurship has been formed, headed by the Minister of Digital Economy and Entrepreneurship and composed of experts and specialists from the public and private sectors and civil society organizations (70 percent representatives of the private sector and civil society organizations, and 30 percent represent the public sector), to undertake several tasks, including reviewing and updating the public policy for entrepreneurship and the national strategic plan as needed, evaluating the progress made in implementing the national strategic plan, monitoring key performance indicators, and taking corrective action when needed.

Through the general policy for entrepreneurship, the government takes the measures and procedures needed to facilitate entrepreneurs' access to local, regional and global markets, and promote local entrepreneurs, helping Jordanian startups build a solid reputation.

German Jordanian University's Innovation & Entrepreneurship Program

In 2013, the Office for Industrial Links (OIL) started to implement activities that led to the establishment of a Technology Transfer, Innovation and Entrepreneurship Support Office. The main role of this Office is to establish an innovation and start-up culture at GJU and to develop Technology Transfer.

The programme is linked to the career services of the university to help the students/graduates gain understanding of the different paths and provide them with the tools to select and proceed with their best fit career path⁹.

Universities decided to expand these services by establishing the Deanship of Innovation, Technology Transfer and Entrepreneurship (DI-TECH) which offered the following:

Training and general awareness on innovation and entrepreneurship

- ◆ Entrepreneurship and innovation to students and young entrepreneurs;
- ◆ Professors and researchers training on entrepreneurship and research commercialization;
- ◆ Specialized courses on entrepreneurship and product design for target focus fields (CleanTech & Life Sciences).

Coaching to entrepreneurs and innovators

- ◆ Support students in their graduation projects to convert them into businesses
- ◆ Business modelling
- ◆ Marketing and business development
- ◆ Strategic partnerships

⁹ GJU website (www.gju.edu.jo) , (<https://www.gju.edu.jo/content/deanship-innovation-technology-transfer-and-entrepreneurship-13557>)



- ◆ Intellectual Property rights services and licensing
- ◆ Business establishment and growth
- ◆ **Technical development (Proof of Concept)/ Product Design)**
- ◆ Access to university facilities and resources
- ◆ Test platform for new products

2.4 Findings and Feedback on the Impact of Existing Framework

The Scientific Research & Innovation Support Fund (SRISF) at the Ministry of Higher Education and Scientific Research in Jordan is the governmental arm for funding research in Jordan, it is indeed part of the Ministry of higher education and aims at funding research notably in universities, higher education institutions and research centres. *"The SRISF main strategic goal is to serve and support the funding of applicable and impactful research that can affect strategic and most significant priorities that meet national challenges"*, **stressed Samar Wreikat, Head of Innovation and Entrepreneurship Department at the Scientific Research & Innovation Support Fund (SRISF), Jordanian Ministry of Higher Education and Scientific Research.**

It allocates funds to different sectors, particularly those **connected to green innovation, from water to the environment**, and annually also provides funding for projects in the energy, engineering and nanotechnology sectors.

Scientific research priorities for the Innovation Fund are identified by the Ministry and the Higher Council. In addition, universities are asked to provide the SRISF with priorities for each sector. All these priorities are then studied by the SRISF sectorial specialized committees and then decided by the academic community and the management committee, which decides each priority for each call. For **the green transition, and thus green energy,**

there are also other matters involved like water treatment and other related issues.

The beneficiaries of these funds are mainly the academia and research, but it is also possible for individuals from the private sector or employees who have established their start-ups or who are working on establishing a start-up, to get funds. Ms. Wreikat, from SRISF, explained how *"the responsibility of universities is to spend and allocate in their budget (about 5%) for research activities, capacity building for mobility programs and the granting of fellowships"*. The funds dedicated to the research which are not spent, are withdrawn from the universities accounts and reallocated to the SRISF research funding activities.

Within the orbit of the most impactful policies that have supported and continue to support the industry-academia-government interconnection in Jordan, all the interviewed key stakeholders agreed on the fact that the **National Entrepreneurship policy**, the funding for research and development (R&D) through grants, subsidies, and tax incentives, the creation of innovation hubs and science parks are the most impactful tool to bring together academia, industry, and government entities- such as iPark and TTi that the UNIMED team has interviewed - are certainly extremely necessary for students.

The establishment of **public-private partnerships (PPPs)**, which is aimed at addressing societal challenges and stimulating economic growth, is another major policy supporting the industry-academia-government interconnection, in particular in the field of green innovation, and hence of green economy. The stakeholders roundtable held for the purposes of this study has shown that the strategies put in place by the MoDEE (Ministry of Digital Economy and Entrepreneurship) could be further expanded to support the creation of start-ups, access to financing and new grants, and to guide and support young entrepreneurs at the pre-seed stage by fostering capacity-building programs in the whole country. Their activity would support youth by developing Training of Trainers on entrepreneurship programs and by introducing an internship programme during the doctoral career. Especially, the government MoDEE, Youth, Technology and Jobs Program and other similar programs, would continue facilitating entrepreneurs' access to local, regional and global markets, support local entrepreneurs' business development plans in foreign markets, and ensure companies' compatibility through intermediary parties from the private sector.

Among other instruments highlighted by stakeholders as being most impactful for Jordanian researchers to boost the collaboration between industry, academia and government, is the existence of the Technology Transfer Offices which act as intermediaries between academia and industry, facilitating the transfer of knowledge, technologies and IPs or intellectual property, from research institutions to commercial entities. These Transfer Offices play a very important role in identifying the marketable research outcomes, protecting intellectual property rights and negotiating licensing or spinoff agreements.

As explained by Al Zayn, the Director of the Entrepreneurship Centre, University of Jordan, policy incentives for innovation are needed. *"Once you have policy incentives for innovation in place, students or innovators would most likely be pushed to come up with new ideas, better policies, easier ones to deal with, and easier ones to have research work actually start the start-ups. So, they may include, for example, tax breaks, grants, subsidies or intellectual property protection images"*.

Professor Firas Jarrar, Hussein Technical Institute added, *"I think the most important policies in this respect will have to build trust between universities and industry and vice versa and as a starting point, I think the tool to achieve this, is to give some kind of tax incentives to the industries"*.

2.5 Connecting the Triple Helix to Green Innovation in Jordan

With regards to the current situation of **green skills** in universities and research, the majority of the interviewed stakeholders agreed that universities in Jordan are starting to recognize the importance of incorporating green skills into the curricula, by introducing programmes that focus more on renewable energy, or on sustainable development, green technologies, environmental sciences, climate change, renewable energy, and circular economy. But this is not the real and current focus of the triple helix stakeholders' efforts, since all of them have just recently started to work on this concept of green innovation linked to employability in the country. Besides regular training, what is needed and is starting to emerge in Jordan, is professional coaching where innovators can play an important role in offering short courses, workshops and seminars to update knowledge and skills related to emerging green technologies, policy frameworks and sustainable practices.

Dr. Hussam Khasawneh, Assistant Secretary-General of The Higher Council for Science and Technology (HCST), highlighted the council's proactive role in aligning Jordan's Economic Modernization Vision (EMV) with green innovation. *"Our focus is on integrating green technologies and sustainable practices within various sectors of our economy. This includes not only fostering research and development in renewable energy and environmental sciences but also ensuring these areas are an integral part of the economic vision for Jordan. The HCST, through its network of centers and partnerships, is working to bridge the gap between academic knowledge and practical, market-driven skills."*

"We aim to create a sustainable environment for innovation that not only supports the academic and research community but also translates into tangible economic benefits and job creation for our youth."

Dr. Yazan Al Zayn, Director of the Entrepreneurship and Innovation Centre, University of Jordan underscored that *"It's also important to have some kind of trans-disciplinary approaches within the same university so that universities can promote collaboration across disciplines to foster a holistic understanding of sustainability issues and develop innovative solutions"*.

Samar Wreikat, Head of Innovation and Entrepreneurship Department, at the Scientific Research & Innovation Support Fund (SRISF), Ministry of Higher Education and Scientific Research, believes that there is coordination between the Civil Service Bureau and the Ministry of Higher Education. The Civil Service Bureau is responsible for organizing, developing and promoting in the public sector, in addition it is helping to find jobs for the graduates in the market. With regards to green jobs, a specialization has recently been added for applied colleges, technical colleges and universities. These specializations have been added as an option for students.

Mohammed Obaidat, iPark, pointed out that *"There are a lot of things happening underground. They have started teaching things related to the environment, energy, and waste management. But what is the result? There is no real impact yet"*.

So, while universities have made considerable efforts to integrate green skills in the curricula and training offer, Jamil Alkhatib, general manager of IBTECAR, thinks the same should be done in the private sector: *"The green sector is not taken seriously by the private sector. And green jobs, it's still not clear how they are perceived. There might be some green jobs, but they are not promoted as green jobs. It's more as recycling, waste management and renewable energy or things like that. These are the closest to green jobs we have. But they are not perceived as green jobs yet. So, the concept is still new":*

Discussions held during the roundtable highlighted that the green transition is not considered yet as a top priority by many actors in Jordan and more as a cross-cutting theme within any job and industry.

Transnational research represents one of the most promising fields for connecting innovation to green transition, with many good practices being put in place in Jordan. A short selection of which is set forth below for explanatory purposes:

- **The Jordan Renewable Energy and Energy Efficiency Fund.**

A governmental institution that aims to promote renewable energy and energy efficiency in Jordan. It collaborates with international partners, including the European Union to implement projects and programs that advance green transition goals.

- **The Water Energy and Environment Nexus Project.**

A collaboration between the German Federal Ministry of Education and Research, the Jordanian Ministry of Higher Education and Scientific Research and several local research institutes here. It focuses on

the synergies between the water, energy and environment sectors. It involves transnational research, cooperation, knowledge exchange, and capacity building activities.

- **The Integrated System for Water Supply Project** where there is some kind of collaborative effort between Jordan, Italy and Greece, funded by the European Union. It aims to enhance water management and promote sustainable water systems in Jordan and other Mediterranean countries.

All these three bodies play a very crucial role in promoting the green transition. Besides, the Minister of Labour is attempting to closely work with the Ministry of Higher Education and the Ministry of Industry in order to identify and anticipate the changing skill requirements and job opportunities arising from the green economy, and facilitate the transition of workers from digital industries to green sectors.

The Ministry of Higher Education plays a very important role in shaping the education and research landscape to support the green transition. Its collaboration with other ministries may involve incorporating green skills and knowledge into the curricula of the universities promoting interdisciplinary research and innovation in areas related to the green transition. The Ministry of Higher Education in Jordan aims to foster academic collaboration with industry, providing support for the establishment of research centres and collaborating with the Ministry of Labour to align the development of additional programmes with the changing skills requirements in the green sectors. Efforts and coordination between the Technical and Vocational Skills Development Commission (TVSDC) and Jordan Accreditation & Quality Assurance Commission for

Higher Education Institutions (AQACHEI) to work together on a national framework for skills, where students skills meet the market demand, where green skills are among the required skills for both the market and sustainability.

"A few years ago, each Ministry worked on a strategy plan and they were not working on a sectoral strategic plan. But recently, the government worked on a results-oriented approach in management", affirmed Samar Wreikat, Head of Innovation and Entrepreneurship Department, Scientific Research & Innovation Support Fund (SRISF), Ministry of Higher Education and Scientific Research.

"Recently, I noticed there's more coordination and national efforts because the national challenges are interrelated when we talk about climate change. All Ministries should have plans to reduce the impact of climate change and modify its side effects".

"We are very good at crafting high level strategies. Marketing is down to implementing them. That's not really happening in many cases", pointed out **Mohammed Obaidat, iPark.**

He also reiterated the issue of sustainability once the funds and money are available. *"Still, the problem is where we can allocate them since Jordan lacks a solid ecosystem. Research is of interest for many actors who could be involved, but what is missing is matching the theory with the application of research. Enterprises are not exploiting the opportunity to use researchers for their scope. Funds are available, but still, the challenge is their concrete implementation".* Finally, he reiterated the need for more capacity building and awareness raising on this topic.

The private sector is also being mobilised through projects and initiatives to promote

green entrepreneurship. According to Mr. Ghaleb Hijazi, from BDC, *"it is very important to motivate the investors"*. The Business Development Center (BDC), for instance, has ongoing projects on **green entrepreneurship** in 9 governorates of the country, even though stakeholders highlight the difficulties of **accessibility to financial support**, since banks do not easily support green jobs and green projects, influencing, in turn, the financial ecosystem.

Dr. Nidal Alshwawrah of GJU, one of the the key interviewed stakeholders, shared the experience of his university, - an international university cooperating very closely with Germany and German universities - engaged in promoting innovation and start-up programs. He believes that Green innovation is not really the focus of the higher education system in Jordan, but that social entrepreneurship is much more so. He shared the GJU experience of more than 80 partners from the industrial world where students have to conduct a yearly internship experience in the course of their academic career (Work-integrated learning model). The GJU also organizes hackathons and bootcamps and has some PhD programmes where students have to go to Germany for one semester or to do their PhD research. Therefore, GJU is certainly a good practice in the HE system in Jordan in raising awareness about the importance of sustainable development, and how joint efforts by universities, industry and government have successfully contributed to achieve a better economy in line with the market's needs.

Besides the national strategies and policy tools, at European level, EU funded projects are significant in Jordan and the Mediterranean, providing financial support and collaboration opportunities for research and innovation. Jordan actively participates in international research

initiatives and engages in transnational projects. Challenges exist in research infrastructure, governance, and funding. Nonetheless, EU projects have positively affected Jordanian research, fostering its development within transnational and international collaborations.

Firas Jarrar of the Hussein Technical Institute who was interviewed said: *“Jordan has always taken up this role, open to any kind of real collaboration. And this also applies to faculty and students, we’ve always had this, the feeling that we belong to something bigger, either on a regional level or at a Mediterranean or even at an international level. I myself have benefited from these relationships within Europe and also with the United States. I know most of my colleagues have also been involved in such collaborations. So, I think this puts Jordan in a unique position where we can really lead such kinds of collaborations”.*

The same opinion was shared by the Director of Innovation and Entrepreneurship, Al Zayn, University of Jordan, who underlined that thanks to the EU funded projects from Horizon Europe, Erasmus plus, and other funds from international organizations such as DAAD, collaboration, knowledge, exchange and capacity building have been increased thus contributing to the development of research in Jordan. *“Due to the participation in these projects, we also believe that the EU funded projects actually allow junior researchers to access international networks”*, he said during the interview. *“This infrastructure and expertise are important as they enhance the quality and the impact of research. They also promote the internationalization of research by facilitating knowledge transfer, joint publications and exchange of best practices”.* *“However, the participation of Jordanian researchers in EU funded projects and in*

general in international research, needs to be increased and improved, by enhancing the competitiveness of proposals, and ensuring the stability and long-term impact of research collaborations beyond the project’s duration”.

Despite several initiatives and projects where Jordanian universities and researchers are taking part, **Jamil Al Khatib, General Manager of IBTECAR**, a consulting company, questioned whether Erasmus projects had a direct impact on the outcome of research. He believes that they might have an impact on the management, the programs, the exchange, but not on the outcome of research.

Rather, **Belal Raslan**, TTI, confirmed that the EU is one of the main donors for the innovation/ entrepreneurship ecosystem in Jordan. For example, TTI has been funded by the EU during the past eight years so the EU is our main source of funds. The entrepreneurship/ innovation ecosystem in Jordan is a mainly donor-funded ecosystem. He reiterated that “the main source of funds is not the government but donors.

