

Blue skills Skill Development and Circulation of Talents in the Blue Economy sector

Mounir Ghribi, Ph.D.

Director, ICAP

National Institute of Oceanography and Applied Geophysics (OGS)

<http://bluegrowth.inogs.it/>



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New skills to feed new jobs



65% of children entering primary school today will ultimately end up working in completely new job types that don't yet exist.



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Automation and the new world of work

Occupation

Probability of massive reduction of occupation by 2030

Telemarketers	99%
Accountants & Auditors	94%
Retail Salespersons	92%
Real Estate Sales Agents	86%
Structural Iron and Steel Workers...	83%
...	...
Machinists	65%
Audio and Video Technicians	55%
Taxi drivers/drivers	55%
...	...
Firefighters	17%
Chemical Engineers	2%
Music Directors and Composers	1.6%
Marine Engineers - Naval Architects	1.0%
Clergy	0.8%
Athletic Trainers	0.8%
Dentists	0.7%
	0.4%
...	...



Source: Bureau of labor statistics, the Future of Employment (Frey & Osborne, 2013)



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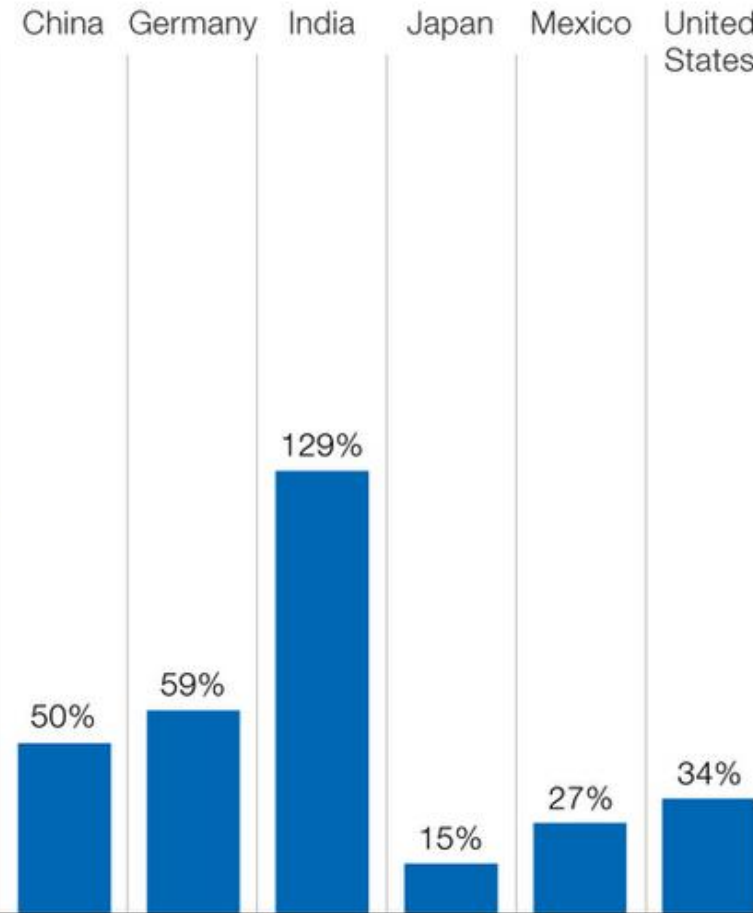
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Trend vs.
technological
progress



Technology professionals

Includes: Computer engineers, computer specialists

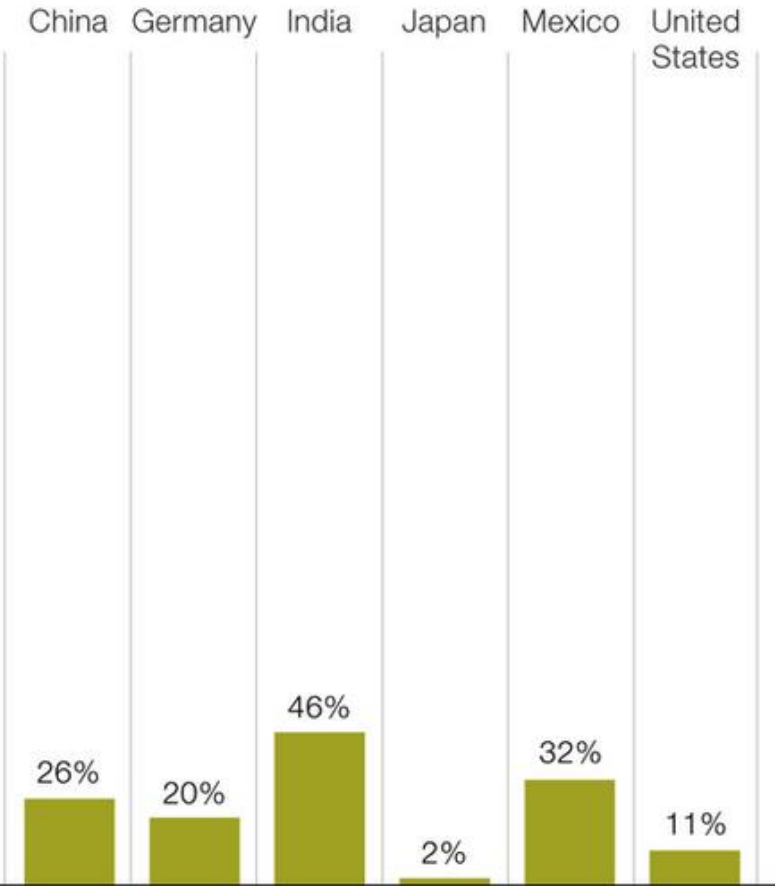


Trend vs. societal challenges

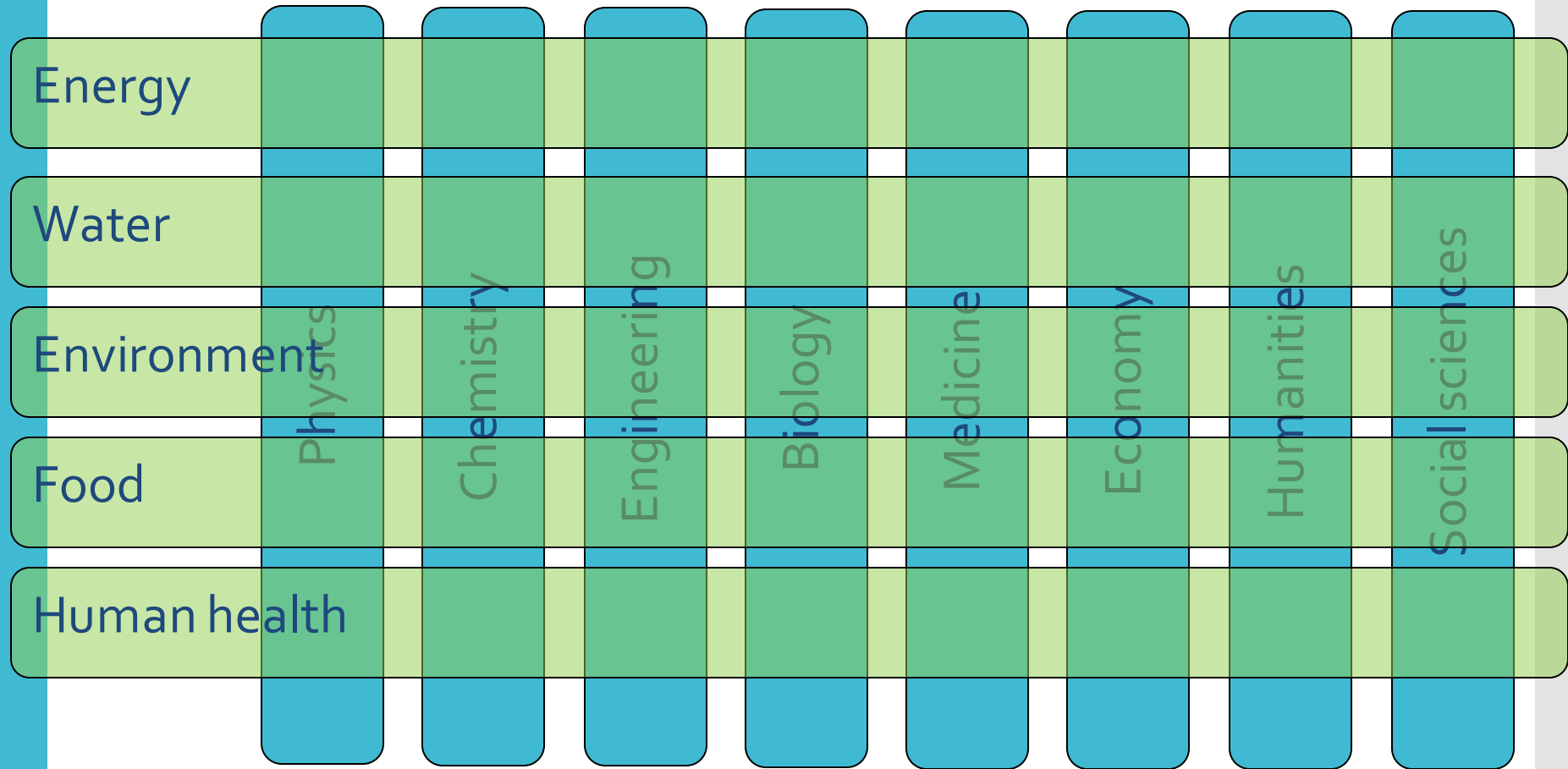


Professionals

Includes: Account managers, engineers, business and financial specialists, lawyers and judges, legal-industry support staff, math specialists, scientists, and academics



Disciplines vs. challenges



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*“Scientists with deep knowledge in one discipline and basic
“fluency” in two to three others.”*

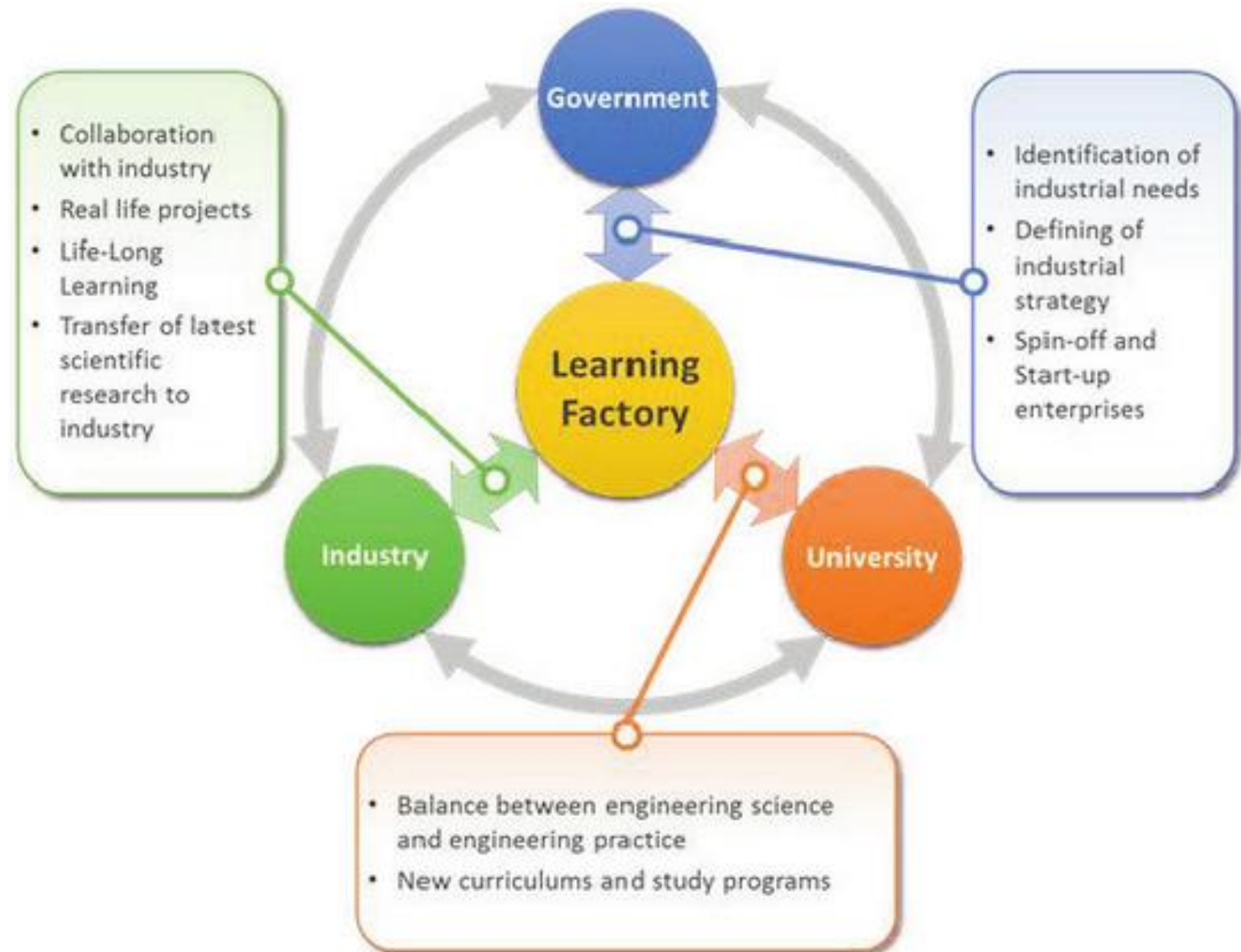
(National Research Council, USA 2009)



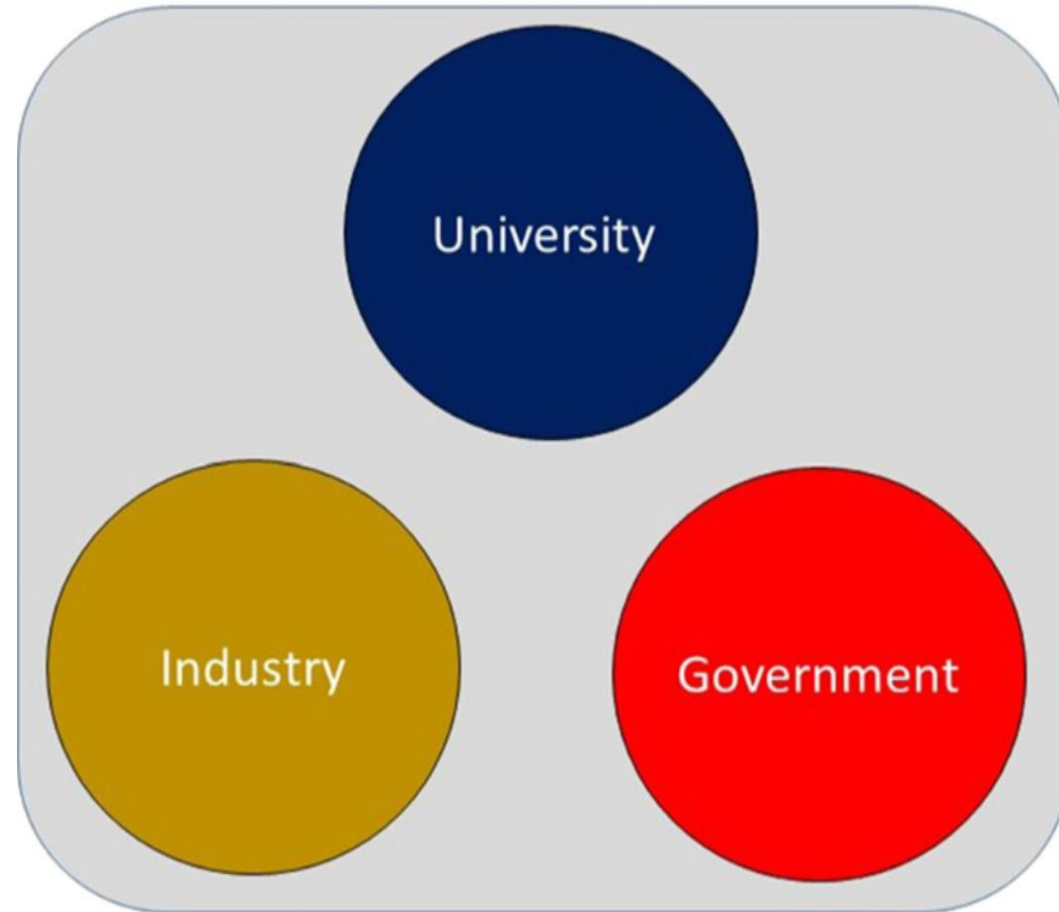
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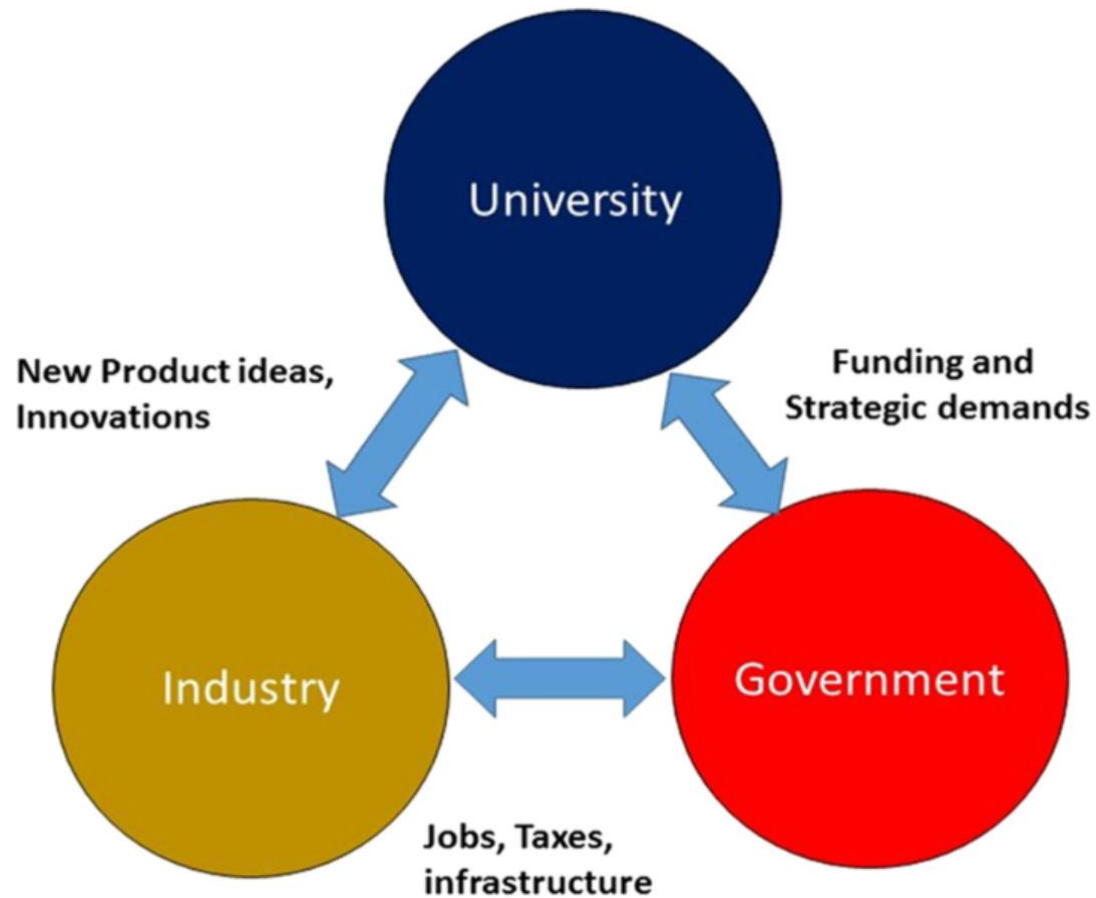
Higher education, industry and governance