He concluded that *“when it comes to business, Jordan is not a market. Jordan is a kitchen. Jordan is a very small country, and the purchasing power of the government and population is low. So, if we take this into consideration, most of the designed products and services should be commercialized outside Jordan”.*

So, in order to support any sector in Jordan, access to new markets needs to be created, and when we talk about green products, for example, it is fundamental to have access to the EU market.



Box 2

TTi - Spreading Entrepreneurship in Jordan

TTi is a small Jordanian non-profit organization, whose main objective is to spread the Innovation and Entrepreneurship culture within Jordan. In order to achieve this mission of spreading Innovation and Entrepreneurship as a tool to improve the socio-economic situation of Youth, TTi uses entrepreneurship and self-employment as a tool or as a shortcut to achieve this status, by providing many services designed to help youth ideate, create and validate a sustainable business model and establish their own businesses. TTi services are designed around the awareness of Innovation and Entrepreneurship, ideation of training camps and pre-incubation, which is related to business model validation. Thanks to TTi, there are three business incubators in Jordan: One in the

very south, the other one in the very North near the Syrian border and the third one in the middle, in Amman.

These three business incubators are incubating start-ups mainly made up of women. 70% of the beneficiaries are women with innovative non-traditional, tech enabled and green business ideas. TTi works also to keep an up-to-date database mapping all active stakeholders, and through Meetup, a round table discussion is organised every month by selecting a trending theme and relevant stakeholders to discuss possible challenges and opportunities related thereto. Recently, TTi's main focus within their incubators has been green and consequently over the past two years most of the incubators have been green start-ups.

2.6 SWOT Analysis

To complete the pilot country analysis with a view to comparison, a SWOT Analysis was finally performed focusing on strengths, weaknesses, opportunities and threats related to impactful national and regional employability solutions. SWOT analysis has the main goal to turn the weaknesses of the system into

points of strength, and tackle the inherent threats in order to fully exploit the related opportunities. This approach has already been used in previous projects and in the UfM Internationalisation study in the Mediterranean, performed by UNIMED, and has proven to be helpful in structuring complex processes such as the one at stake.



2.7

SWOT ANALYSIS

JORDAN

Internal factors (strengths and weaknesses): Higher Education sector, HEIs and the Ministry of HE and SR, Ministry of Labour and other sectorial Ministries, industries

External factors (opportunities and threats): the national, regional and international context

| Strengths | Weaknesses |
|--|---|
| <ul style="list-style-type: none"> ▪ Numerous start-ups with women: 70%¹⁰, innovative and non-traditional ▪ Jordan has major pharmaceutical industries ▪ There is an Economic Modernization Vision (EMV) for the country for the years 2023-2033 ▪ A really attractive geographical position ▪ Existing cooperation structures and a tradition of entrepreneurship: entrepreneurship centers numerous (Various funders of entrepreneurship support activity) ▪ Political stability ▪ Access to local and Arab market, trade agreements with strong economies across the world ▪ Government looking to digitalise many of its operations | <ul style="list-style-type: none"> ▪ Most of the resources are in the capital, too centralized ▪ The funds for research and innovation need to identify allocated resources ▪ Research depends a lot on international funding ▪ Not enough programs to support industry, academia, government collaboration ▪ Short-term vision by the private sector ▪ Limited research on green transition ▪ Trust gap between academia, industry and ministries needs to be narrowed ▪ Lack of access to public procurement market for startups ▪ Weak commercialization of the patents ▪ Regulatory systems not updated to allow more innovation arising from public universities (eg. Ability to create a startup) ▪ Low rate of employability of graduates |

¹⁰ Data provided by Belal Raslan, TTi, interviewed by the UNIMED research team

| Opportunities | Threats |
|--|--|
| <ul style="list-style-type: none"> ■ Opening up to the EU to facilitate trade ■ Large potential to draw on a young and highly educated workforce ■ Attract more foreign entrepreneurs with favorable entrepreneurship conditions ■ Regional investment is growing and becoming more experienced and demand for good deal flow remains high ■ A relatively young workforce that may need jobs and aims to become more entrepreneurial ■ Diversification of cooperation opportunities with others countries ■ Bilateral cooperation ongoing with other funding bodies | <ul style="list-style-type: none"> ■ Geopolitical regional and global framework: large refugee influx pressuring higher education systems ■ International funds/ investors not considering Jordan attractive enough as a base ■ Lack in prioritization for government support to entrepreneurship ■ Internet infrastructure is weak ■ Water and food crisis |

2.8 Country-level Recommendations: Jordan

In the specific case of Jordan, the country analysis has issued leading recommendations targeting policymakers, decision-makers and the main actors involved in the three spheres of the triple helix approach: the government, university and research and industry.

In terms of the **government**, all the interviewed stakeholders drew attention on the need to work more to ensure better and closer coordination between the different Ministries, namely the Ministry of Higher Education and Scientific Research, the Ministry of Education, the Ministry of Employment, the Ministry of Industry, the Ministry of Entrepreneurship and Digital Economy, as well as with other specific Ministries focused on specific disciplines,

such as the Ministry of Environment, the Ministry of Agriculture etc.

The recommendations are the following:

- To achieve a better coordination between the strategies and the policies of all these institutions with a view to a real green transition by fostering major coordination efforts among ministries;
- To enhance the financial support from their government institutions;
- To have a clear program or a regularly updated national strategy;
- To raise greater awareness of the link between innovation, green economy and employability.

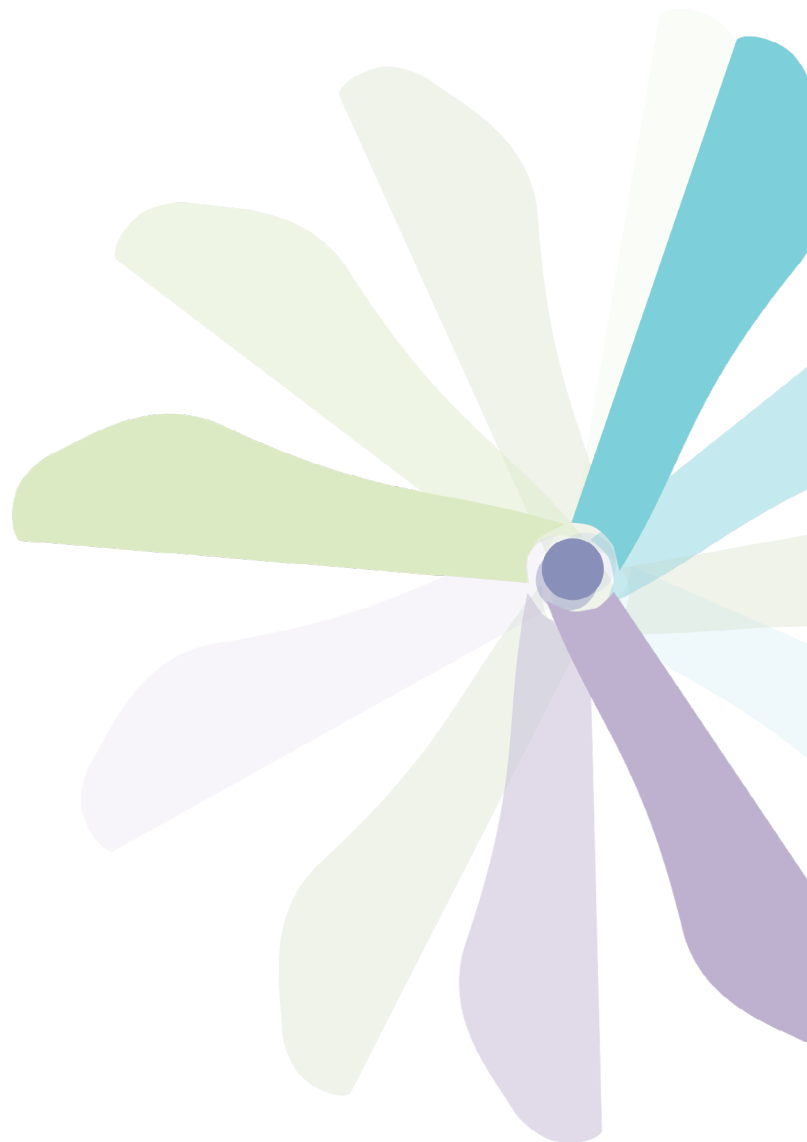
In terms of **universities**, one of the main recommendations arose from the discussions with the key actors in the field, and can be summarised as follows:

- to try and boost interdisciplinary research, by enhancing diversified research in several disciplines ensuring an interdisciplinary approach;
- the results and outcomes of research should be better valorised and exploited by commercialising the products in the local market;
- quality measurement and impact assessment of research production needs to be increased through surveys and studies aimed at monitoring and assessing the impact of these policies and tools;
- Assurance of research quality should be more developed and introduced in all fields of research at universities. High quality research performed by universities should be guaranteed by constantly and continuously monitoring and assessing its impact.

In terms of **industry**, the private but also public industrial sector needs:

- to craft friendly policies that provide incentives for the private sector and universities (for example, giving academic staff the chance to publish their work in the private sector);
- to promote working with the private sector, and also encourage the private sector to develop more products and improve their processes, like envisaging subsidies when working with universities;
- to **establish a platform/database** where to categorise industries according to their fields and priorities pursuant to the green innovation approach. This would help put together all the offers coming from the enterprises and the field of research to try and match the ones to the others;

- to update the **mapping of the entrepreneurial ecosystem** in Jordan as a preferred destination and regional hub for entrepreneurship by assessing, analysing and diagnosing potential challenges and opportunities that can be addressed through the Jordanian entrepreneurial ecosystem (to fine-tune and support policy and decision makings);
- finally, the establishment of a national think tank formed by the academia and research centers on green innovation to influence public policy making and the Digital Economy Policy.



3.0 COUNTRY ANALYSIS

ITALY

“Between Research, Innovation and Academic Spin-offs, Efforts by Universities, Industry and the Government to Boost Economic Development and Employability of Graduates”

3.1 Background

Despite having a rich industrial base in specific sectors (such as agri-food and renewable energy), in Italy, research and innovation have suffered historically from a series of structural weaknesses hampering technological progress. Among the main factors, it is worth mentioning the presence of few large and medium-sized enterprises, the acquisition of many innovative Italian companies by foreign multinationals, the difficulty of financing innovation and the modest percentage of graduates, as well as a persisting significant regional disparity ¹.

In Italy, between 2008 and 2016, there was a 19% decrease in public funding for research ². This reduction corresponded to the period in which Italian researchers recorded a marked improvement in scientific production. This is still growing, and Italy, in this case, ranks above France and Germany.

Italian scientific success could be only temporary because of the downsizing of the public system. The cuts in public funds has led to a reduction in enrolments in Italian universities, and this affects both scientific output and university education. Worker education and skills suffer from an economic framework in which there are medium-low technologies, scarce job

opportunities for graduates, stagnant productivity and a significant gap in terms of innovation and competitiveness compared to some of the main European countries. This situation has led to precariousness, which means adapting to price competitiveness based on ever lower labour costs, as opposed to technological competitiveness typical in the most advanced European countries. The same gap is perceived between the regions of northern and southern Italy, linked to the recession particularly affecting the central and southern regions.


Only after 2016, also thanks to the launch of “Industry 4.0” policies, the situation started to change. Some of the main contributions to this change came from the extension of tax incentives, a national smart specialization strategy and funding for the best performing universities.

In recent years, the new policies for the university and the “Industry 4.0” programme have identified priority areas upon which it is necessary to concentrate resources, although they mainly address a limited audience of companies, mostly active in digital innovation.

With the exception of a relatively small group of innovative companies able to export their products abroad, the Italian

¹ <https://pmf-research.eu/en/>

² *idem*



entrepreneurial community is made up of a number of micro- and small enterprises with too few activities and very little ICT research expenditure. Tellingly, *Made in Italy* is often associated with low and medium technology activities compared to the main EU economies.

For instance, compared to Germany, the sectors based on science and machinery manufacturing in Italy are more neglected. Even in terms of investments in research and development, Italy lags behind German companies, as the latter invest much more than Italian companies in traditional sectors as well. The growth rate of real

added value in Italy, when compared to Germany, shows a significant gap in the relationship between investment in research and growth, as well as the ability to do successful entrepreneurship. Research and development activities are still concentrated in the strongest performing economic areas in the northern and central regions, widening existing socio-economic disparities. All of this reduces economic growth potential and technological transfer to companies, limiting the fair diversification of skills and economic activities and weakening the Italian research and innovation system.

3.2 Main Challenges to be Addressed in Italy

The results of data collection and interviews point out some of the major **obstacles and challenges that the Italian research system is facing**, which could be synthesized as follows:

1. Inadequate salary for public researchers and few work opportunities;
2. Insufficient funding for research and innovation and complex bureaucratic procedures;
3. Lack of networking and partnership among universities;
4. Lack of capability to transform research output into innovative products and services.

Instability in employment conditions is among the most highlighted issues across many sectors coupled with a very low level of salaries, compared to other European countries such as France, Germany, which manage to attract foreign researchers in a much more impactful way.

Italy has good and very valid researchers, but, unfortunately, we lose most of them: they go abroad because they have higher salaries and it is a kind of activity that allows them to pay for their research in a much simpler way than in our bureaucratic structure, said **Virginia Coda Nunziante, Head International Relations Office – CNR**, during her interview.

On another note, insufficient funding for research and innovation is a major obstacle in Italy. The availability of resources for research projects, infrastructure development, and technology transfer activities is often limited. Inadequate funding hampers the ability to attract and retain talented researchers, invest in cutting-edge equipment and facilities, and support innovative initiatives. On the other hand, complex bureaucratic procedures and administrative hurdles can hinder the progress of research projects and technology transfer initiatives. Lengthy approval processes and excessive regulations often lead to

delays and discourage researchers and entrepreneurs from pursuing innovative paths. With regard to complex procedures, all interviewed stakeholders agreed that in Italy bureaucracy blocks project development.

We are working on simplifying procedures, in particular in rewriting the Ministerial Decree that regulates how to apply for research grants. A first obstacle concerns the disbursement of funds which should be carried out in the year in which the call is made and not one or two years later, said

Aldo Covello from the Internationalization and Communication directorate at the Ministry of Universities and Research in Italy (MUR)

In reference to the third obstacle, the lack of synergies and networking, which was underlined several times during the interviews that the UNIMED team had with the Italian stakeholders. Prof. Capogna from Link Campus University shared the idea that despite the richness of universities, scientific poles and research centres in Rome, these are unable to create a critical mass, because according to her, there is not a culture of creating synergies and partnerships, or in other words, they encourage policies that push towards competition rather than cooperation.

We lack a culture of networking, a culture of creating a system, Prof. Stefania Capogna from Link Campus University.

In my opinion, institutional leadership is also needed, one that knows how to act in building the system and networking spaces, while I see a political and institutional vacuum, continued Prof. Capogna from Link Campus University.

In addition to synergies and lack of coordination, what is also seen as an obstacle is a lack of skills in translating thoughts and academic ideas into practice, some-

times both at the policy level and at the level of local institutions and at the governance level. There is a need to strengthen collaboration between academia and industry too. While there are successful examples of collaboration, such as joint research projects and partnerships, more efforts are required to bridge the gap between research institutions and businesses.