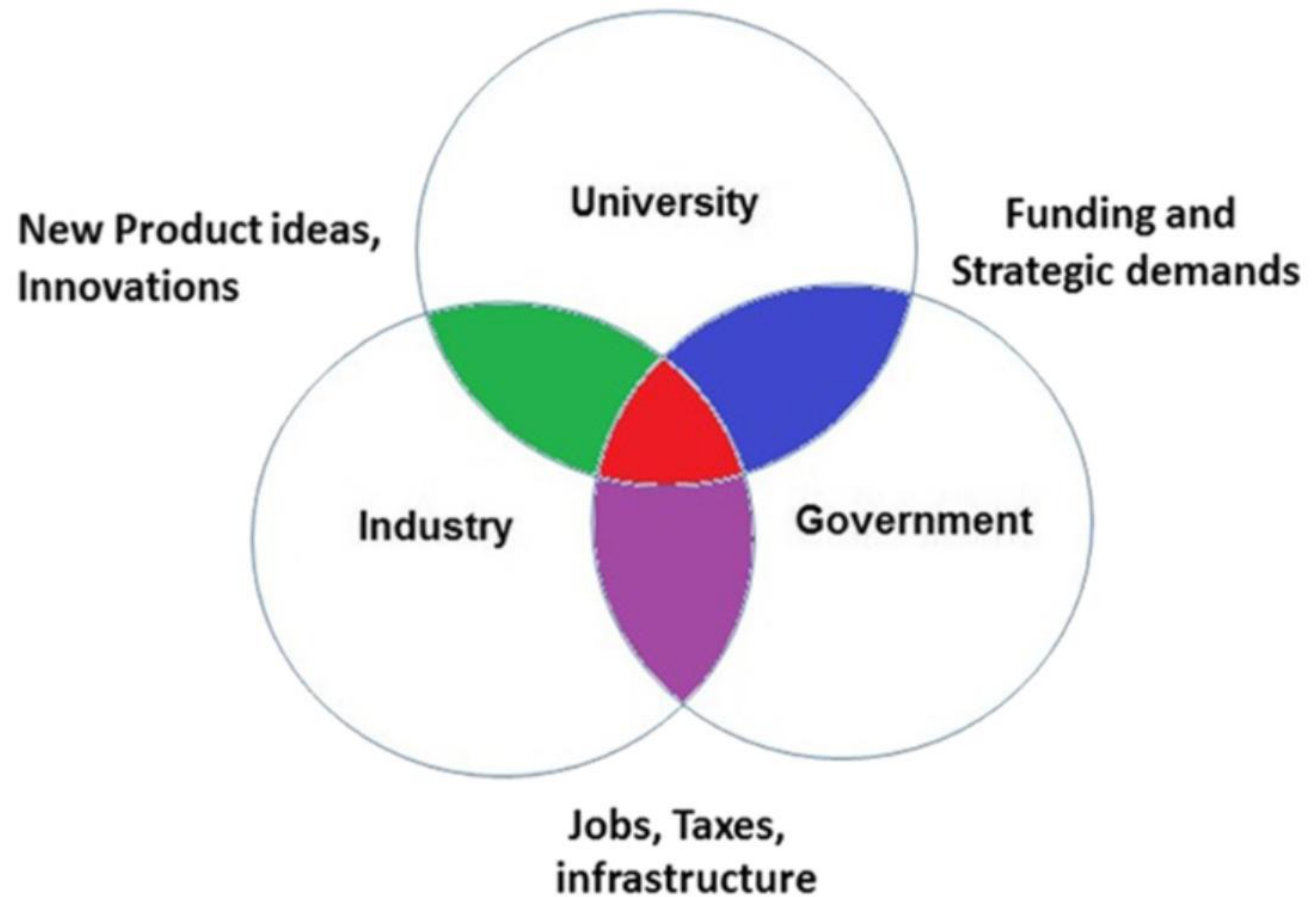
Triple Helix Interactions in a Developing Country



Beginning of Triple Helix Interactions in a Middle-income Country (Push-Pull)



Triple Helix
Strategic
Interactions in
a Developed
Country (red
zone indicates
technological
poles, science
parks, etc.)



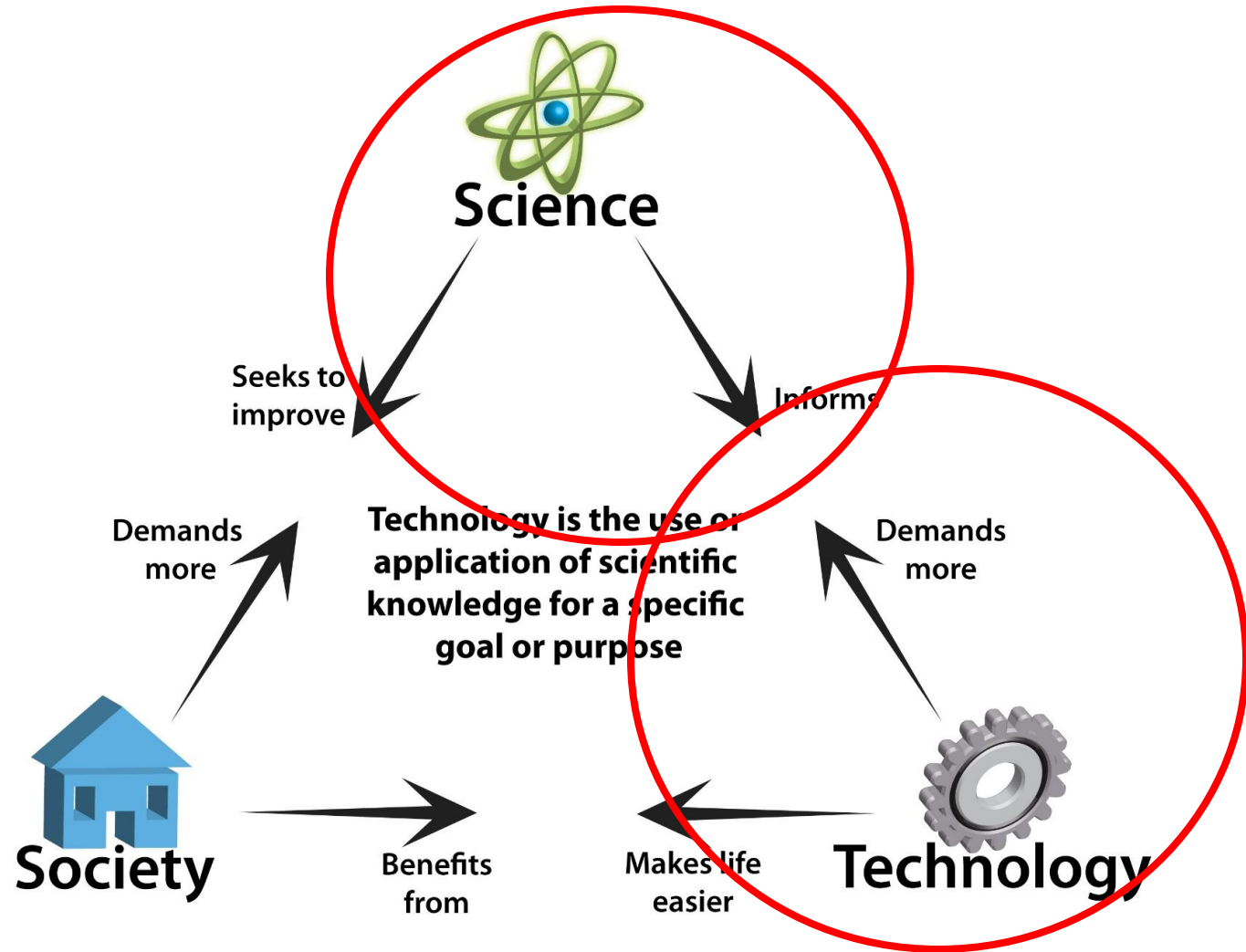
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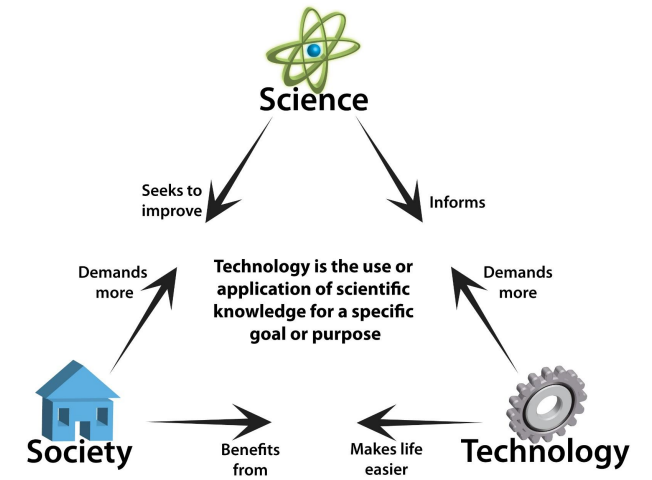
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Positioning the technological innovation



Positioning the technological innovation

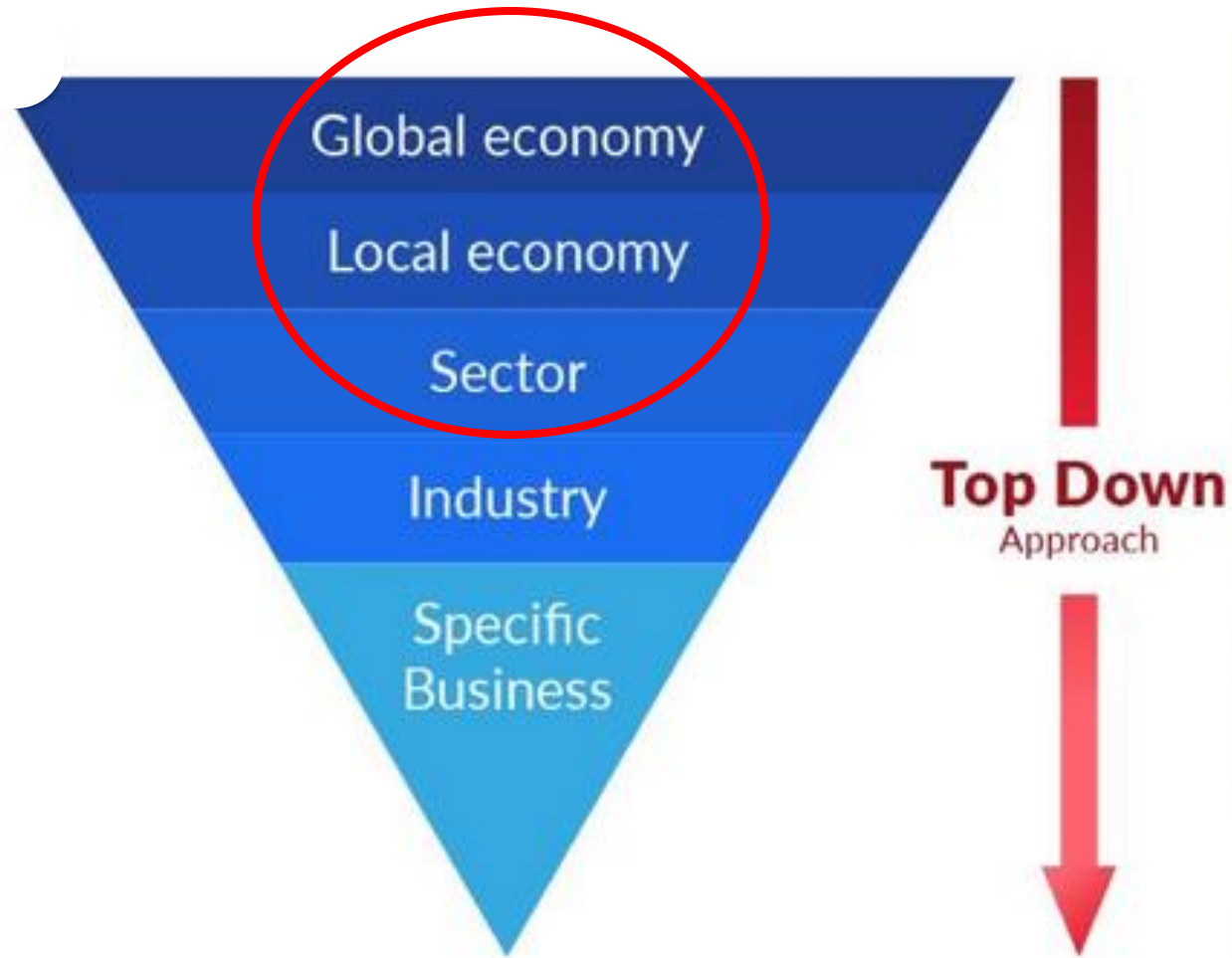


We often separate technology from the real need of our societies however we need to think that technology, society and science interact together:

- Society benefits from technology
- Technology makes life easier in our societies
- Society demands more science
- Science seeks to improve the society
- Technology demands more science
- Science informs technology