In Italy academic spin-off creation³ is still not very widespread and the cases that have developed in recent years are the result of spontaneous and sporadic initiatives by groups of researchers who, in several cases, have left the academic world. Italy is still characterised by a series of factors that discourage the creation of research companies; among these, scarce propensity of researchers to economically exploit their research results, lack in universities of an interface structure between basic research, applied research and technology transfer; the impossibility of leaving and entering university after having spent periods of work in the private sector; the scarce presence of Venture Capitalists who help researchers in the first steps of their business activity; the certainty that the bankruptcy of an economic activity marks entrepreneurs for life, all long identified points that still ring true to many innovators and researchers in Italy⁴.

Enhancing industry engagement can facilitate technology transfer, promote the commercialization of research outcomes, and improve employability prospects for researchers. Collaboration between academia and industry could foster a stronger entrepreneurial culture, providing more support for start-ups and spin-off companies.

³ These are companies that transform technological inventions developed through university research that are likely to remain unexploited otherwise.

⁴ Consiglio & Antonelli, 2000

3.3 Policy Tools and Initiatives

If, on the one hand, there are several obstacles and challenges that the Italian research system is currently facing, there are also some impactful policies and instruments that support the industry-academia-government interconnection. Many of these policies have also been aimed at the opportunities of green and sustainable economies.

As a most recent development at the international level, the joint declaration produced by **G7 Academies of Sciences**⁵ “**New economic growth: the role of science, technology, innovation and infrastructure**” can also be presented.

The stated objectives are the following:

- expanding investment and skills in science and technology;
- increasing investment in infrastructure that contributes to scientific and technological progress;
- promoting the development of skills to design, manufacture and supply products and services based on new scientific and technological knowledge;
- promoting open access to scientific and technological progress;
- sharing effective practices to promote innovation, technological diffusion and efficient infrastructure development;
- ensuring that the benefits of science and technology are fully realized.

In recent years, at the national level, the Italian government has adopted a more proactive approach to providing patient funding for innovation and technology

development, thereby strengthening research and technology transfer. In addition to scientific research centres, the **Italian Institute of Technology (IIT)** and the **National Innovation Fund** were established in 2019 with an initial budget of €1 billion. In 2021 the Ministry of Economic Development launched the first national fund dedicated to technology transfer.

A new foundation, **ENEA Tech**, was established to manage a €500 million fund for investments in innovative technologies of strategic national interest on a global scale. The mission was to expand Italian industry and strengthen its supply chains through technology transfer, with the ultimate goal of restarting growth, providing better opportunities for Italian youth and developing solutions that can benefit the environment and society.

This is an example of how the public sector can build internal dynamic capabilities that can be used to provide patient financing⁶ for innovation and technology development, scale-up production as well as create demand for selected new markets of national interest. ENEA Tech focuses on strategic technologies that can strengthen the Italian economy and society, falling under one of its four priority investment areas: deep tech; green, energy and circular economy; healthcare; ICT.

The new policies for the university and the “Industry 4.0” programme have identified the priority areas where resources need to be concentrated.

⁵ During the G7 summit, which was held in Hiroshima, Japan, from 19 to 21 May 2023, the science academies of the member countries issued three joint statements to their respective governments, to advise the G-7 process and to inform ongoing policymaking and public discussion on a number of topics.

⁶ It is a programme that enables patients to pay their medical bills over time rather than in a single payment or deposit. Through patient financing, patients can seek services from a healthcare professional that they may not be able to afford upfront.

Moreover, Italy has established **Industrial PhD Programmes** to promote collaboration between universities and businesses. These programmes allow doctoral students to conduct research projects in collaboration with industry partners, bridging the gap between academic research and industrial needs. Industrial PhD programmes foster knowledge transfer, enhance industry-academia collaboration, and improve graduates' employability. Another example is given by **Technology Transfer Offices (TTOs)** established by Italian universities and research institutions to support knowledge and technology transfer to industry. TTOs facilitate the protection of intellectual property, negotiate licensing agreements, and provide guidance and support for commercialisation activities. They act as intermediaries between academia and industry, promoting technology transfer and collaboration. Within the framework of the **Recovery Fund** or as it is called by the European Commission, **NextGenerationEU**, the Italian Ministry of Universities and Research (MUR) has launched a series of initiatives to fund research activities that involve strong interaction between universities, public and private research institutions, and companies. In particular, **five national centres and 13 extended partnerships** have been established. These entities, involving both public and private actors, aim to foster interaction between academia and industry by pooling available expertise at the national level and facilitating the creation of a critical mass essential in order to achieve impactful results in both research and technology transfer activities. **NextGenerationEU Recovery instrument** resources, in the EU's 2021-2027 long-term budget, amount to €2.018 trillion in current prices (€1.8 trillion in 2018 prices)⁷. This response is aimed at

repairing the economic and social damage caused by the Coronavirus pandemic and aid the green and digital transition towards a modern and more sustainable Europe. Thus, some of the main objectives of this huge recovery plan, which many Italian research institutes are trying to align with and follow, are a reduction of the carbon footprint and the encouragement of clean energy use and sustainable transport.

At the European level, the **Horizon Europe programme** proposes a clear strategy based on research and innovation programmes that reflect broader economic, social and environmental priorities. EU funding plays a crucial role in supporting research infrastructure, attracting and retaining talented researchers, and promoting international collaboration. The Mediterranean region, including Italy, benefits from EU funding programmes that specifically target regional development, cooperation, and innovation. For instance, initiatives like those under the umbrella of the Union for the Mediterranean (UfM) and the Interreg programme promote dialogue and collaboration among Mediterranean countries in various areas, including research and innovation. These programmes foster transnational partnerships, knowledge exchange, and joint research projects to address common challenges and promote sustainable and green development in the region. Strengthening international collaboration, particularly with emerging research powerhouses and non-European countries, can broaden research opportunities and facilitate knowledge exchange. Additionally, promoting greater mobility and attracting international researchers to work in Italy can contribute to a more vibrant and globally connected research ecosystem.

⁷ https://next-generation-eu.europa.eu/index_en#make-it-green



These programmes facilitate collaboration between Italian researchers and their European counterparts, as well as industry partners from different countries. Additionally, Italy's national funding agencies, such as the Ministry of Universities and Research (MUR), offer funding schemes to support collaborative research projects and technology transfer initiatives.

In the context of collaborative research at the Mediterranean level, Italy plays a very important role. As far as the Mediterranean is concerned, the **PRIMA**⁸ programme, launched during an inter-ministerial conference about the Mediterranean in Malta in the Spring of 2017 and formally adopted at the end of May 2017, operates through an implementation structure (PRIMA-IS Foundation) based in Barcelona. The participating countries and the Commission are committed equally to the implementation of the Programme with about €500 million to be dispensed over 7 years through competitive tenders according to the criteria of Horizon 2020⁹. Italy played a leading role in the development of the PRIMA programme, by taking a coordinating role from 2014 both in the elaboration of the joint program and in the process of assessing the impacts of the PRIMA initiative that led to a positive opinion expressed by the European Commission in July 2016, and subsequently approved by the Europe-

an Council and the European Parliament ¹⁰.

In participating in the projects selected by Horizon 2020, Italy stood out for its research quality and results achieved. Thus, 33% of the projects under Horizon are coordinated by an Italian body and in another 34 projects an Italian organisation participates, for a total of 70 realities involved. In 2019, the PRIMA programme, welcomed and supported by UfM, promoted research and innovation, allocating approximately 56 million euros in the agri-food sector and in the management of water resources, doubling funding for green innovation projects and introducing economic resources for the efficient management of **water resources, sustainable agriculture and the agri-food chain**.

The Italian Ministry of Universities and Research has financed 110 projects with their own funds plus the former funded another 49 projects with European funds because there are two parallel tenders each time, and, therefore, there are 149 projects with Italian participants. There are more than 300 partners, representing Italian contribution which is higher than that of all nations.

There are currently **97 collaborative projects between Italy and Tunisia. As for Jordan, collaboration rate with Italy is high considering the lower participation of the former (17 out of 21 projects in total)**¹¹.

8 The Partnership on Research and Innovation in the Mediterranean Area (PRIMA) is a ten-year initiative (2018-2028), partly funded by the EU's research and innovation programme Horizon 2020, which aims to develop much-needed solutions for a more sustainable management of water and agri-food systems in the Mediterranean basin. Its main objective is to devise new research and innovation approaches to improve water availability and sustainable agriculture production in a region heavily distressed by climate change, urbanisation and population growth

9 idem

10 <https://research.unisi.it/2023/08/11/research-and-innovation-in-agrifood-in-the-framework-of-sustainability-the-interdisciplinary-experience-of-santa-chiara-lab/>

11 These statistics were kindly provided to UNIMED research by Aldo Covello, Internationalization and Communication, Ministry of Universities and Research in Italy (MUR).

At Mediterranean level, bilateral agreements led by the National Council for Research (CNR) with the countries such as Egypt, Jordan, Lebanon, Morocco, Tunisia and Turkey should also be noted. Such agreements are aimed at fostering the creation of ever closer collaboration at an international level, paving the way for new partnerships, including multilateral ones, as underlined by **Virginia Coda Nunziante, Head of International Relations Office-CNR**. In addition to the international agreements, CNR also carries out short mobility programmes, enabling qualified foreign researchers belonging to foreign Universities and Research Institutions to be invited to carry out research at CNR Institutes and allowing CNR researchers to go abroad to do their research. These programmes contribute to the development among researchers of an awareness about the importance of international research, a key element for increasing innovation and competition.

As regards small and medium-sized enterprises, Italy has a high rate of project presentation, including successful ones, so there is certainly an almost physiological need to interconnect these European programmes as the ability to generate innovation is growing, affirmed **Prof. Lorenzo Ciapetti, from the University of Bologna**.

Overall, Italy performs highly when analysing scientific productivity, even though it suffers from brain drain in scientific sectors and has a low capacity to transform scientific knowledge into business activities and new market creation.

3.4 Findings and Feedback on Impact of the Existing Framework

The PhD is currently the highest level of training available in the Italian system of education, and during the last two years Italy experienced a change in the vision of the PhD's purpose, especially regarding opportunities for professional paths that can be a key element in the country's economic recovery. Indeed, Ministerial Decrees n.351 and n.352 - April 2022 introduced a certain number of PhD grants to create new opportunities, in order to achieve filling the training offer by 100%. There are already 92 PhDs¹² in 2023 that involve industrial partners. Among its activities, STMicroelectronics organises


summer jobs to bring students closer to the world of industry. Students can spend a week in the company, and it's even possible to do so from secondary school.

"Nowadays the main role of research is to create jobs," said **Gianluigi Consoli, Director General of Internationalisation and Communication, Ministry of Universities and Research in Italy (MUR)**¹³.

The majority of interviewed stakeholders emphasised the vital role played by **PhD schools** in contributing to scientific research and internationalization of careers in several ways. PhD schools pro-

¹² Statistics kindly provided by STMicroelectronics S.r.l.

¹³ Intervention during the roundtable held in Rome on June 5, 2023



vide comprehensive research training to doctoral students, providing them with the necessary knowledge, skills, and methodologies to conduct independent scientific research. They offer specialized courses, seminars, and workshops that deepen students' understanding of their research field, enhance critical thinking abilities, and foster innovative approaches. PhD schools assign experienced researchers as supervisors or mentors to guide and support doctoral students throughout their research journey. This close mentorship facilitates the development of research skills, encourages interdisciplinary collaboration, and ensures quality and rigour in scientific investigation.

According to feedback from key actors that emerged during the roundtable and interviews, PhD schools play a crucial role in internationalising careers by promoting international collaboration, facilitating research mobility, and encouraging participation in global academic networks. They often offer exchange programmes, joint degrees and research internships abroad, enabling students to gain international research experience and broaden their academic horizons.

This exposure increases their competitiveness in the global job market and opens doors to international research collaborations, **prof. Francesco Cupertino, Rector of the Politecnico of Bari.**

On the one hand, a PhD is an important tool for promoting research and innovation, but, on the other hand, it seems that academic institutions find it difficult to see it as a research tool and continue to read it as a teaching model, as a transmission model, underlined **Prof. Stefania Capogna, from Link Campus University**, also interviewed by the UNIMED team.

From the point of view of academic institutions, a doctorate should therefore be

reimagined within the logic of joint programming, mobility exchanges or joint and alternating coordination, with a reinforced effort towards the private sector.

Within a growing awareness of the importance of connecting research and industry, CNR has recently launched 37 new scholarships for young doctorates in the industrial field in collaboration with universities. According to **Virginia Coda Nunziante, CNR Head of International Relations Office**, *CNR carries out basic research which serves for the competitive development in the country in almost all sectors of research and nowadays the focus is to carry out multidisciplinary research, which is therefore integrated into the various disciplines and mainly trying to bring and transfer results to industry.*

This is an important achievement since these doctorates are then pursued in collaboration with the university, while the scholarships are paid for by the CNR. This allows the CNR to take a step toward facilitating knowledge of the world of research so that researchers can collaborate more easily in their research, i.e. in laboratories, in institutes that usually carry out research and in universities.

Numerous Italian research institutes are involved in promoting **green solutions** for green transition with regard to mobility, i.e. the entire problem of smart cities, and the development of infrastructures, air and water monitoring systems. Significant efforts are being directed also to the conservation of cultural heritage (buildings) with a sustainable approach.

When we talk about research, whatever the sector, we are talking about something that sooner or later improves people's lives, said **Fabrizio Cobis, from the Ministry of Universities and Research.**

There is an attempt by universities to incorporate new skills needed for these paradigm shifts, at least as a stated intention, into curricula, which for the time being does not seem to translate into concrete and structured actions. *The problem is curricula design and their content and then the training of the skills to support those con-*

tents. It seems to me that they are still very traditional, according to an interviewed expert, Prof. Stefania Capogna from Link Campus University.

3.5 Connecting the Triple Helix with green innovation in Italy

The growing importance of **green skills** in Italian universities, particularly in the context of the green transition, calls for attention and improvement. While some progress has been made, there are areas that could benefit from better alignment with the demands of the job market. As an example of a sector of growing economic potential **energy transition** represents a remarkable opportunity for employment with companies in the electricity sector eagerly seeking young people equipped with the right skills across Italy. It is essential for students to be aware of the skills increasingly sought by companies involved in the energy transition. Equally important is the need to provide young people with the abilities to make informed choices based on their inclinations about their preferred professional roles in this domain. The Green Italy 2022 Report¹⁴ confirms that Italian companies investing in green sectors are expanding: only in the post-pandemic recovery year, 2021, the share of eco-investing companies grew, relaunching the country's green transition process. Thus, it went from a share of 21.4% in 2020, the year in which green investments were held up in

any case, to a share of 24.3%¹⁵.

However, **it has been challenging to find over 40% of the required professional expertise**. This reveals a **gap in skills and abilities** between graduates and expectations of hiring companies.


Moreover, the existing lack of hubs structurally connecting training institutions with the job market is a hindrance to a smooth and targeted transition for students.

From the vantage point of **transnational research** in green transition, Italy has also implemented several good practices. Italy participates in European Joint Programming Initiatives, which are collaborative research initiatives bringing together multiple countries to address challenges in society. One relevant example is the **JPI Climate**, which focuses on climate change research and fosters transnational cooperation among researchers from different countries. Italy's involvement in such initiatives promotes international collaboration and knowledge-sharing on green transition topics.

Italy hosts and contributes to **European Research Infrastructure Consortia** relat-

¹⁴ The report is released by Unioncamere, an Italian sectorial business association, and the Symbol Foundation.

¹⁵ Data according to the Green Italy 2022 Report.



ed to the **green transition**. For instance, the European Marine Biological Resource Centre (EMBRC-ERIC) has its headquarters in Italy. This infrastructure supports research on marine biodiversity and ecosystems, providing access to state-of-the-art facilities and expertise for researchers across Europe.

Italy participates in collaborative networks and alliances that promote transnational research on the green transition. For instance, the EERA (European Energy Research Alliance) includes Italian research institutions and is aimed at accelerating **development of low-carbon energy technologies through collaborative research programmes**.

At the national level, the "**Green transition**" is a **transversal theme** in several research areas for many universities: in the case of **agri-food sciences**, for example, green transition and sustainable development as well as the circular economy are at the centre of research strategies pertaining to several aspects of the agri-food system.

On the **corporate side** in recent years there has certainly been a growing awareness of reducing energy impact, with growing attention to rationalisation as the simplest step to take towards a concrete vision of sustainability.

This kind of shift within business sector benefits also from important lessons that can be drawn from local areas. For instance, in the region of Emilia-Romagna, the Innovation Observatory has seen a transition towards sustainability and circular economy models which have secured **greater importance in business strategies**.

We must speak of a dual model of transfor-

mation. Therefore, digital transformation and green transformation go hand in hand and this is certainly already happening, according to **Prof. Lorenzo Ciapetti, Bologna University**.

Companies have understood very well that the challenge now is not only, for example, inserting some digital technology but transforming a business model with digital technology, also from an environmental perspective of sustainability, again said **Prof. Lorenzo Ciapetti, Bologna University**.

The relationship between the Ministry of Labour, Ministry of Industry and Ministry of Higher Education is crucial to boost these **alliances among research, innovation and green jobs** and achieve the green transition. Collaboration and coordination among these ministries are essential to ensure a holistic and integrated approach in order to address the environmental, economic, and social aspects of sustainable development.

We have many beautiful theoretical models, and we certainly have some good practices. However, the little experience I have shows that we continue to work a lot in watertight compartments. It is a bureaucratic tradition linked to compliance to rules that we find very difficult to get rid of, said **Prof. Stefania Capogna from Link Campus University**.

It is clear that together with national policies, there is also a structural discussion to be had with businesses, but the concept of the **regionalisation of policies** should be raised. Since 2001, Regions in Italy have had a mandate to manage technology transfer issues, and areas with stronger economies, such as for example Lombardy or Emilia-Romagna, have interpreted this mandate very extensively. Again, in Emilia-Romagna, for example,

the **Green transition** is at the heart of the implementation of the **Smart specialization strategy**, but above all there is a political pact that binds the regional administration and all stakeholders in the territory in a "**Pact for Work and Climate**"¹⁶, showcasing the commitment of the Region, with support from both the institutional and business actors, to achieve this great goal for society.

In brief, transitions, especially a "green" one, must be translated at the various levels of governance.



16 https://www.regione.emilia-romagna.it/pattolavoroeclima/ese-patto-per-il-lavoro-17x24cm_en_web.pdf



3.6

SWOT ANALYSIS

ITALY

Internal factors (strengths and weaknesses): Higher Education sector, HEIs and the Ministry of HE and SR, Ministry of Labour and other sectorial Ministries, industries

External factors (opportunities and threats): the national, regional and international context

Strengths

- Various policies and instruments implemented to support the interconnection between industry, academia, and government
- A series of ongoing and completed initiatives to fund research activities that involve strong interaction between universities, public and private research institutions, and companies launched by the Italian Ministry of Education, Universities, and Research (MUR) within the framework of the Recovery Fund (or NextGenerationEU)
- Growing adoption in Italy of Industrial doctorates as main resource for experimental and experiential dimension

Weaknesses

- Outdated view in many academic institutions which see doctorates as a teaching model more than a research and innovation tool
- Low interest, lack of culture in networking or cooperating among universities, creating an integrated system
- Need to strengthen the relationship between academic institutions, industry and the Ministry of Labor
- Insufficient funding for research and innovation and complex bureaucratic procedures
- Regulation barriers to mobility for PhD students
- Inadequate salary for researchers and few employment opportunities
- Need to create a vision for long-term sustainability of initiatives after Next Gen EU Funding comes to an end
- Lack of structural capability to transform research products in innovation in academia in many regions
- Lack of networking and partnership among universities, and outside of academia (e.g. enterprises)



| Opportunities | Threats |
|---|--|
| <ul style="list-style-type: none">- Vast variety of EU funding programmes that specifically target regional development, cooperation, and green innovation- Italian researchers abroad tend to maintain a relationship with their home university, creating more opportunities for collaboration- In the academic year 2020-21 universities throughout Italy added about 50 new courses about green and sustainable development- The 2030 Plan for the electricity sector foresees the creation of 540,000 new jobs, emphasizing the pivotal role of the education sector in guiding students towards green career paths- Strategic geographic position- Strong development of academic spin-offs and start-ups with a greater export capacity | <ul style="list-style-type: none">- Economic fragility made up of small and medium enterprises- Risk of brain drain- Overly bureaucratic processes and rules limiting the development of projects and discouraging the participation of the industrial sector- Mismatch between the skills provided by the degree programmes and the skills required by the labour market- Lack of enough specialized scientific and technological highly qualified experts, despite relatively high historical youth unemployment rates |



3.7 Country-level Recommendations: Italy

For the pilot country Italy the Country analysis has indicated some main recommendations targeting policymakers, decisionmakers and the main actors involved in the three spheres of the triple helix approach: the government, the university and research and industry.

From the **government** perspective, it is recommended to ensure better coordination and synergies among the different ministries, in particular:

- Ministries need to align their policies more in order to support the green transition more effectively: The Ministry of Industry plays a role in driving sustainable industrial practices, promoting clean technologies, and facilitating the transition to a low-carbon economy;
- The Ministry of Labour with its focus on employment, workforce development, and skills training should work in close contact with the Ministry of Higher Education ensuring that the labour market is equipped with the necessary skills for the green economy, by integrating green and sustainable development topics into curricula and fostering research on environmental issues;
- Close coordination among the ministries shall ensure that policies are complementary and mutually reinforcing, promoting sustainable development across sectors.
- Finally, the ministries need to engage with various stakeholders, including industry associations, trade unions, academic institutions, and research organizations, to ensure a coordinated approach to

the green transition. Dialogue and consultation with these stakeholders' help to identify challenges, share best practices, and foster partnerships for sustainable development;

- This coordination and synergies should be ensured by introducing of a new figure for Italy, the scientific adviser, who could help provide with guidelines the ministries who will then have to adapt to, which would also facilitate a convergence of company policies.

On the university level, research centres and universities shall work more to organise **training days at companies, inviting testimonials and lecturers among industry managers, arranging visits to energy plants and infrastructures, and fostering an integrated approach to education and work.**

To improve the current situation of **green skills** in Italian universities and research, a multi-faceted approach is essential. This includes a greater integration of sustainability topics into the curriculum, promoting interdisciplinary collaboration, expanding practical learning opportunities, forging stronger industry partnerships, offering targeted continuing education programmes, increasing research funding for green initiatives, and facilitating knowledge exchange platforms. By addressing these aspects, **Italian universities and research institutions can better equip students and researchers with the necessary green skills to meet the demands of the labour market and contribute effectively to the green transition.**

Considering the specificities of the Italian university and research system, it is also recommended for **universities, but also for industry**

1. to boost industrial doctorates in order to integrate practical experience with theory, particularly on themes connected to green innovation, such as agri-food, energy, and water. This could lead to more synergies and better connections between academia, research and innovation;

2. This is already becoming a common practice in the Italian university scenario, but it should be further increased, generalised more broadly, and more

actors involved - including economic and social stakeholders - while considering international research agendas connected to sustainability;

3. Universities and industries should try to adopt and extend the **smart specialisation approach** which combines industrial, educational and innovation policies: other Italian regions should identify and select a limited number of priority areas for knowledge-based investments, focusing on their strengths and comparative advantages, following the example of Emilia Romagna in this field.



4.0 COUNTRY ANALYSIS

TUNISIA

“Overview of Green Innovation, Research and Employability: State of the Art and Major Challenges”

4.1 Background

In the African continent and the MENA region, Tunisia occupies the second place, after South Africa in attracting funding under the Horizon 2020 programme, with EUR 13.13 million and 75 projects¹. In addition, Tunisian R&I players participated very significantly (3rd in terms of number of projects submitted and funded) in the PRIMA partnership programme, launched under Horizon 2020.

Since the Jasmine Revolution of 2010-2011 Tunisia has witnessed great structural changes. The main challenges stem from an economic growth still unable to sufficiently tackle significant unemployment rates (particularly among young people), regional disparities, and a worsening global economic scenario. Moreover, Tunisia is highly vulnerable to environmental risks, for instance due to the impact of climate change, a constant threat in all the EuroMediterranean region.

The country is still undergoing an energy system transformation, given that its energy demand has been progressively growing, mainly due to population growth, urbanisation, economic development, and

subsidies that foster overconsumption in some cases.

Despite an electricity mix still dominated by gas generation, in recent years Tunisia has been working on the transition to a green economy, with a focus on renewable energy (RE) and sustainable development. The country has set ambitious goals for the expansion of its renewable energy sector, including a target of generating 30% of its electricity from renewable sources by 2030. (Ersoy & Terrapon-Pfaff, 2021)

One of the assets for Tunisia to build upon is its vibrant scientific research system, which includes 13 public universities (including one virtual) with 37 PhD schools; 39 national research centres and 505 research laboratories, 21 research units and 30 specialized units. In addition to public research centres, there are technical centres, innovation spaces, including clusters and science parks. Furthermore, intermediaries (i.e. incubators and BUTTs²) are part of the Tunisian research and innovation system.

Tunisia has seen an improvement in the standard of living in all of its regions.

¹ https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/republic-tunisia-joins-horizon-europe-worlds-largest-research-and-innovation-programme-2022-03-29_en

² Bureau de Transfert de Technologie, which means Technology Transfer Office

Despite the important progress made, the country still faces considerable challenges related to weak job creation, high unemployment and macroeconomic financial conditions. Like most Maghreb countries, Tunisia needs to create economic opportunities on a scale sufficient to absorb the growing number of young people, and green innovation offers an important way of combining economic, social and environmental concerns in a positive way.

With 92% of industrial companies located around the three major cities of Tunis, Sousse and Sfax, the position of Tunisia in relation to neighbouring countries in terms of gross domestic product (GDP) growth has increased (Dani, 2018). With slowing of economic growth and job outcomes, Tunisia has increasingly relied on state action to meet citizens' aspirations for better livelihoods, with still a strong need to produce sufficient opportunities, particularly for university graduates and the prime working-age population. This needs to be complemented with a stronger engagement between academia and the business sector, liberating resources also from the private sector to contrast the growth of public debt, which has reached 79.9 percent in 2021³.

Tunisia has a great potential to accelerate economic growth through its innovators, connecting it to its environmental ambitions, which requires appropriate efforts to combine research with the business sector. Policy tools and initiatives are already showing great efforts in this transition towards industry, and need to be reinforced.

The co-creation approach that lies at the

heart of this study has led the Tunisian chapter to an in-depth analysis of the gap between the research sector and economic development, assessing its challenges and potential in contributing to robust economic growth which can employ Tunisian researchers and innovators and contribute to a green transition.

The Tunisian Ministry for Higher Education and Scientific Research is strongly advancing this vision, in all university council meetings, and through the organisation of several workshops in universities in all three regions of the Country.

When it comes to international and transnational research, due to its status as the only African country and the only one in the MENA region to be associated with the European framework programme for research and innovation, Tunisia has managed to integrate several consortia and contribute to the consolidation of the European research area by bringing significant advantage in themes of interest for the Mediterranean basin, namely agri-food, climate change, management of water resources, health, blue economy, etc.

In the beginning stages of Horizon Europe, Tunisia continues to be in pole position among the countries of the MENA region. In Africa, it occupies third place behind South Africa and Kenya. At this stage, Tunisian Research and Innovation actors were able to reach EUR 6.1 million through participation in 25 Horizon Europe projects⁴.

Among the 16 countries associated with the European Framework Programme, Tunisia ranks ninth in terms of granting funding.

³ Data from the World Bank in Tunisia: <https://www.worldbank.org/en/country/tunisia/overview#1> (last accessed October 30, 2023).

⁴ Data from Helmi Mardassi, Director General, Unit for the Management of the European framework programmes for Research and Innovation, Tunisian Ministry of Higher Education and Scientific Research.

4.2 Main Challenges to be Addressed in Tunisia

In a comparable way to many developing countries, Tunisia has a relatively low R&D intensity. According to the most recent publicly available data from UNESCO, its gross domestic expenditure on research and development (GERD) accounted for only 0.75% of the GDP in 2019 (compared to 0.70% during the period between 2010 and 2014). Nevertheless, the country's R&D intensity remains higher than the average for North Africa and the Arab States. The government is the main source of funding for R&D in Tunisia, accounting for around 80% of GERD in 2015⁵. Business sector commercial sources accounted for 19% and international sources accounted for the additional percentage. Insufficient private investment in R&D is one long-standing challenge to be addressed by the Tunisian R&I system (Dani, 2018) despite the fact that the share of the GERD funded by industry is higher than levels seen in other lower-middle-income economies.

During the consultation process with representatives of the government and research institutions, it emerged that the country suffers from a very limited collaboration between industry and research institutions.

This represents untapped potential for innovation of the economy, as Tunisia has a high density of researchers compared to other countries in the region, giving it a strategic advantage. In 2023 Tunisia has a total of 20,316 teacher-researchers including 2,222 contract teachers and it has 10,559 PHD. This high density of researchers is largely explained in part by a constant flow of students and graduates from the higher education sector leading

to the title of researcher and contains a good representation of women (nearly 60% of Tunisian researchers are women). However, the majority of FTE⁶ researchers in Tunisia (90%) are employed in higher education and 6% in the public sector (i.e. research centres and public laboratories). Only 4% of FTE researchers work in the industrial sector. Therefore, appropriate policies and regulations should encourage the transition towards industry as a way of making the economy more knowledge- and innovation-based.

R&I policy in Tunisia is developed, financed and implemented at the national level. The Ministry of Economy and Planning coordinates Tunisia's three-year development plan. This plan defines the strategic orientation of all public policies that have an impact on the country's economic and social development, including R&I.

The Ministry of Higher Education and Scientific Research (MHESR) is committed to the development and implementation of higher education and scientific research policy, and the supervision and monitoring of higher education programs as well as research and innovation activities.

The Ministry supports research and innovation by funding research structures, national and international research programs in relation to the national priority areas. The Ministry advocates the strengthening of research geared towards the needs of the economy and society. The MHESR also focuses on the **interaction between industry and science** and on the intersectoral mobility of researchers. The research mission of the Ministry of Industry is to develop and implement government policy in support of the national

⁵ UNESCO Institute for Statistics, UIS, latest available data April 2018.

⁶ Full-Time Equivalent

industrial sector and industry-related services. Sector ministries also carry out R&I promotion activities and programmes in certain areas such as **health, agriculture, ICT, environment and energy**. In particular, the Ministry of Technology and Digital Economy (MTCEN) promotes the digital economy and entrepreneurship (but not exclusively).

In recent years, political debate has focused on the need for more integrated activities and a more inclusive decision-making process to shape the Tunisian R&I system and foster its performance, increasing its connections to industry. In 2016 and 2017 the MHESR was involved in defining research priorities, aimed also at improving the alignment of public research with **socio-economic needs**. During the assessment, it was highlighted how Tunisia strongly focuses on fundamental research with a strong concentration of researchers in the higher education sector – with few knowledge transfer activities contributing to economic development actions.