National strategic plans



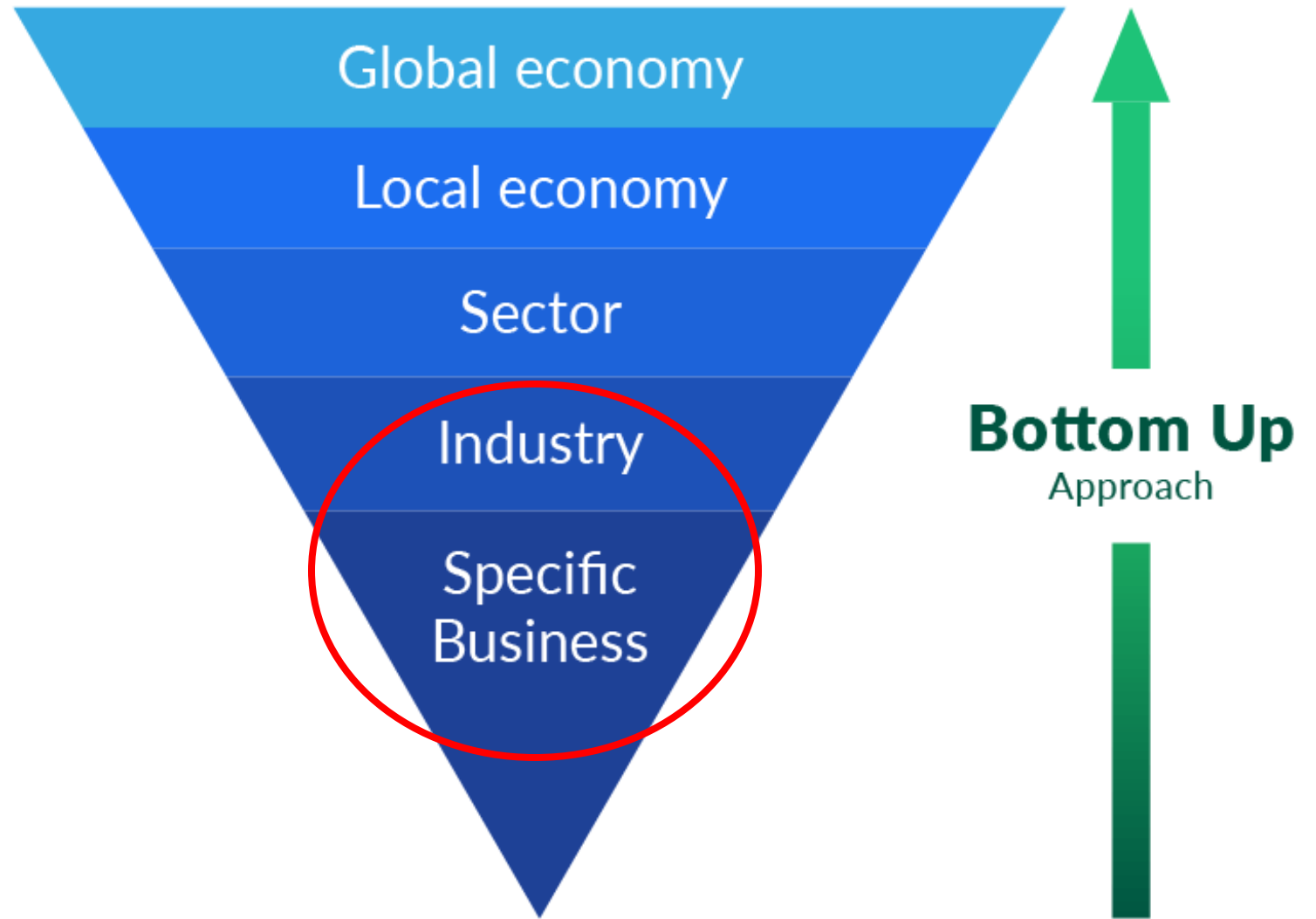
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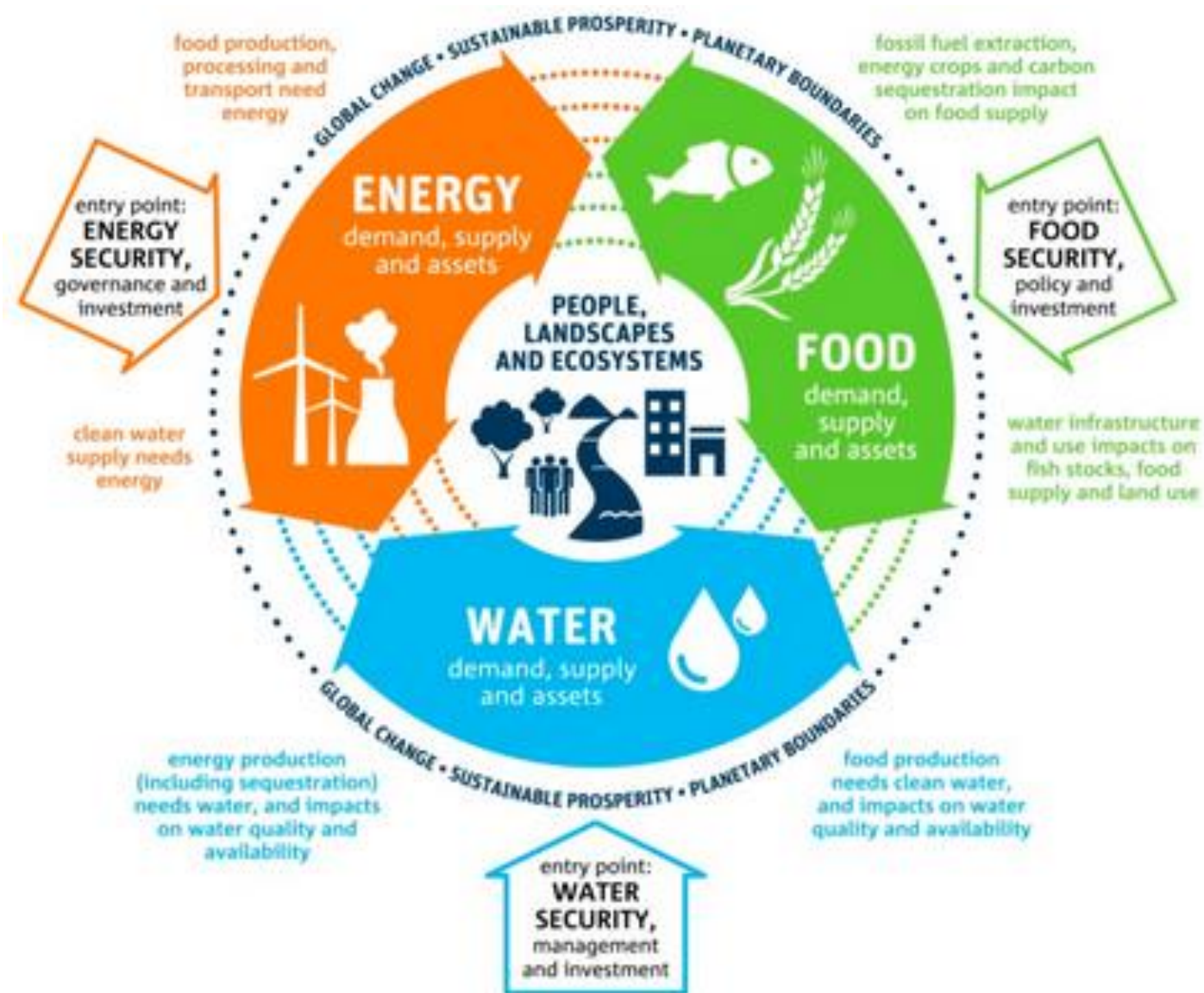
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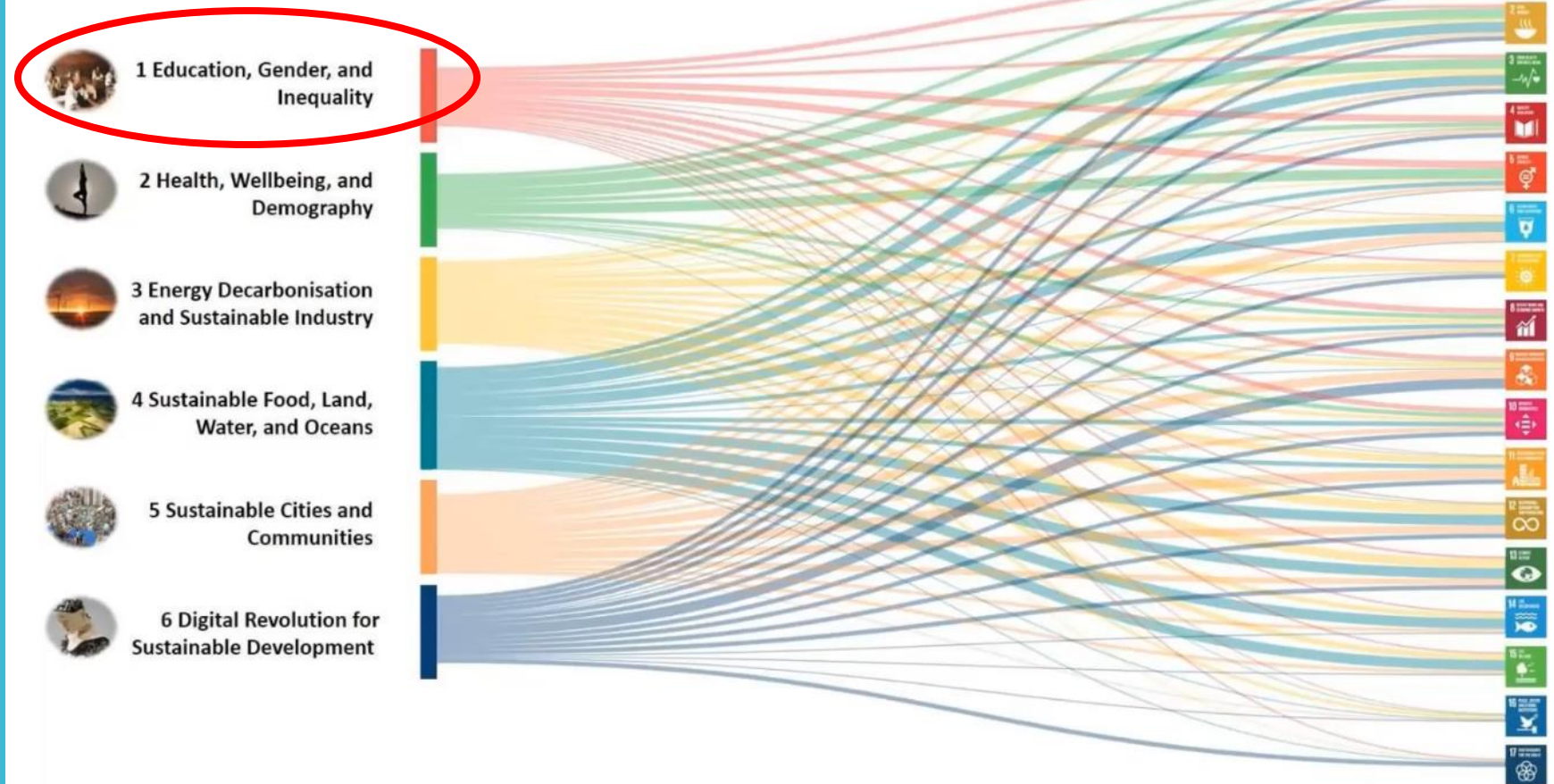
National strategic plans



Developing national strategies to respond to the societal challenges



UN SDSN recommendations



Strong link to the European green deal and the digital transformation.

From the lab
to the market

TECHNOLOGY READINESS LEVEL (TRL)

RESEARCH	1	BASIC PRINCIPLES OBSERVED
	2	TECHNOLOGY CONCEPT FORMULATED
	3	EXPERIMENTAL PROOF OF CONCEPT
DEVELOPMENT	4	TECHNOLOGY VALIDATED IN LAB
	5	TECHNOLOGY VALIDATED IN RELEVANT ENVIRONMENT
	6	TECHNOLOGY DEMONSTRATED IN RELEVANT ENVIRONMENT
	7	SYSTEM PROTOTYPE DEMONSTRATION IN OPERATIONAL ENVIRONMENT
DEPLOYMENT	8	SYSTEM COMPLETE AND QUALIFIED
	9	ACTUAL SYSTEM PROVEN IN OPERATIONAL ENVIRONMENT

Labour markets and structural change

Technological Change

Introduction of new products, change in methods and organization of production, changes in the quality of resources and products, new ways of distributing the products.

Importance of Artificial
Intelligence in the
maritime transport



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Not everybody
wants to lead
the change



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Sustainable blue economy: a sea of opportunities



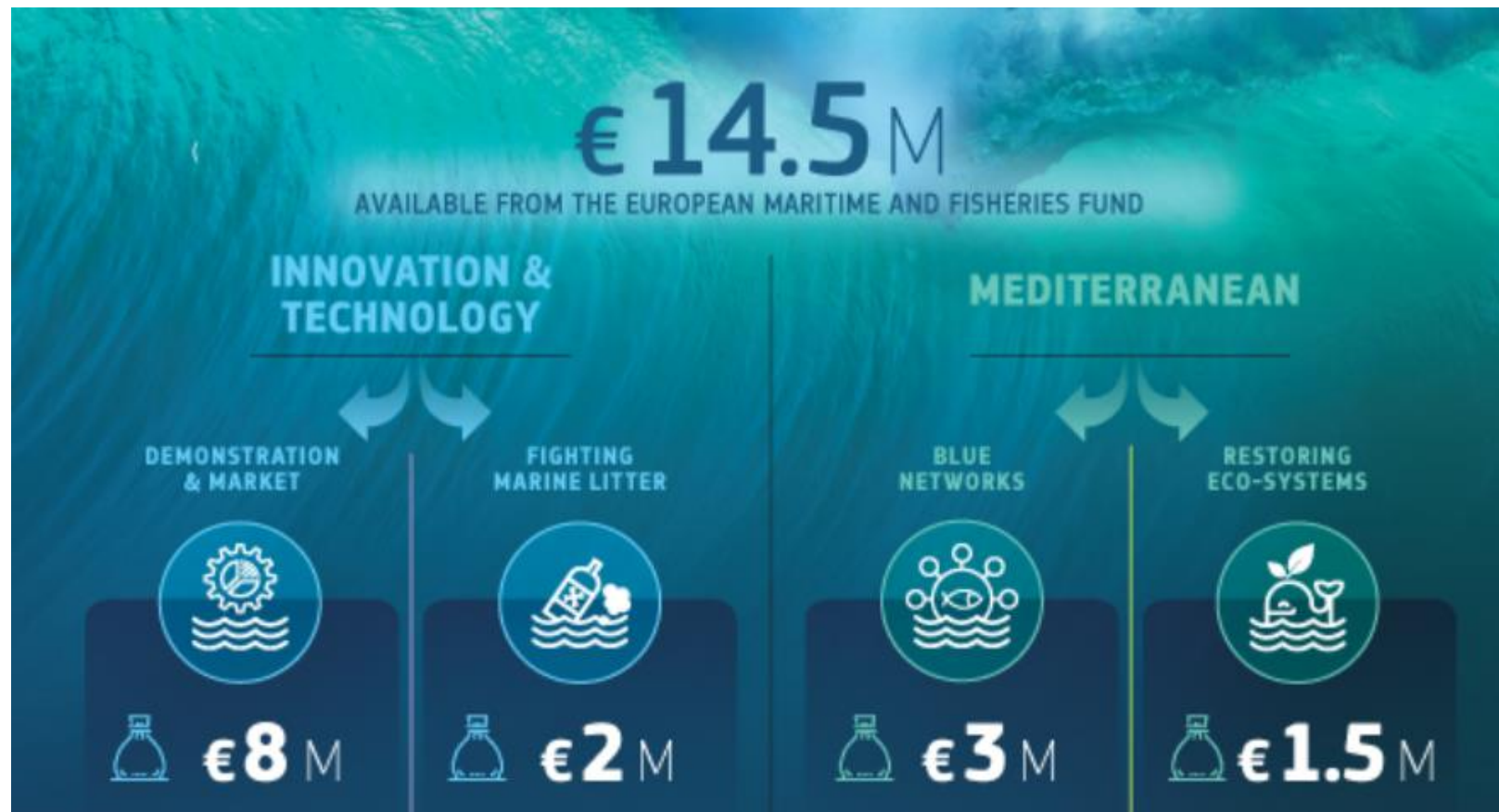
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European funds