Intention to increase business R&D spending (BERD) and strengthen university-industry collaboration is an important step in this direction. This requires alignment (in terms of quality and quantity) of graduate supply by the education system and demand from the economy and public sector.

The high unemployment rate of graduates (reaching 16.2 percent in the first quarter of 2023⁷) should equally be noted, indicating a mismatch in qualifications that do not correspond to the needs of enterprises and the weakness of the absorptive capacity of higher education and public sector. Improving graduate and researcher employability would therefore be an important step towards increasing R&D activities

of companies for the purposes of transferring knowledge and know-how and project implementation. It would also improve the potential for start-ups to be created as an important source of local production as well as processes through breakthrough innovations.

Further detailed analysis of Tunisia's challenges and a more explicit definition of how green innovation could respond to these challenges would make it possible to better define priorities and to **increase the effectiveness of R&I policy**. A starting point could be stressing socio-economic-environmental needs and/or key technologies.

Another important bottleneck is the accountability and autonomy of research institutions, which are known as vehicles for innovation and are crucial for adapting local economies to green transition. Tunisia relies on a vast system of laboratories and research units, limited in size and research budgets, burdened by administrative tasks and directly reporting to the Ministry of Higher Education and Scientific Research. This would suggest that equipping them with more strategic, financial and management autonomy, as well as streamlined administrative processes would increase their efficiency and ability to focus on impact. Effectively, not having enough freedom to set internally their own priorities can hamper performance of research and related "Third mission" research activities, **i.e. connection with society and the ability to contribute to local economic development**.

Another area for improvement is the status of researchers in Tunisia who are de facto university teachers, without specific assessment of other activities (research activities, expertise, international coop-

7 Belgacem, A., & Vacher, J. (2023). *Why Is Tunisia's Unemployment So High? Evidence From Policy Factors*, Working paper, International Monetary Fund

eration, partnerships with companies, creation of start-ups, dissemination of knowledge, etc). **Currently, there are no financial incentives for researchers or laboratories to establish partnerships with the private sector.**

Furthermore, according to **UTICA (Tunisian Union of Industry, Commerce and Crafts)** represented by **Ms. Nahla Ben Slimane**, *"in Tunisia the research products are not well known in the field of industry and private sector, there is a problem of communication and making visible the research results to the entrepreneurs"*, she pointed out during the roundtable at the Ministry premises in Tunis on July 11, 2023.

Concerning international mobility of researchers and innovators, brain drain is a structural challenge affecting Tunisia, as in the previously analysed cases of Italy and Jordan: many teacher-researchers are currently leaving for the Gulf countries, Morocco, and European countries. This is causing Tunisian universities to experience a process of loss of a part of the quality of teacher-researchers, who leave essentially for socio-economic reasons. To face this increasing phenomenon, Tunisian universities are working to train teachers and researchers in order to develop projects that converge with the priorities of each university, thereby converging towards something that will improve the visibility or the ranking of the university.

Interviewed stakeholders have also raised a variety of areas for improvement. For instance, during the roundtable organised in Tunis at the Ministry of Higher Education and Scientific Research on July 11, 2023, the **Vice-President of the University of Sfax, Prof. Fayez Gargouri**, highlighted the issue of individualism, with reference to a lack of synergies and networking among all the actors involved in this triple helix approach. This was also confirmed

by **M. Malek Kochlef, General Director for International cooperation at the Ministry**, which confirmed the potential and noting as missing the coordination among these actors. In order to tackle this issue, he announced an upcoming new programme led by the Ministry of Higher Education and Scientific Research, aiming to better coordinate all concerned stakeholders and create more synergies.

In addition to low funding for laboratories, which makes it difficult in the first place to acquire research equipment, there is also the problem of recruiting specialised staff. According to the **President of the University of Carthage, Prof. Nadia Mzoughi**, since there is very little recruitment, engineers and application technicians have to be recruited and research results have to be published in mainly Open Access journals.

Administrative processes are also causing projects and innovative ideas to stagnate against a backdrop of fierce global competition, in which time is very important. A very significant barrier is creating a welcoming culture in industry, which needs to be convinced of the usefulness of research and development in their establishment. Companies do not seek to develop through this outlet, and this is a major problem when it comes to a university approaching the industrial world.

"For me, it's not a question of means, it's not a question of human resources, it's a question of mindset, it's a state of mind and our ministry must engage in this while prioritising activities and relations with society in general."

Mohamed Ben Ahmed Cheikh Larbi, General Director of the University Renovation Directorate, Ministry of Higher Education and Scientific Research.

4.3 Policy Tools and Initiatives

Tunisia ratified the **Paris Agreement** (with the goal to reduce carbon intensity by 41% between 2010 and 2030) in February 2017, and a climate action unit was established inside the Ministry of the Environment a year later. Its Nationally Determined Contribution (NDC) seeks to cut CO₂ consumption per GDP unit by 41% by 2030 compared to 2005 levels. Since 1995, greenhouse gas emissions have more than doubled, while energy efficiency advances have been modest. As a result, in addition to continuing to pursue energy efficiency, cutting emissions in power and heat production (which accounted for 23% of the country's emissions in 2016) is critical. The goal is to reduce consumption by 30% by 2030, by implementing comprehensive mitigation measures such as increasing incentives for energy efficiency and developing renewables, as well as processing energy waste and charging private transportation in order to favour public transportation (OECD, 2022). Within this context, a series of new policy tools and projects have been developed in recent years, which closely connect economic development with innovation and opportunities opened by the green and blue economy, such as renewable energy, water and waste management. All these initiatives find their framework in the national strategy towards future development which is the Tunisia Vision 2035. This document is a long-term development plan for the country, outlining the government's goals and strategies for achieving economic and social progress over the next 15 years. The plan was launched in 2022 and is based on five pillars: competitiveness, social justice and inclusion, good governance, environmental sustainability, and regional integration. Under the plan, the Tunisian government aims to transform the country

into a modern, diversified economy, with a focus on industries such as manufacturing, tourism, and technology. It also aims to promote social justice and equality, with initiatives to improve access to education, healthcare, and other essential services. The plan also includes measures to enhance good governance and combat corruption, as well as initiatives to protect the environment and promote regional integration.

To achieve these goals **Tunisia Vision 2035** includes a range of specific targets and actions. For example, the plan aims to increase the country's GDP growth rate to 6% per year, reduce the unemployment rate to below 10%, and improve the quality of education and healthcare services. It also includes targets for reducing greenhouse gas emissions, improving waste management and increasing the use of renewable energy.

To supplement this vision as well as target the impact of the COVID-19 pandemic, the Ministry of Economy and Planning in Tunisia also released the **Development Plan 2023-2025**. This plan focuses on the need to respond to rapid technological and digital changes and to work to expand their use in different areas, including development programmes as well as sectoral and regional programmes. It aims to create wealth, stimulate growth, develop the competitiveness of the national economy and strengthen its position in regional and global value chains.

The country also launched its “**Green Hydrogen for Sustainable Growth and a Low-carbon Economy in Tunisia**” (**H2Vert. TUN**) project, which is its first concrete commitment to green hydrogen production. The project seeks to improve the framework to develop a value chain based on renewable energy for green hydrogen and its derived products in Tunisia.

Once again as part of Vision Strategy 2035, **Tunisia has launched the “Support for an Accelerated Energy Transition” project**⁸. The project aims to enhance energy efficiency and renewable energy potential. It rests on four pillars: improving energy transition conditions, optimising the energy sector, enhancing private-sector capacity, and promoting innovation. The agreement between the Ministry of Industry, the Société Tunisienne de l'Electricité et du Gaz (STEG) and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) was signed in July 2022 and its implementation is planned over the following three years. This project aims to produce 35% of electricity from renewable sources by 2030, while reducing greenhouse gas emissions by 45% per cent from 2010 levels. Climate change and environmental challenges facing Tunisia and their implications on the national economy, employment, and labour market, as well as the global call for greening economies, were the main drivers that triggered green policy responses in the country. Training, awareness, and education on the environment occupy an important space in the priorities of Tunisia and are a pillar of environmental protection policies. Indeed, a considerable effort has been made in the various social categories to enlighten them on environmental issues at the national, regional, and global levels, while giving special interest to children and youth to involve them in the process of sustainable development and to be able to deliver well-structured green education. Tunisia has an active policy of environment and sustainability training and education. The education programmes also depend on efforts provided by the associative context present on the territory. The

State raises awareness of environmental issues in sectors as varied as health and risk management, energy management, nature protection, and eco-tourism. The perspectives of this policy were in coherence with the orientations of the United Nations Decade for Sustainable Development "2005-2014" and with the International Programme of Education for SD (UNESCO)⁹.

Other programmes under the greening strategy in the educational sector include:

- A broad framework for all partners at Tunisia's national level was set to be contributed through the international plan for the implementation of the **United Nations Decade of Education for Sustainable Development**. As a result, the National Strategy of Education for Sustainable Development was established, which focuses mainly on the following objectives:
- The development of the quality of environmental education by the Ministry of Education;
- Generalisation and development of awareness and communication for sustainable development outside the educational system;
- Establishment of a communication and information system for sustainable development in connection with all relevant actors;
- **Mediterranean Action Plan**, which is a platform for regional cooperation in protecting and enhancing the marine and coastal environment, while promoting sustainable development in the Mediterranean region (in which UfM is part of it);
- **Towards 2030: Agenda for a GreenerMed – Contributing to Achieving the Environmental SDGs in the Mediterranean” (2030GreenerMed)**: an agenda

8 Country assessment report on Tunisia, Transition report 2022-2023, Business unusual, European Bank for Reconstruction and Development, <https://2022.tr-ebrd.com/countries/#> (last access 30 October, 2023).

9 [https://www.unesco.org/en/sustainable-development/education#:~:text=Education%20for%20sustainable%20development%20\(ESD,difficult%20to%20reverse%20every%20day](https://www.unesco.org/en/sustainable-development/education#:~:text=Education%20for%20sustainable%20development%20(ESD,difficult%20to%20reverse%20every%20day).

which was agreed upon by the Member countries of the Union for the Mediterranean agreed on 4 October 2021, while they adopted the 2nd Ministerial Declaration on Environment and Climate Action

- Three axes/components have been identified for this strategy including formal education, raising awareness of greening objectives outside the formal

educational system, and the creation of a plan of action to develop a centre of information for sustainability. (**Ministry of the Environment**, 2016);

- Education for the environment and a sustainable development programme

4.4 Findings and Feedback on Impact of the Existing Framework

"The University has to support the third mission which is to serve the local community and its needs that means that research should be focused on the problems of society."

Mohamed Ben Ahmed Cheikh Larbi, General Director of the University Renovation Directorate Ministry of Higher Education and Scientific Research.

Currently, efforts are ongoing to connect more innovation with the academic system at all levels, and many of these efforts are tied to new opportunities of green innovation with an attempt to increase impact on Tunisian citizens. For instance, Tunisian universities are working to review their training modules and academic offer by introducing the entrepreneurship concept in all training modules and by creating a university foresight unit that can anticipate and help to anticipate the skills needed by the labour market in order to train and equip students with the necessary and required competences.

Nevertheless, the impact of many policies remains limited. According to the **President of the University of Carthage, prof. Nadia Mzoughi**, "the unemployment rate of higher education graduates current-

ly worries us, so we have done what is necessary to understand the situation and have been trying to find solutions. In terms of training, we unfortunately still have outdated pedagogical approaches that no longer fit with the demand for employment in the socio-economic world." This requires more professionalising skills, proven personal skills, and less focus on simply obtaining diplomas.

Unfortunately, up until this point the majority of training offers have been built on a so-called objective-based approach, known not to deliver clearly identifiable skills to either the graduate or the potential employer. On a positive note, however, we should remark that Tunisian universities are progressively acquiring a new strategy centred on the competency-based approach.



4.5 Connecting the Triple Helix with Green Innovation in Tunisia

The green economy is a topic that is increasingly supported by Tunisian programmes of higher education and scientific research and university training. This holds a crucial role in advancing scientific, technological, social, as well as cultural progress in close connection with sustainable development, environmental awareness and their interdependencies and complexities. In Tunisia, sustainability is increasingly at the center of many initiatives on education, research and economic development, as it emerged during the interviews and analysis.

Despite the recent efforts to integrate sustainability and environmental issues in the academic offer, in the light of the triple helix approach, academia encounters spaces that are still limited in terms of open and frank discussions with industry in order to jointly analyse and define the specialisations that must be integrated into higher education systems. In order to do so, policymakers need to work in closer collaboration with the economic world, for example with the Ministry of Vocational Training and economic players, as proposed by the triple-helix methodology. On this front, some progress is mentioned in interviews with stakeholders, such as **Prof. Jilani Lamloumi, General Director of Higher Education Directorate at the Ministry of Higher Education and Scientific Research**, who underlined that Tunisian universities have now entered a new stage transforming from a training phase to a new one focused on research and innovation, which represents a strategic axis for the Ministry of Higher Education and Scientific Research.

As mentioned in the Background section,

the association of Tunisia to the EU's Horizon Europe programme is a considerable policy lever facilitating the integration of global agendas in the national innovation ecosystem, especially as higher education is a major tool for ensuring the green and digital transitions by developing new solutions. Compared to countries with a similar national R&I system, Tunisia's participation in the European framework programme is relatively well placed. Nevertheless, this participation could be much more substantial and would associate Tunisia more closely with the Northern shore of the Mediterranean, if the broader R&I community is involved in EU projects. Having benefited significantly from EU funded projects, one sector should be highlighted in terms of performance of scientific research and promising economic potential in Tunisia, the medical and pharmaceutical research field.

As for the situation of Tunisian research at international level, it is rather well-placed if we consider the number of scientific publications, because according to the GII (Global Innovation Index) 2023¹⁰, Tunisia ranks highest in Human capital and research (46th), Knowledge and technology outputs (50th) and Creative outputs (72nd). It is rather well-placed if we consider the number of scientific publications, Tunisia is ranked 10th among 132 countries in terms of scientific publications / GDP, and 37th in its ability to create knowledge. However, in recent years it must be noted that there has been a certain level of regression in terms of ranking and innovation since it occupies the 73rd position (score = 27.9). In addition, one of Tunisia's

10 Dutta, S., & al, *Global Innovation Index 2022, What is the future of innovation-driven growth?* World Intellectual Property Organization

strong points is its 5th position in the world in terms of the number of trained engineers and science graduates¹¹. The field of skills explicitly targeting the green economy is still unfortunately very marginal, with limited training offers. If graduates are recruited in jobs related to the green economy, the impact of this sectorial training seems to be still rather limited. According to **Mohamed Ben Ahmed Cheikh Larbi, General Director of the University Renovation Directorate**, Ministry of Higher Education and Scientific Research, this requires a new paradigm for capitalising on the green economy, which the Tunisian universities are in the process of putting in place by creating a job and skills repository, which will screen and map the situation and enlighten the design of new training offers on the basis of proven skills.

According to **Prof. Mzoughi, President of University of Carthage**, "innovation can be achieved even before being in a research laboratory, innovation can be achieved at all levels, especially at the university." The Ministry of Vocational Training and the Ministry of Higher Education are the main actors responsible for integrating specialisations that can help to implement ecological transition on the ground. As an example of ongoing activities, representatives from the Ministry of Employment spoke of a small project in the region of Bizerte, which aims to train job counsellors on green jobs by welcoming job seekers who want to invest in green projects.