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Emerging technologies vs. human footprint



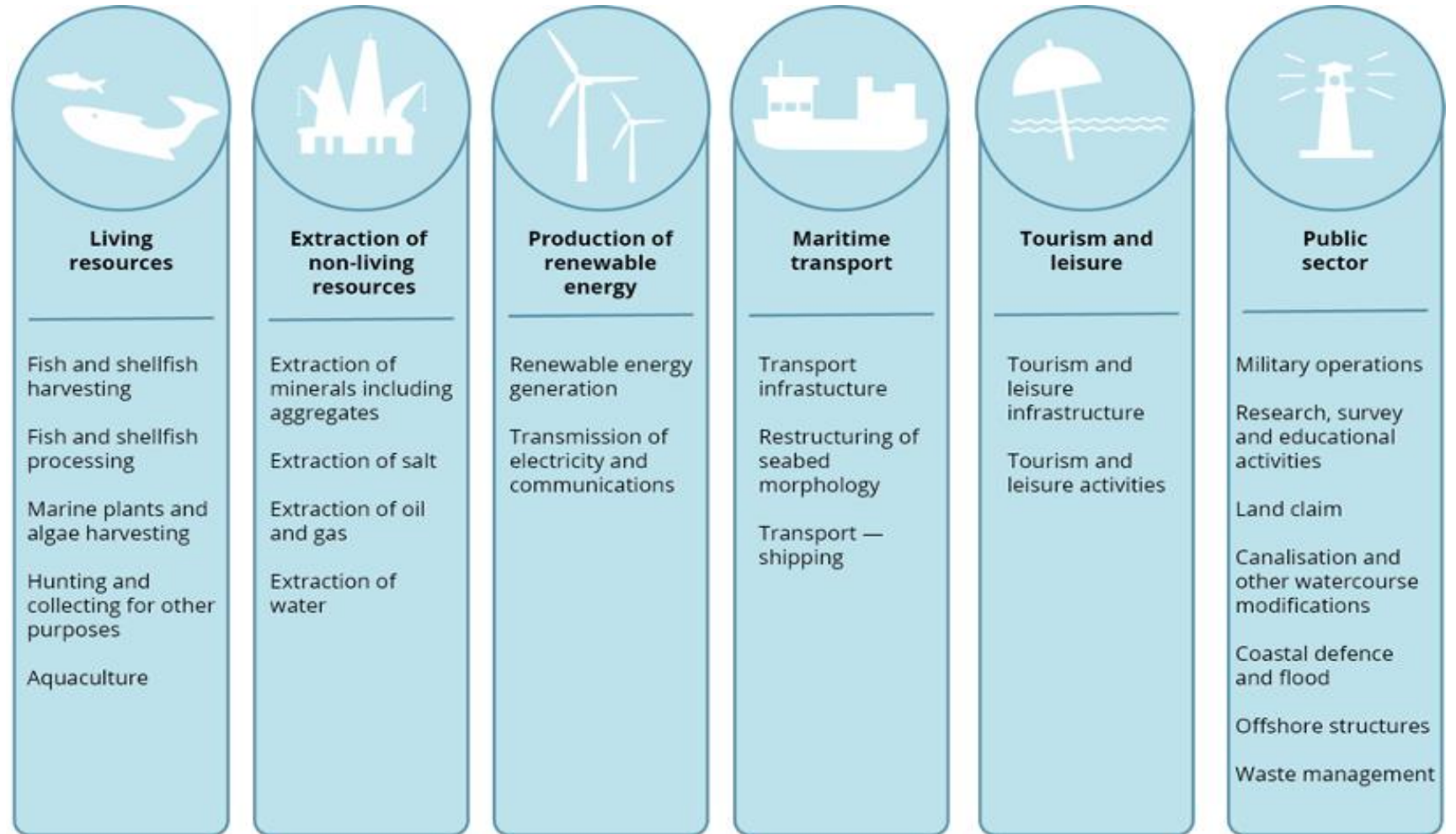
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Emerging technologies vs. human footprint



Source: <https://www.eea.europa.eu/media/infographics/marine-messages-ii-classification-of/view>



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Start-ups and Spin-off to respond to the industrial and technological progress



The development of new skills strengthen innovation and increase market potential. The creation and growth of businesses promote employment.



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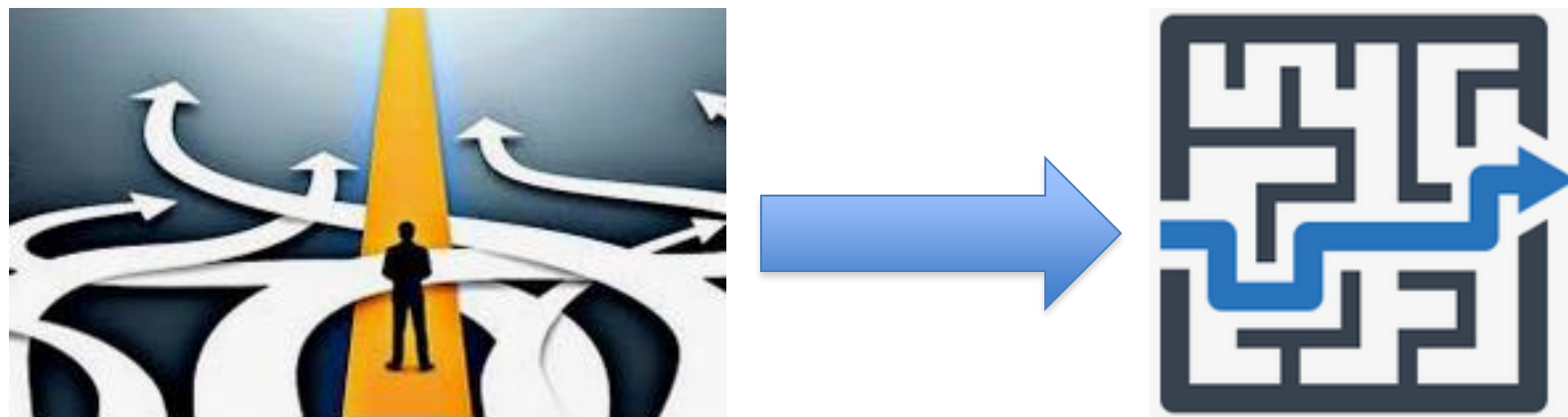


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Attractive career pathways

- Establish appropriate training and mobility opportunities for individuals to deliver both stable and attractive career pathways;
- Form highly skilled workforce that will be needed to support expanding economies.
- Career paths: focusing the training on a specific career path



Blue Skills



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A project labeled by the Union for the Mediterranean (UfM)



Ministero
dell'Università
e della Ricerca

- Training
- Mobility
- Access to Research infrastructures
- Entrepreneurial skills
- Start up Competitions



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Synergies with the UfM Med4Jobs initiative

43 member countries **28** EU member states **15** Southern and Eastern
Mediterranean countries



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A project winner of the Best Project Award 2021



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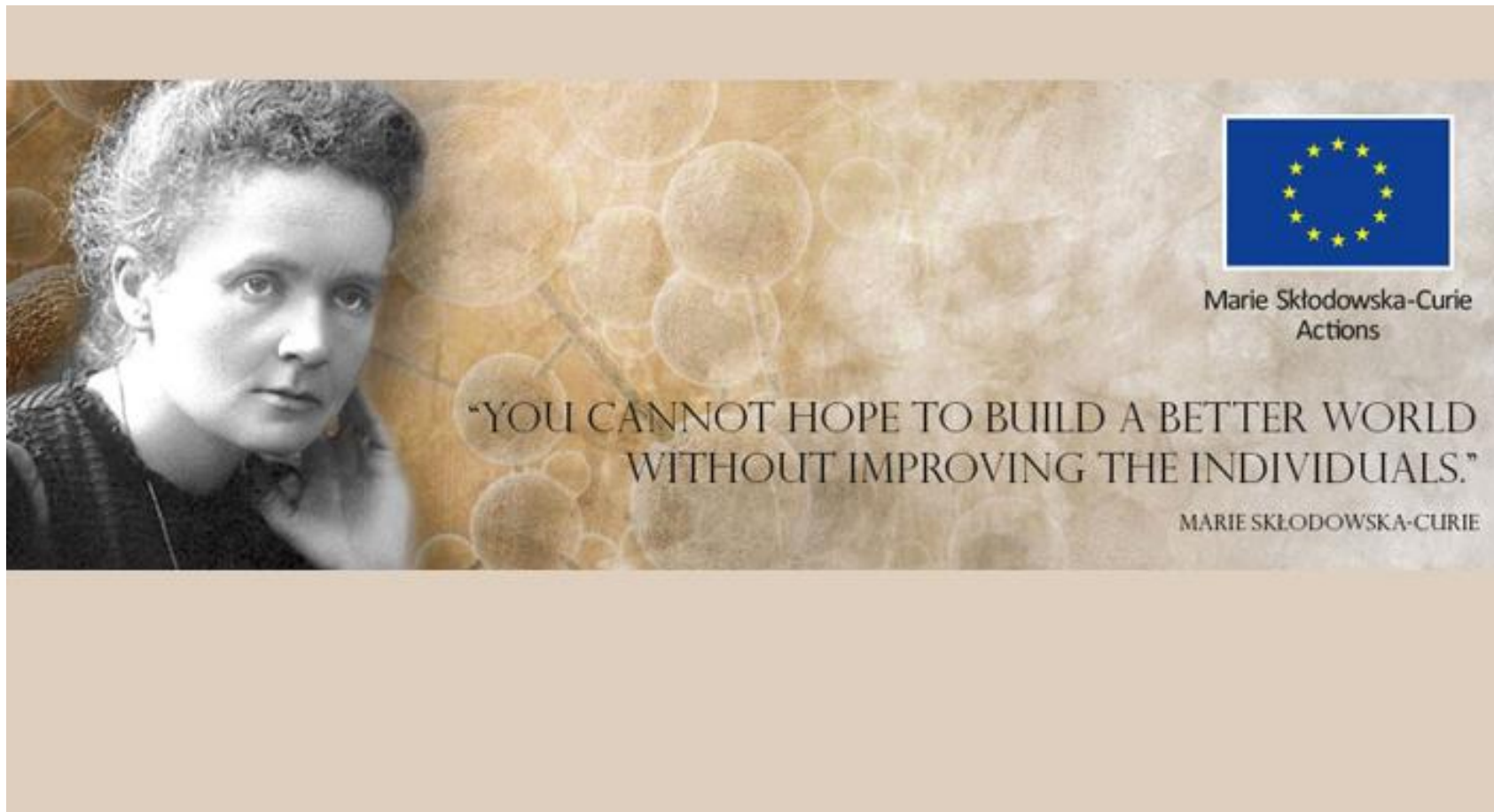


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Investing in human capital: youth and women

INVEST IN
YOUTH



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Investing in
future means
investing in
youth

Educating and
supporting our youth
is the best way to
invest in a prosperous
future.

John Adriance

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YOUTH



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The Mediterranean: a sea of opportunities

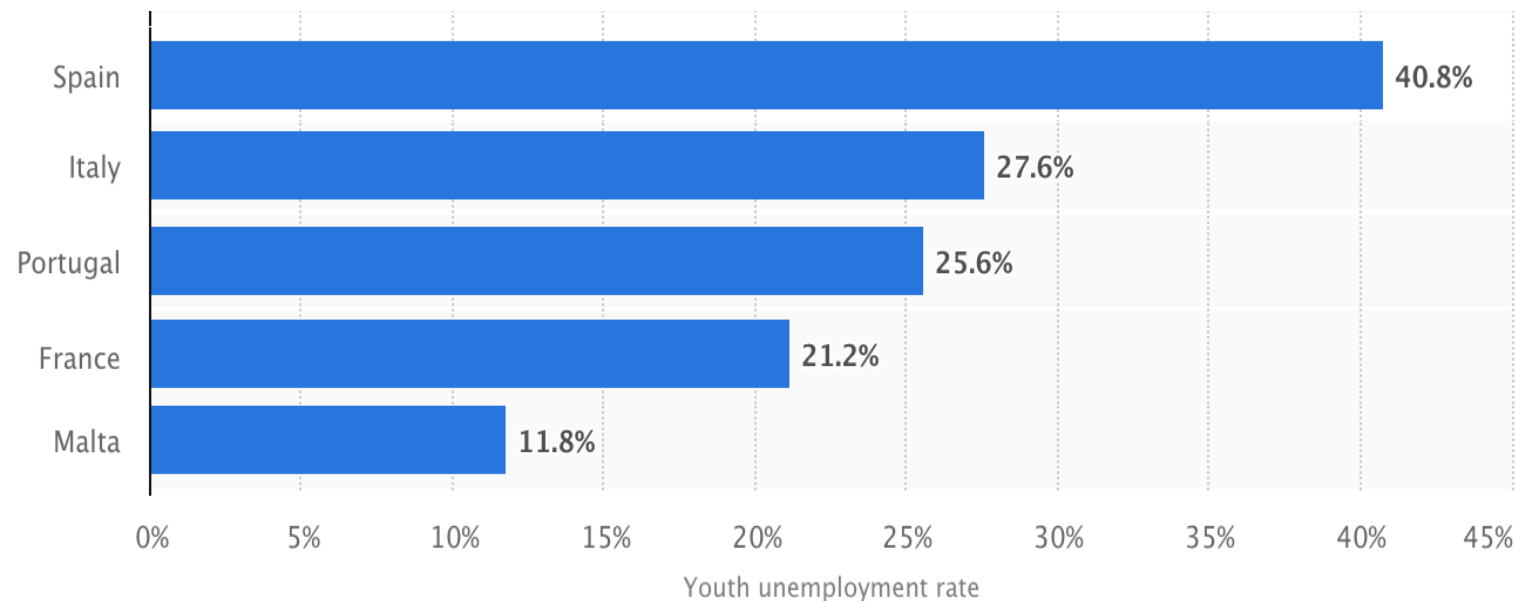


30% of trade and transport of oil goes through the Mediterranean

20% of global maritime transport go through the Mediterranean

10% of the global PIL is generated in the Mediterranean

The Mediterranean and youth unemployability



Source: www.statista.com



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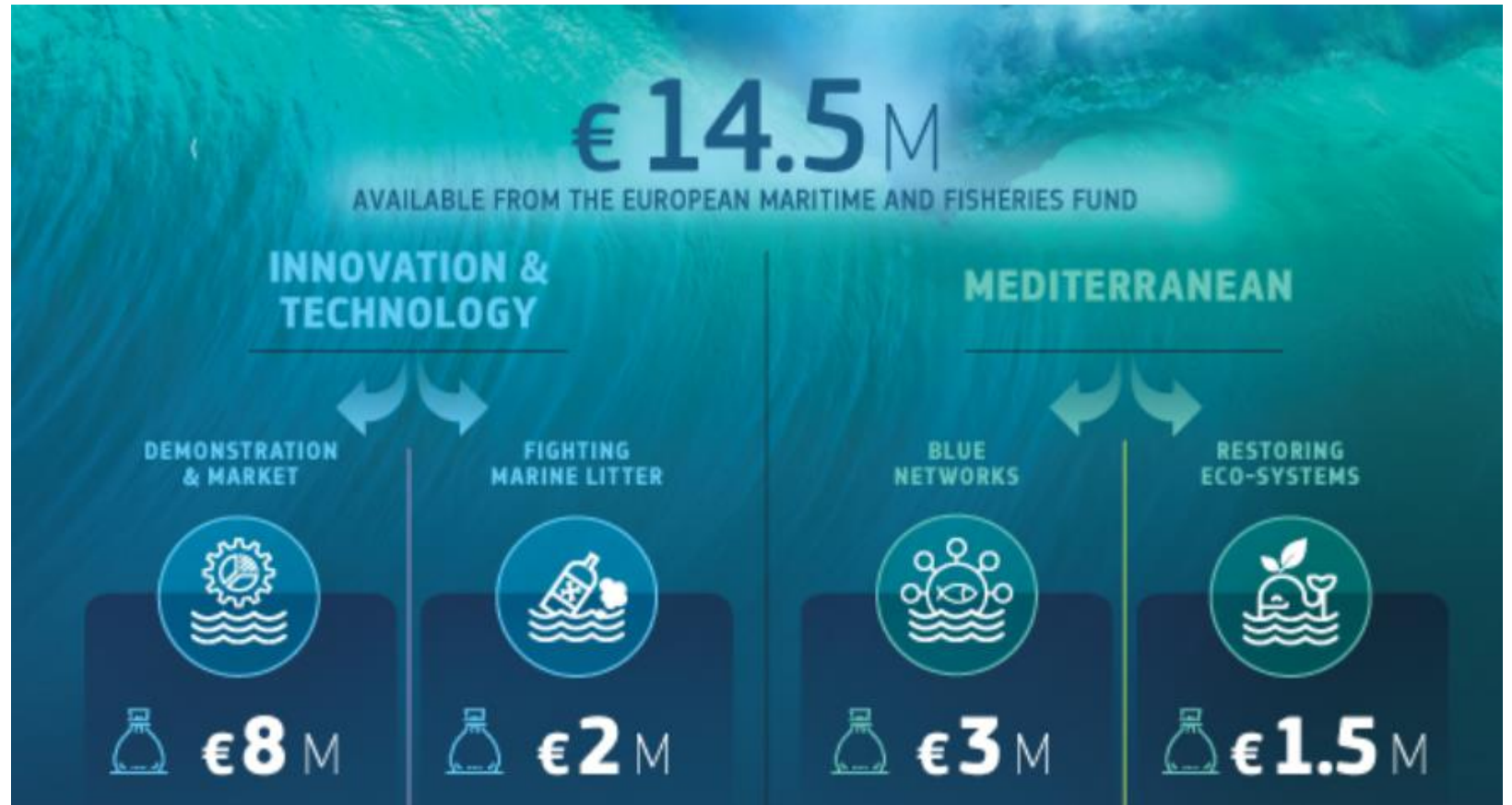
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The Mediterranean and youth unemployability