According to interviewed stakeholders, the green transition is currently an important priority even at the political level, with policymakers insisting on a more effective

coordination between the Ministries of Higher Education, Employment, Industry and Environment to work together on this topic. This drive has spurred several coordination meetings concerning the green transition, resulting in the idea of starting through the introduction of education modules concerning the green transition in the hope of being able to set up training university courses.

Finally, it should be noted what emerged during the roundtable, that research in Tunisia occupies an important space that facilitates the creation of new jobs and accompanies Tunisian society towards a better development from social, political and economic points of view. **Dr. Mourad Bellassoued, Director General of Scientific Research at the Tunisian Ministry of Higher Education and Scientific Research**, highlighted the important role that Tunisia plays and has to play within the international scientific community thanks to highly qualified human capital, and how the employability of graduates and young researchers is becoming a fundamental challenge for socio-economic development, SDGs, in general, and green transition, in particular.

A sentiment shared during the session by **Mahmoud Zouaoui, Chief of Cabinet to the Minister of Higher Education and Scientific Research in Tunisia**, is that Tunisian research needs to be boosted, especially in the field of human and social sciences leading towards a better development of research results, especially in cases where the Country has a clear research agenda, and thereby orientating policies in the future towards the challenge of green transition and innovation.

¹¹ Data and statistics provided by Helmi Mardassi, Director General, Unit for the Management of the European framework programmes for Research and Innovation, Ministry of Higher Education and Scientific Research, Tunisia

4.6

SWOT ANALYSIS

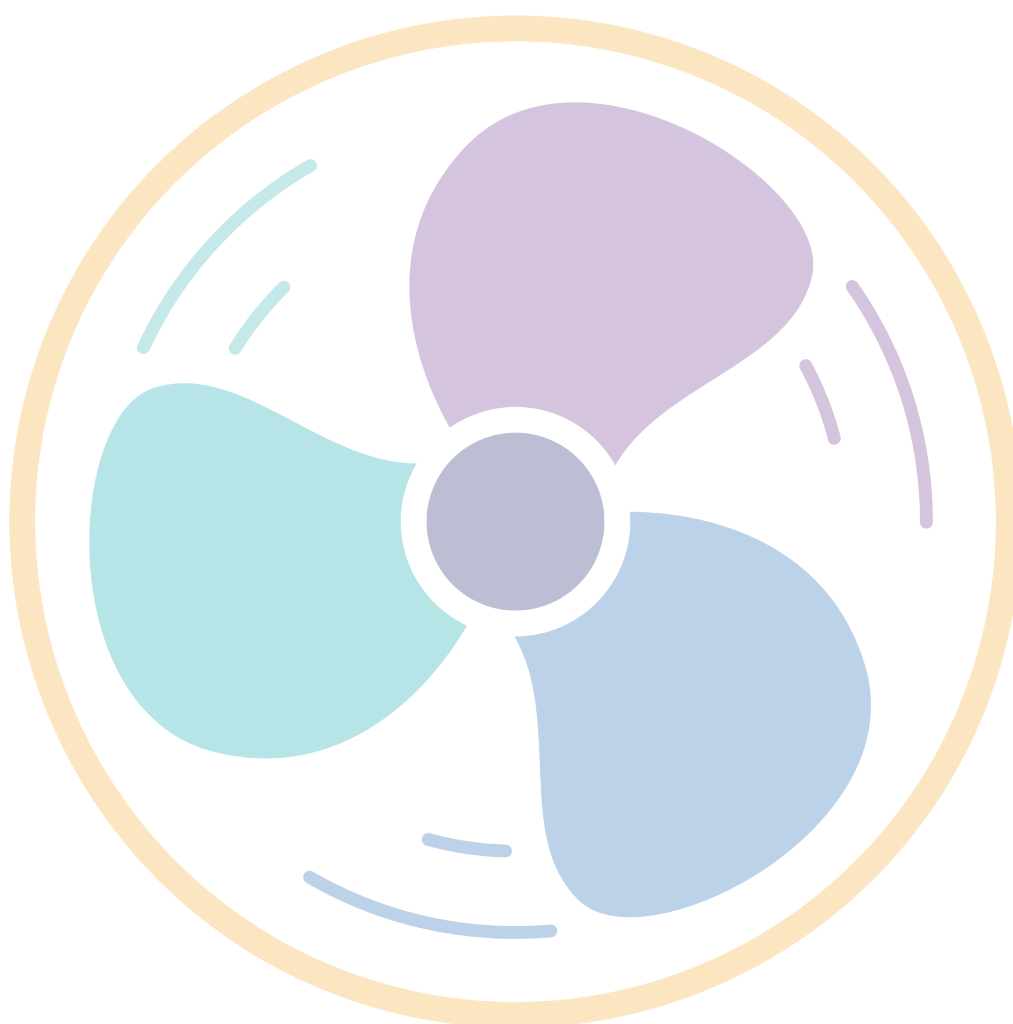
TUNISIA

Internal factors (strengths and weaknesses): Higher Education sector, HEIs and the Ministry of HE and SR, Ministry of Labour and other sectorial Ministries, industries

External factors (opportunities and threats): the national, regional and international context

| Strengths | Weaknesses |
|--|--|
| <ul style="list-style-type: none"> Universities have established cooperation agreements with other Southern Mediterranean countries in the field of research High quality in terms of training curricula and academic offer Legislative framework incentivising financial investment in research, both in the public and private sector Scarce adequacy between green skills and green jobs Strong partnerships between local and international Universities in the field of green transition | <ul style="list-style-type: none"> Relationship between research and industry to be reinforced, especially with local enterprises, with a need to create mutual trust between research laboratories and industries Coordination among actors involved in the implementation of already existing strategies needs to be strengthened Resistance to change and innovation both in the university system and in the industry sector, with teaching methodologies and training to be updated, in connection with labour market needs Research limited to few scientific fields, whereas a broader approach, especially towards sustainability could open to more innovation in the economy Limited funding for research; in particular for infrastructure and equipment Often inefficient relationship between the university and research laboratories Limited autonomy by HEI in managing research funds Limited visibility of research at the international level, despite having one of the strongest performances in the South Mediterranean. |

| Opportunities | Threats |
|---|--|
| <ul style="list-style-type: none"> ■ Geographical position ■ Interest by international stakeholders to cooperate with Tunisia in the field of research and in particular on green issues, such as energy and water ■ Close relationship with the European Union ■ Attraction capacity of Tunisia to Southern Mediterranean countries in the field of transnational research ■ Association to Horizon Europe programme as currently the only Arab country | <ul style="list-style-type: none"> ■ Brain drain and graduate migratory flows ■ Policy uncertainty on long term strategies ■ Slow post-COVID19 economic recovery ■ Difficulties for external mobility of outgoing PhD students and young researchers |



4.7 Country-level Recommendations: Tunisia

With regard to the **government/policy-makers**, what has been stressed by all the interviewed stakeholders from the three sectors of the triple helix was a better achievement of a more coherent and synergic coordination among all the Ministries from the Ministry of Higher Education and Scientific Research, the Ministry of Employment, the Ministry of Industry, the Ministry of Finance and those related Ministries in charge of specific issues such as agriculture, environmental issues etc. As highlighted in the study, the level of **financial incentives for researchers or laboratories to establish partnerships with the private sector could also be increased**.

Within the scope of the PhD schools, what is highly recommended to policymakers is

- a focus on **PhD schools in human and social sciences** because there is the need to boost research in this field. In this field, concrete action and practical recommendation could be the introduction in Tunisian universities of a kind of **industrial doctorate**, such as in the example of Italy, so as to merge the needs of industries with the doctoral offer and related research topics.

With regard to the **university sector**, the country analysis suggests:

- the creation of a foresight unit in which skills and competences are anticipated for future jobs (green jobs) in order to strengthen collaboration between the higher education sector and the economic world towards green transition;
- In addition to the university perspective as well as the **industry sector**, it is recommended that all the training offers be mapped at the national level in order to match what is present as offers

and what is really demanded by the market and society;

- Another important recommendation is to **spread awareness and knowledge about research outcomes among the industry sector**, through cooperation with Ministries and Research centres.

Again, the key actors involved in the study recommended :

- a **reinforcement of networking between the various research laboratories and universities** in Tunisia and at Mediterranean level
- but also a raise in awareness at level of **primary and secondary school** through the clubs that exist in colleges and high schools, through associations, youth associations and civil society, with the aim of increasing knowledge about the green economy.

Again, to create more connections between industry and academia, it is recommended that **industrial representatives** be integrated into the training curricula definition and reviews, in teaching activities and student assessments.

On Tunisian participation in Horizon Europe several strategic measures may be recommended by the Authors, including the following:

- Facilitating the regulatory framework governing the management of European funding;
- Facilitating mobility of researchers who have obtained European projects;
- Establishing substantial incentives for researchers who have successfully participated in these projects;

5 Regional-level Recommendations

The study has analysed the specificities of the three target countries but also found significant common features. This indicates that it could be worthwhile to consider launching a **regional platform** on innovation-employability that could facilitate networking among the universities and academic institutions, starting from the three target countries (Jordan, Italy and Tunisia) by sharing knowledge, good practices, and know-how on green transition. The setting up of a **Network of Mediterranean innovation centers, incubators and start-ups should be envisioned** starting from the experience of the three countries involved in this study, but with the broader aim of targeting the whole Euro-Mediterranean region. Structuring a **multi-country project aimed at sharing practices on green innovation and employability** is recommended by selecting some pilot universities for each target country and a number of industries and companies according to national priorities, so as to apply together an industrial doctorate model not only at the national but also at the regional level.

A series of **training activities** (online and face-to-face) could also be planned on topics related to the major themes of this study by inviting experts from the industry and academia, for example green skills, green jobs, industrial doctorates, etc.

Taking stock of the new UfM Roadmaps on Research and Innovation that focus on topics closely connected to green innovation (climate change, renewable energy, and health), and building on existing research and innovation initiatives such as PRIMA, it is recommended to showcase the potential of green innovation towards employment, economic growth and sustainability by organising as a follow-up action the organ-

isation of a **regional conference** on green innovation. This regional event could be a moment for agreeing among partners and stakeholders from the triple helix about potential actions and projects, selecting those to carry out as a priority. The rationale is to start piloting follow-up initiatives with the aim to extend them to other countries in the Mediterranean region that are interested in green transition.

Other iterations of this pilot study could be replicated and expanded on other UfM Member States, based on the expressed interest of the parties.



6 Conclusions

The Mediterranean region is at a cross-road, facing epochal socio-economic (regional instability, global trade wars and economic stagnation) and climate-related challenges such as water scarcity and environmental degradation. Innovation offers a way of transforming these challenges into opportunities, by unleashing a green transition as a tool against youth unemployment, easing the pressure from scarce natural resources, and overhauling the inefficiency of existing infrastructures.

These challenges will require a new approach on finance mechanisms, public policies and resources for entrepreneurship, but most of all will require continued and reinforced efforts to link education with innovation, the dual needs of jobs markets and sustainability. In short, the role of academia as an actor for the green economy must be made more visible on both shores of the Mediterranean.

Regional challenges need to be dealt with collectively to build a future for young people in the Mediterranean that is prosperous, fair and sustainable for all. On the positive side, the study has highlighted that this process is ongoing and already structured in all the three analysed UFM Member states, with a growing interest in connecting the green transition with the innovation of the economies, and the employability of youth.

The analysis has shown that green policies are more and more embedded in education, innovation and economic development policies in the assessed Countries, with important achievements. Nevertheless, this path towards joining economic growth and sustainability must be strengthened, and we see an important added value for

sectorial dialogue as such being advanced at regional level, as presented in the regional recommendations.

A young and educated population in the Mediterranean can be a powerful drive for change.

The transition to an inclusive, sustainable and green economy requires nothing short of a major, structural transformation of domestic and global economic models. The scale and pace of the change needed and the high level of uncertainty require bold commitments, cooperation, innovation and experimentation across sectors, stakeholders and countries – a fierce challenge with implications well beyond the shores of the Mediterranean.

That is why it is important to renew a call for action: policymakers, industry, academia and civil society need to collaborate and redouble their efforts to address the challenge, despite the sometimes limited impact of policies and tools put in place to improve youth employment outcomes in the region.

The Study has shown the relevance of a regional dialogue among all these actors, each for its field of expertise, from the university to the business world and the policy makers.

Within this context, universities should be responsible actors in their societies as they are directly involved in generating new knowledge, and in teaching and shaping young people to become leaders, entrepreneurs, scientists, professionals, and responsible citizens towards a greener and sustainable economy.

We are still far from the finishing line and this Study has the ambitious goal of being

a building block for those willing to further explore the issue. Other iterations of this pilot study could be replicated and expanded on other UfM Member States and other parts of the EuroMediterranean region, based on the expressed interest of the parties.

In Conclusion, the Authors reiterate the fact of having found among the participating stakeholders a strong commitment to strengthen dialogue and synergies in the

Mediterranean region with all these pivotal players. There is a clear understanding of the importance of supporting universities and research centres in reducing unemployment of graduates and opening new innovative paths to generate income opportunities, while focusing on a green and sustainable development, both at local, national and regional level.

We deem this shared understanding in the region as an appropriate common basis for a way forward.



7 Mapping of existing Good Practices, Policies, Projects and Tools in the field of the Study in Jordan, Italy and Tunisia.

| PHD ITALENTS |
|--|
| Title: PHD ITALENTS |
| Funding Agency: Ministry of Education, Confindustria |
| Countries involved: Italy |
| Date of beginning : 2015 |
| Leader: CRUI (Conferenza dei Rettori delle Università italiane) |
| Type of initiative : National |
| Abstract: PhD Italents is a project managed by CRUI (Conferenza dei Rettori delle Università italiane), on behalf of the Ministry of Education, in partnership with Confindustria, the most important employer organisation in Italy. The project aims to facilitate connections between universities and the private sector by supporting PhD students to work in companies and carry out innovative research projects. The employment contract of PhD students is co-financed for three years by the project (80% the first year, 60% the second year, 50% the third year). The private sector is required to make a co-financing contribution to meet the funding gap of 20% in year 1, 40% in year 2 and 50% in year 3. Each company participating receives EUR 30,000 - 35,000, with variations reflecting the fact that the scheme supports a diversified programme. Confindustria co-funds up to EUR 30,000 annually. |
| Keywords Private sector, PhD students, companies, innovative research projects |
| Reference https://www.phd-italents.it/ x- |

TUNED: TUNISIAN NETWORK FOR EMPLOYABILITY AND DEVELOPMENT OF GRADUATES' SKILLS

Title: TUNED: TUNISIAN NETWORK FOR EMPLOYABILITY AND DEVELOPMENT OF GRADUATES' SKILLS

Funding Agency: European Union, Erasmus Plus programme Capacity Building for Higher Education

Countries involved: Tunisia

Date of beginning : 2016

Leader: AlmaLaurea

Type of initiative : national

Abstract:

Modernising and developing the Higher Education sector within society, strengthening the relations between university and enterprises and improve quality. The project uses a graduate database to create an integrated demand supply matching model.

Keywords :

TUNISIA

INIZIATIVA NAZIONALE – MINISTERO HE

Programme & partner countries: Tunisia

Start: 2016

Modernising and developing the Higher Education sector within society, strengthening relations between universities and enterprises and improve quality. The project uses a graduate database to create an integrated demand supply matching model.

Reference

<http://www.tuned-project.eu/>

EBSOMED: ENHANCING BUSINESS SUPPORT ORGANISATION AND BUSINESS NETWORKS IN THE SOUTHERN NEIGHBOURHOOD

Title: ENHANCING BUSINESS SUPPORT ORGANISATION AND BUSINESS NETWORKS IN THE SOUTHERN NEIGHBOURHOOD

Funding Agency: European Union

Countries involved: Tunisia

Date of beginning : 2016

Leader: BUSINESMED (Union of Mediterranean Confederations of Enterprises)

Type of initiative : national

Abstract:

EBSOMED is a project co-financed by the European Union and coordinated by BUSINESMED (Union of Mediterranean Confederations of Enterprises) as part of a consortium of six partners. More than thirty organisations from 26 countries are also affiliated to the project. The ultimate goal of this 4-year project is to promote the Mediterranean Business Ecosystem by boosting investment and job creation in the region with a view to economic growth by strengthening capacity building of Business Support Organisations (BSOs) in the Southern Neighbourhood Countries.

Keywords :

ecosystem, job creation, business support organisations (BSOs)

Reference

<http://ebsomed.eu>

THE NEXT SOCIETY

Title: The Next Society

Funding Agency: EU

Countries involved: Algeria, Egypt, **Jordan**, Lebanon, Morocco, Palestine, **Tunisia**

Timeframe: 2017-2020

Leader: ANIMA

Type of initiative : regional

Abstract:

The Next Society is an open community of changemakers, entrepreneurs, investors, corporates, NGOs, public and private innovation, research, and economic development hubs from Europe and seven Mediterranean countries: Algeria, Egypt, Jordan, Lebanon, Morocco, Palestine and Tunisia. It aims at mobilising, promoting and reinforcing innovation ecosystems and economic development in the MENA region. The Next Society believes in Reverse Innovation, the capacity of innovators from emerging countries to come up with solutions to contemporary challenges that can inspire the rest of the world, by supporting South Mediterranean innovators who develop local solutions with a global reach or which allow to skip a generation in terms of use or technology. The key objectives of the programme are:

- Improve policy frameworks
- Foster start-up successes
- Promoting and internationalising clusters
- Accelerate technology transfer towards the enterprise

Keywords :

start-up, technology transfer, entrepreneurs, policy, clusters

Reference

<https://www.thenextsociety.co/>

Mediterranean Entrepreneurship Network

Title: Mediterranean Entrepreneurship Network

Countries involved: Morocco, Tunisia

Timeframe: 2015-2018

Type of initiative : regional – UfM labelled project

Abstract:

The Mediterranean Entrepreneurship Network provides mentoring and support to those starting new businesses with entrepreneurial potential. The project's ultimate goal is to generate long-lasting employment in the region.

The project seeks to support the creation of entrepreneurship network (réseau entreprendre) business associations in Morocco and Tunisia to provide mentoring to those starting a new business. Through this project, experienced entrepreneurs will volunteer to personally mentor the new entrepreneurs for their first 2-3 years in monthly meetings. Financial support will also be provided through interest-free, unsecured loans, repayable over 5 years, thereby allowing entrepreneurs to consolidate their equity capital.

The overall objective of the project is to support the development of existing associations in Tunisia and Morocco and the creation of 13 new entrepreneurship network associations in these countries. The associations are expected to contribute to the creation of more than 450 companies by 2017, 3,000 new jobs after 3 years of operation and approximately 5,000 jobs after 5 years of operation. This project model is promoted by Réseau Entreprendre International (REI), which has proved to be very successful in France, contributing to the creation of 7,600 companies and some 70,000 jobs since its launch.

The Mediterranean Entrepreneurship Network project (Réseau Entreprendre en Méditerranée, in French) forms part of the Mediterranean Initiative for Jobs (Med4Jobs). Developed by the UfM Secretariat, this initiative helps to increase the employability of women and young people, close the gap between labour demand and supply, foster a culture of entrepreneurship and boost private sector development.

Keywords :

employability, entrepreneurial culture, network

Reference

<https://ufmsecretariat.org/project/med-entrepreneurship-network/>

Maharat MED project

Title: Maharat MED Project

Funding Agency: EU

Countries involved: Jordan, Palestine, Egypt and Morocco

Timeframe: 2015-2017

Leader: Business Development Centre (BDC) in Jordan

Type of initiative : regional

Abstract:

The Maharat MED project aimed to develop an entrepreneurial spirit in young people, transforming job seekers into job creators who are able to increase employment opportunities.

Developed by the Business Development Centre (BDC) in Jordan and in line with the UfM's flagship Mediterranean Initiative for Jobs (Med4Jobs), the Maharat MED project encouraged employability projects in Jordan, Palestine, Egypt and Morocco.

Initially, the Maharat MED project was created to address a major challenge facing Jordanian youth: unemployment. To address this challenge, Maharat MED bridged the gap between the output of education systems and labour-market requirements. Given the internationally recognised success of the programme in Jordan, the BDC garnered the support of the Med4Jobs Initiative and was able to work with other Mediterranean countries facing the same challenges, where they were able to replicate the Maharat MED project.

The project tackled the problem of unemployment from the point of view of both demand and supply – it trained students to be ready for future work and it helped them to start their own businesses. The project was built around four pillars: employment (building knowledge and practical skills), entrepreneurship, education (implementing Maharat in vocational schools, community colleges and universities), and engaging Maharat beneficiaries in social work and community service activities. The private sector was involved in the whole process, particularly in the training activities. Furthermore, the regional scope of the project encouraged the exchange of good practices and expertise across the countries.

Keywords :

employability, university, social work, youth, sharing experiences

Reference

<https://ufmsecretariat.org/project/maharat-med/>

The Economic Development Through Inclusive and Local Empowerment (EDILE)

Title: EDILE project

Funding Agency: EU - ENPI CBC MED programme

Countries involved: Jordan, Tunisia.

Timeframe: 3 Years

Leader: ANIMA

Type of initiative : regional

Abstract:

The Economic Development Through Inclusive and Local Empowerment (EDILE) project is aimed at improving the quality of investment projects and their local impact, which in the past has not always fulfilled expectations in projects in the Southern Mediterranean, with local economic benefits remaining limited and negative impacts on the environment sometimes underestimated.

The main targets are public and private organisations dealing with investment and economic development: agencies, ministries, business support organisations, finance institutions. EDILE provides these stakeholders with a set of tools allowing them to assess investment projects in terms of economic, social, environmental and governance impact.

This makes it possible to compare projects in order to offer advantages to the best performers on the basis of tangible and objective criteria, for example through incentives, technical assistance, financial support, or the awarding of a label. Businesses can also use EDILE to assess their projects and improve their local impacts.

The first phase of the project, implemented within the framework of the ENPI CBC MED programme financed by the European Commission from 2013 to 2017, allowed for the development of a methodological guide for project evaluation and a rating method based on pilot implementation in Tunisia and Lebanon. ANIMA now promotes this approach in the Euro-Mediterranean region thanks to events, training and webinars.

Keywords :

investments projects, BSO, finance institutions

Reference

<https://ufmsecretariat.org/project/edile/>

Euromed Clusters Forward

Title: Euromed Clusters Forward

Funding Agency: co-financed at 90% by DG NEAR, EU

Countries involved: Algeria, Egypt, Jordan, Lebanon, Morocco, Palestine and Tunisia

Timeframe: 2022-2026

Leader: ANIMA

Type of initiative : regional

Abstract:

Clusters are defined as groups of firms, related economic actors and institutions located near each other and with sufficient scale to develop specialized expertise, services, resources, suppliers and skills. The overall objective is to empower clusters to promote inclusive innovation and competitiveness in the South Neighbourhood region in order to enhance growth, economic diversification, sustainable development and employment.

Keywords :

Cluster, firms, empowerment, economic growth, skills

Reference

<https://south.euneighbours.eu/project/euromed-clusters-forward/>

RESET - RESults Enabling Transitions: mapping, synthesising and mainstreaming sustainable, green and circular business support achievements in the MED region, for replication and policy-making

Title: RESET - RESults Enabling Transitions: mapping, synthesising and mainstreaming sustainable, green and circular business support achievements in the MED region, for replication and policy-making.

Funding Agency: ENI CBC MED

Countries involved: Spain, Lebanon, Italy, Palestine, Tunisia

Timeframe : 2021 - 2023

Leader: Spain

Type of initiative : International

Abstract:

In recognition of the accelerating crises in the Mediterranean in employment and the environment, there are various calls for action to create a sustainable and inclusive economy that 'works for everyone'. As the region accelerates towards developing and implementing measures for a sustainable green transition, RESET aims to facilitate economic and social development by supporting the creation of sustainable and green businesses. The project will gather, analyse and synthesise learning regarding 'what works' within the field of sustainable and green business support, and seeks to upstream this knowledge effectively. It will support local, national and regional stakeholders to make use of this knowledge to create strategies, policies and regulations to stimulate the green economy. RESET targets seven Mediterranean countries and will address the whole enabling eco-system – from EU projects, local initiatives and policies to national and regional policies and regulations – to capitalise on knowledge related to training, advice, networking services, access to funding and markets, as well as Intellectual Property Rights (IPR) protection, with a focus on women and youth inclusion.

Keywords :

Start-ups and recently established enterprises; Business and SMEs development

Reference

<https://www.enicbcmmed.eu/projects/reset>

MYSEA “MYSEA - Mediterranean Youth, NEETs and women advancing Skills, Employment and Awareness in the blue and green economy”

Title: MYSEA “MYSEA - Mediterranean Youth, NEETs and Women Advancing Skills, Employment and Awareness in the Blue and Green Economy” Employment and Awareness in the blue and green economy”

Funding Agency: ENICBC MED

Countries involved: Italy, Greece, Lebanon, Tunisia, Jordan

Timeframe : 2020 - 2023

Leader: Italy

Type of initiative : Euro-Med

Abstract:

Given the demographic changes, skill mismatches, rigid regulations, gender gaps and persistence of certain socio-cultural norms, the Euro-Mediterranean region faces high unemployment rates of youth, mainly NEETs, and women are underrepresented in the labour market. The growing proliferation of sustainable and eco-responsible innovations in the agri-food and waste management sectors requires new occupational profiles. To achieve this goal, MYSEA aims, from one side, to identify existing and emerging skills and professional needs through oriented training, coaching and mentoring, and from the other side, to involve Technical and Vocational Education and Training (TVET) institutions and enterprises encouraging sector-skills alliances through apprenticeship, traineeship and on-the-job training. The project will result in opportunities for young women and NEETs to apply the soft and hard skills learned during the training period and offer a platform to exchange experiences and implement national employment schemes in favour of youth employment.

Keywords :

Professionalization of young people (NEETS) and women

Reference

<https://www.enicbcmed.eu/projects/mysea>

CApitalisation for Re-setting Innovation and Sustainability in MED-Cities

Title: CApitalisation for Re-setting Innovation and Sustainability in MED-Cities

Funding Agency: ENICBC MED

Countries involved: Palestine, Greece, Spain, Italy, Tunisia, Jordan

Timeframe : 2021 – 2023

Leader: Palestine

Type of initiative : Euro-Med

Abstract:

CARISMED promotes the uptake of results achieved by 3 ongoing ENI CBC MED projects to develop policies for improving sustainability and integrating innovation into the urban settings of Mediterranean cities, through the capitalization of circular economy (CE) and creative approaches. A great deal of experience in re-setting the existing environment will be provided by these projects through refurbishing and re-using underutilized or abandoned urban stock. Towards a more sustainable and smart urban development, a low-cost Adaptive Reuse Strategy will use MAIA-TAQA innovation practices and interlinks with policy-makers, and INNOMED-UP model for CE procedures within Cultural Creative Industry (CCI) SMEs. CE supply chain will address urban challenges while creating business opportunities for SMEs by using INNOMED-UP model and SME4SMARTCITIES smart tools and techniques through 'ready to deploy' solutions. Cooperation agreements among cluster members will be further built up to enhance collaborative innovation schemes based on MAIA-TAQA policy instruments, SME4SMARTCITIES framework for collaboration between the public and private sector, and INNOMED-UP framework for CCI SMEs clustering. Finally, the project will promote innovative methodologies for re-setting the built environment in Mediterranean cities by developing a toolkit and guide on upcycling buildings and areas through CCI SMEs clustering.

Keywords :

SMEs access to research and innovation; Support to education, research, technological development and innovation

Reference

<https://www.enicbcmed.eu/projects/carismed>

GREEN-skiLLs for a sustAiNable Development

Title: GREEN-skiLLs for a sustAiNable Development

Funding Agency:

Countries involved: Italy, Lebanon, Jordan, Egypt, Palestine, Portugal, Greece

Timeframe : 2020 – 2023

Leader: Italy

Type of initiative : Euro-Med

Abstract:

The Mediterranean area suffers from extremely high rates of youth and female unemployment. To face this challenge, GREENLAND promotes social inclusion and fight against poverty by providing unskilled and underprivileged young people with marketable skills in the Green and Circular Economy, with the potential to generate thousands of jobs. To reach its objective, the project will create new curricula based on market needs, skills transfer to NEETs and women, media-based training tools, and cultural exchanges among young people. The creation of new employment opportunities will be reinforced by the sector-skills alliances between TVETs and SMEs.

Keywords :

Professionalization of young people (NEETS) and women, Green skills

Reference

<https://www.enicbcmed.eu/projects/greenland>

Plateforme des Emplois Verts

Title: PEV-Plateforme des Emplois Verts

Funding Agency: Bureau des Nations unies pour les services d'appui aux projets

Countries involved: Tunisia

Timeframe : 2016-2019

Leader: Tunisia

Type of initiative : National

Abstract:

The PEV project is designed to support the government's efforts to increase the employability of young people and support development in the green economy sector. It proposes to act as an interface between administrative structures and young unemployed graduates, on the one hand, and players in the green economy sector on the other.

The project plans to intervene in a number of areas, including in particular:

- The development of an innovative methodology to provide individualised support to young graduates looking for work
- The development of a financing framework to facilitate access to credit for young entrepreneurs
- The development of national and international partnerships to promote green jobs
- The creation of a virtual platform facilitating exchanges between stakeholders in the green economy.

Keywords :

Employability, green skills, green economy.

Reference

<https://jamaity.org/project/plateforme-emplois-verts/#:~:text=Le%20projet%20PEV%20se%20propose,dans%20la%20r%C3%A9gion%20de%20Bizerte>

JEUN'ESS (Projet de Promotion de l'Economie Sociale et Solidaire et de Création d'Emploi Décent pour la Jeunesse Tunisienne)

Title: JEUN'ESS (Projet de Promotion de l'Economie Sociale et Solidaire et de Création d'Emploi Décent pour la Jeunesse Tunisienne)

Funding Agency: Organisation Internationale du Travail (OIT)

Countries involved: Tunisia

Timeframe : 2019 - 2024

Leader: Organisation Internationale du Travail (OIT)

Type of initiative : National

Abstract: Unemployment among young graduates, particularly in interior regions, is the main problem in Tunisia after the revolution. In addition to the unemployment issue, there is a regional imbalance in terms of economic, social and environmental development.

The Tunisian Government and its partners regard the creation of decent jobs, in particular for young men and women in disadvantaged regions, as a central priority and as an engine of economic growth and development, as well as social peace.

However, economic difficulties and the slowing down of the production apparatus have considerably reduced the capacity of the private sector to create new employment opportunities. In this situation, the promotion of self-employment through individual or collective entrepreneurship has the potential to significantly reduce unemployment among young people, including in the informal economy.

It is in this context that the social and solidarity economy (SSE) has been identified by the Tunisian government and the social partners as a sector having significant potential to reduce social inequalities, promote inclusion, create jobs, wealth and a path to the formal economy.

Development objective:

The promotion of decent work for young people through the SSE.

Specific objectives:

Improvement of knowledge on the SSE value chains and the characteristics of the informal economy at regional level

Capacity building of SSE support organizations

Creation of decent jobs at local level through the SSE in six governorates

Improving the working conditions of workers in the informal economy through the SSE

Keywords : Employability, social innovation, sustainable development.

Reference: <https://redstart.tn/programme-jeuness/>

CLUSTER – advanCing youth and women social-inclUSion in The MEditeRanean

Title: CLUSTER – advanCing youth and women social-inclUSion in The MEditeRanean

Funding Agency: ENI CBC MED

Countries involved: Spain, Italy, Cyprus, France, Jordan, Palestine, Tunisia

Timeframe : 2021-2023

Leader: Spain

Type of initiative : Euro-Med

Abstract: The economic hardships following the COVID-19 pandemic have heavily affected employment opportunities in the Euromed region, raising numbers of citizens at risk of poverty and social exclusion. The most vulnerable groups – young people and women – are facing, as a result, serious socio-economic challenges. Moreover, changing labour market demands and the growing importance of diversifying and investing in Sustainable Economy sectors to better cope with future economic and climate crises require reskilling or upskilling young people as part of an effective response to such challenges.

Against this backdrop ground, CLUSTER adapts a multi-actors, integrated and regional approach, and aims to create a supportive environment for youth/women employment schemes, by equipping NEETs (Not in Education, Employment, or Training), in particular women, between 18-30 years of age, with employability skills in the Blue Economy, Circular Economy, Green Economy and Sustainable Agriculture sectors, promoting long-lasting partnerships between Technical and Vocational Education and Training (TVET) institutions and the private sector, and raising the awareness of public authorities and policy-makers.

The overall objective of CLUSTER is to tackle social exclusion and poverty amongst vulnerable groups in Cyprus, France, Italy, Jordan, Palestine, Spain, and Tunisia by capitalising on results of previous projects and equipping NEETs and women with marketable skills in the Sustainable Economy sectors. To that end, CLUSTER seeks to: Facilitate access to the labour market for NEETS, in particular women, through targeted online and on-site training courses and coaching and tutoring activities, based on innovative models of intervention, developed following needs assessment and combining successful experiences.

Encourage partnerships between TVET Institutions, SMEs and professional sector stakeholders operating in the Sustainable Economy sectors through local, regional and cross-border exchange, networking practices and best practices sharing initiatives.

Engage public institutions and policy-makers in providing supportive environment and implementing youth/women employment schemes, through Action Plans, policy-oriented regional reports and advocacy sessions at the Euromed level.

Keywords : Reskilling of youth, supportive environment, Action Plans.

Reference: <https://south.euneighbours.eu/project/cluster-advancing-youth-and-women-social-inclusion-mediterranean/>

Youth Employment in the Mediterranean (YEM)

Title: CLUSTER – advancing youth and women social inclusion in The Mediterranean

Title: Youth Employment in the Mediterranean (YEM)

Funding Agency: European Union

Countries involved: Algeria, Israel, Jordan, Lebanon, Libya, Morocco, Palestine and Tunisia

Timeframe : 2018-2020

Leader:-

Type of initiative : Regional

Abstract: The overall objective of YEM is to support national authorities, together with the private sector, the TVET providers and the youth organisations in the South Mediterranean region, in understanding and anticipating labour market changes with a view to inform the design, implementation and evaluation of relevant TVET policies, strategies and programmes, aimed at increasing youth employment and entrepreneurship.

For all beneficiary countries, the focus of YEM is to promote the implementation of effective collection and use of information on skills needs, to turn them into relevant policy actions and programmes, and to help establish appropriate governance arrangements to ensure good coordination across the key stakeholders, both within the beneficiary countries and across the South Mediterranean region.

The three specific objectives of the project are:

- To reinforce capacities of countries in the South Mediterranean region in assessing and anticipating the labour market demands and in sharing and using the results to make informed TVET policy and programme decisions;
- To use the results of skills assessment and forecasting to promote quality TVET pathways through work-based learning and entrepreneurship, digital skills acquisition and enhancing of gender equality;
- To reinforce regional cooperation in the field of TVET with a particular focus on skills assessment and anticipation of issues in the Mediterranean region.

Keywords : Employability, labour market needs.

Reference: <https://en.unesco.org/themes/skills-work-and-life/yem/about>

CREACT4MED (CReative Entrepreneurs ACTing FOR the future MEDiterranean)

Title: CREAT4MED (CReative Entrepreneurs ACTing FOR the future MEDiterranean)

Funding Agency: European Union

Countries involved: Tunisia, Palestine, Morocco, Lebanon, Israel, Jordan, Egypt, Algeria

Timeframe : 2020 –2024

Leader: Euro-Mediterranean Economists Association - EMEA

Type of initiative : Med countries/Regional

Abstract:

The ultimate aim of the CREAT4MED project is to contribute to the growth of cultural and creative entrepreneurship in the Mediterranean, and thereby to the realisation of sustainable economic development in the region. It seeks to strengthen cultural and creative industries (CCIs) in the Mediterranean, supporting entrepreneurs, start-ups and Small and Medium-sized Enterprises (SMEs), with a particular focus on young people and women.

The specific objectives of the project are to:

- Boost CCI businesses and entrepreneurship in the Southern Mediterranean, increasing the capacity of CCI to attract investment, create jobs and foster inclusive economic growth.
- Empower current and potential entrepreneurs, in particular young people and women, to start or grow CCI businesses through tailored training and financing opportunities.
- Establish a regional CCI hub to bring together actors from North Africa, the Middle East and Europe, strengthening networking, exchanges and cooperation in the sector across the Mediterranean.

Keywords : Entrepreneurship, skills development.

Reference: <https://creativemediterranean.org/>

U- Solve Urban sustainable development SOLutions Valuing Entrepreneurship

Title: Urban sustainable development SOLutions Valuing Entrepreneurship

Funding Agency: ENI CBC MED

Countries involved: Italy, Greece, Cyprus, Jordan, Palestine, Egypt

Timeframe : 2020-2023

Leader: Italy

Type of initiative : Euro-Med

Abstract:

The implementation of the United Nations 'Sustainable Development Goals' in urban areas is of crucial importance to make our cities sustainable, livable and resilient over the long term. Vibrant entrepreneurial ecosystems can bring a valuable contribution in designing innovative solutions that have a positive impact against the negative effects of climate change. To ensure potential entrepreneurs, especially young people, can turn ideas into actual businesses, an enabling ecosystem, supported by public authorities, is needed. U-SOLVE intends to enhance support to young entrepreneurs in urban areas with focus on the environment and sustainable development. The project will create experimental pathways for place-based strategies, suitable for the Mediterranean countries, where the entrepreneurial energy is oriented towards sustainable and integrated territorial development.

Keywords : Sustainable development, entrepreneurship.

Reference: <https://usolve-project.eu/home>

Promoting innovative clusters and value chain of SMEs for sustainable development CLUSTER4GREEN

Title: Promoting innovative clusters and value chain of SMEs for sustainable development - CLUSTER4GREEN

Funding Agency: ENI CBC MED

Countries involved: Italy, France, Spain, Egypt, Tunisia, Lebanon, Jordan

Timeframe : 2021-2023

Leader: Italy

Type of initiative : Euro-Med

Abstract:

The creation of economic opportunities through the promotion and development of the Mediterranean circular economy is the essence of CLUSTER4GREEN. In a vast part of the region, the leverage potential of circular economy is still lagging, deeply affecting the capacity of green sectors to generate wealth and jobs. CLUSTER4GREEN will take on the legacy of several previous projects that paved the way for the adoption of sustainable models of development, based on the circular concept, in industries like textile, building or smart cities. It will continue the green path with the generation of a “Common MED Circular Economy Programme” aimed at supporting both the green entrepreneurs and the local authorities responsible for the creation of an adequate green business environment. Innovative and sustainable business models will be elaborated and presented to a wide number of enterprises during specific training and assistance activities. As a final step on the green way, sustainable investment alliances will be established forging Public-Private Partnerships at national and international scale: as a result, the project will contribute to the “greening” of several Mediterranean industrial sectors at pilot level.

Keywords : Green jobs, green skills, employability.

Reference: <https://www.enicbcmmed.eu/projects/cluster4green>

INVESTMED - InNoVative Sustainable sTart-ups for the MEDiterranean

Title: INVESTMED - InNoVative Sustainable sTart-ups for the MEDiterranean

Funding Agency: ENI-CBC Med

Countries involved: Tunisia, Spain, Lebanon, Greece, Italy, Egypt

Timeframe : 2020- 2023

Leader: Tunisia

Type of initiative : Euro-Med

Abstract:

On the one hand, Mediterranean MSMEs face important challenges in terms of competitiveness, sustainability, internationalization and capacity to innovate which call for new solutions to ensure their growth and continued existence. On the other hand, greening the economy and enhancing natural assets can provide both economic and environmental benefits in the Mediterranean region. On this basis, the INVESTMED project aims at addressing both economic and environmental challenges, supporting new, sustainable business opportunities for young people and women in three countries: Egypt, Lebanon and Tunisia. INVESTMED is set to positively impact both MSMEs, which staff will be trained and coached to become more competitive, and public authorities, which capacities to facilitate access and protect Intellectual Property Rights (IPR) to MSMEs will be reinforced.

Objectives:

- Create a supportive environment for sustainable businesses led by young and women entrepreneurs via targeted capacity-building, coaching and mentoring and actions facilitating access to risk capital.
- Facilitate access to new markets for MSMEs/start-ups/recently established enterprises with youth or women in managerial positions through financial and capacity-building support services.
- Increase capacities of public authorities to facilitate access to and protect Intellectual Property Rights (IPR) and commercial contracts of youth and women entrepreneurs via IPR campaigns, a capacity building programme and meetings with stakeholders in order to facilitate reviews of IPR laws and regulations.

Keywords : Green jobs, sustainable development

Reference: <https://www.enicbcmed.eu/projects/investmed>

INTECMED Incubators for innovation and technological transfer in the Mediterranean

Title: INTECMED Incubators for Innovation and Technological Transfer in the Mediterranean

Funding Agency: ENI CBC MED

Countries involved: Greece, Spain, Tunisia, Egypt

Timeframe : 2020-2023

Leader: Greece

Type of initiative : Regional /Euro-Med

Abstract:

Although participating regions of the INTECMED project are heterogeneous in terms of innovation, they do share a common challenge: overcoming the obstacle of different actors working with innovation at local level to coordinate their actions and find synergies. For this reason, INTECMED aims to develop an integrated innovation ecosystem at the local level to support technological transfer and commercialisation of research results. The project will use the methodology of Business Ready Innovation Mechanism (BRIM) to develop a shared vision of how to build start-ups overcoming inexperience and gap between academic knowledge and business development. This methodology will be implemented by creating regional alliances, facility points, mentorship programmes and innovation exhibitions, where investors and innovators have the opportunity to exchange their ideas and business opportunities. Through mentorship, skills development in business planning, the commercialisation of research results of at least 48 entrepreneurs and researchers will be fostered and at least 4 new spin-offs will be launched.

Keywords : Research, Technological development and innovation

Reference: <https://www.enicbcmmed.eu/projects/intecmed>

INNOMED-UP Promoting UPcycling in Circular Economy through INNovation and education for creative industries in MEDiterranean cities

Title: INNOMED-UP Promoting UPcycling in Circular Economy through INNovation and education for creative industries in MEDiterranean cities

Funding Agency: ENI CBC MED

Countries involved: Greece, Italy, Tunisia, Palestine, Jordan

Timeframe : 2019-2023

Leader: Greece

Type of initiative : Euro-Med

Abstract:

Mediterranean cities face the issue of overwhelming waste production demanding effective and urgent actions. Circular economy principles may offer a solution to this problem. As generally recognised that a noticeable percentage of waste in city centres is produced by Cultural and Creative Industries (CCIs), their involvement in circular economy schemes is of great importance. Although there are disparities between cities in the North and the South of the Mediterranean area, they share common cultural characteristics. Therefore, by building on their common identity and by integrating into their productive schemes the principles of the circular economy, Mediterranean cities can create resilient urban environments and communities, establishing a supportive framework for CCI SMEs clustering. INNOMED-UP proposes working with CCIs to shift local urban economies towards a circular production and consumption paradigm including optimal use of material resources, innovation enhancement for SMEs, knowledge transfer among cities, social inclusion and citizens' engagement. The project will work at a cross-border level supporting both technological developments (such as modern procedures of upcycling, technological informative platforms, etc.) and traditional recycling practices.

Keywords : Industry, Innovation, knowledge transfer

Reference: <https://www.enicbcmmed.eu/projects/innomed-up>

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Authors' profiles

Raniero Chelli

Active since 1985 in European projects (mainly in RTD, training and international cooperation), as a Commission Official (ESPRIT Programme 85-88), Project Manager, Project Design specialist, Evaluator and reviewer, Quality assurance manager, National Delegate in IST management Committees and as a trainer on EU programmes and funding. He is currently the Coordinator of EU project at UNIMED, to facilitate access to EU funding by identifying appropriate calls for proposals, helping them in setting up successful proposals and consortia, and where applicable, supporting the management of selected projects with a particular emphasis on Quality Assurance. Over the years, he has managed more than 10 significant projects funded by the European Commission through R&D Framework Programmes, TEMPUS, Erasmus+ and Euromed Heritage and he has consequently acquired an outstanding experience in managing large and complex international publicly funded projects, especially as regards the planning the activities of a highly diversified consortia, conflicts resolution and administrative matters.

Caterina Gravina

Caterina Gravina holds a Bachelor's degree in Modern Languages and Cultures and a Master's degree in Languages and Literatures, with a focus on the Euro-Mediterranean area, from the University of Catania. Caterina joined UNIMED in 2022 for a curricular internship in the framework of her Master's course in Eastern Languages and Cultures, with a final dissertation on a European Funded Project on the Governance of the HEIs in Iraq region, at IULM University in Rome. She now works as Assistant Project Manager.

She is also in charge of the dissemination of projects focusing on sustainable development, digital education and governance of HEIs. She speaks Italian, English, Arabic and French and she has some knowledge of Spanish.

Silvia Marchionne

Silvia Marchionne holds a Postgraduate Master Degree in International Cooperation and Development, with a focus on Middle East and North Africa region, a Master Degree in Arabic Language and Islamic Studies at the L'Orientale University of Naples, and a Bachelor Degree in Languages and Intercultural Communication. Part of the UNIMED team since 2013, she works within UNIMED in the International Projects and Networking Team as Senior Project Manager. She gained experience in research activities and analysis for Euro-Mediterranean and international projects, in proposal writing and in projects management (with a particular focus on governance of higher education, internationalisation and employability issues in the MENA region). Furthermore, she acted as external consultant for the World Bank programme "University Governance and Quality Assurance of Higher Education in the MENA region" focusing her research activity on Algeria, Tunisia and Iraq. She speaks Arabic, English, and French fluently. Currently she is PhD student in Internationalisation of higher education at the Centre for Higher Education Internationalisation at University of Cattolica in Milan.