Region	Subregion	Youth total (%)			Youth male (%)			Youth female (%)		
		2019	2020	2021	2019	2020	2021	2019	2020	2021
World		13.6	13.7	13.8	14.0	14.0	14.1	13.0	13.1	13.2
Africa	Northern Africa	30.2	29.8	29.6	26.4	25.7	25.3	39.6	39.8	40.3
	Sub-Saharan Africa	8.7	8.7	8.7	8.2	8.3	8.3	9.2	9.2	9.1
Americas	Latin America and the Caribbean	17.9	18.0	18.1	15.2	15.2	15.4	22.0	22.1	22.2
	Northern America	8.8	9.1	9.4	9.9	10.1	10.4	7.6	8.1	8.4
Arab States	Arab States	22.9	23.0	22.9	19.7	19.8	19.6	42.2	42.1	42.5
Asia and the Pacific	Eastern Asia	9.8	10.0	10.2	10.8	11.0	11.1	8.7	8.9	9.0
	South-Eastern Asia and the Pacific	10.5	10.9	11.0	10.3	10.6	10.7	10.8	11.2	11.5
	Southern Asia	18.7	18.8	18.9	18.7	18.9	19.0	18.4	18.5	18.6
Europe and Central Asia	Northern, Southern and Western Europe	14.8	14.8	15.1	15.8	15.6	15.9	13.8	13.9	14.2
	Eastern Europe	14.9	14.4	14.2	14.6	14.1	13.9	15.3	14.8	14.5
	Central and Western Asia	17.8	17.5	17.7	16.6	16.6	17.0	19.7	19.0	18.9



Investing in future means investing in youth



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Sustainable blue economy



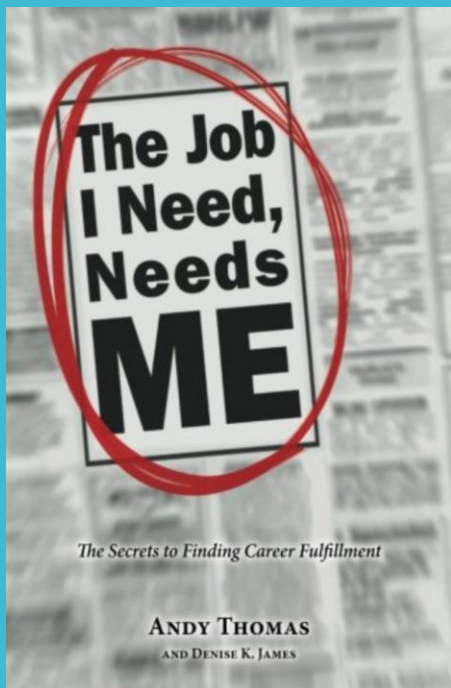
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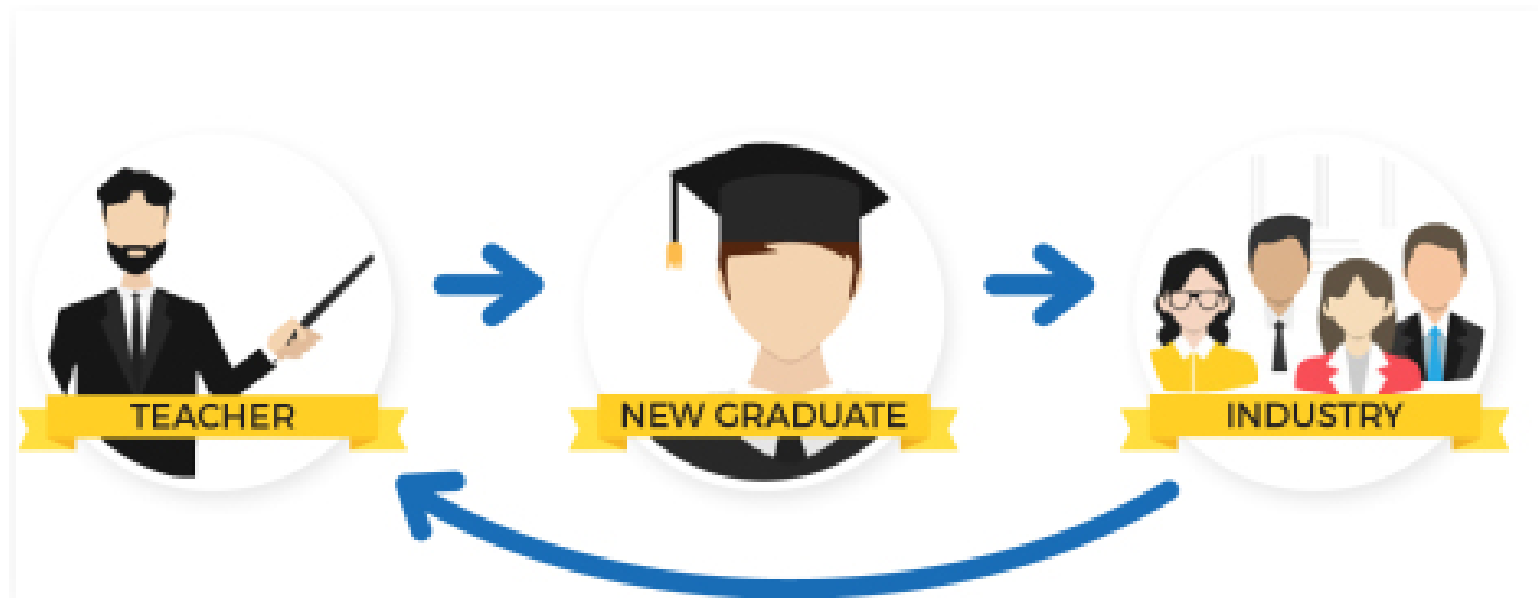
Developing skills to feed jobs



Skills



Jobs



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The training path

- Summer Schools on Sustainable Blue Economy in the Euro-Mediterranean region in collaboration with EMUNI University
- Advanced Studies Master Programme on Sustainable Blue Growth in collaboration with the University of Trieste
- Ph.D. program fellowships (University of Trieste and Ca' Foscari University of Venice)
- Research mobility programme for young researchers and scientists
- Professional Traineeships for young professionals and post-graduates
- Specific Workshops, conferences on selected topics related to Blue Growth
- Awareness and divulgation of the scientific work on Blue Growth
- Management and reinforcement of BlueSkills network
- Online Portal: www.bluegrowth.inogs.it



Synergies with the UfM Med4Jobs initiative

43 member countries **28** EU member states **15** Southern and Eastern Mediterranean countries



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The political will



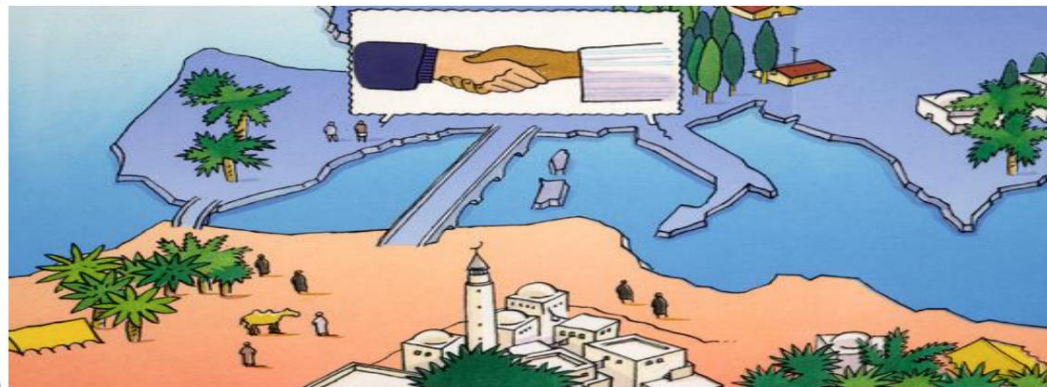
BlueSkills: Blue Jobs and Responsible Growth in the Mediterranean

Higher Education & Research



5+5

Educate for
dialogue



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5+5 Dialogue



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Summer school



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Tailored-made
training

SUSTAINABLE BLUE ECONOMY

SUMMER SCHOOL 2014 - 2019



4000
applications



244
participants



27
Countries



24-50
Years old



100%
Fellowship



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Summer school



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Diploma course

ADVANCED MASTER

2017-2018 AND 2018-2019



134
applications



36
participants



9
Nationalities



23-53
Years old



18 13
full fell. fees



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25 students
from 11
countries

Students - 2021



Shahba Al-Kebssi
Maritime Spatial Planning



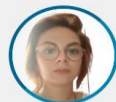
Alessandra Bardi
Marine Biology



Leila Nadia Benabdelmoumen
Marine Sciences and Coastal Management



Redouane Larbi Boufeniza
Marine Sciences



Flavia Cavaliere
Project Management & Geography



El Khalil Cherif
Coastal water chemistry, remote sensing and environment



Ana Isabel Colmenero Ginés
Marine Sciences



Amine Chihi
European Studies - Management of EU-Projects, Innovation and Management in tourism



Mouna El Qendouci
Marine Biology



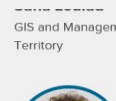
Ahmed Elazzaoui
Marine Sciences



Nouhaila Erraji Chahid
Oceanography and Marine Marine Modelling



Basma Hamdaoui
Port Management and Aquaculture



Bruno Minuzzi Schemes
Oceanography, Marine Spatial Planning, Fisheries, Aquaculture



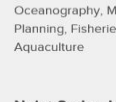
Lavinia Lucarelli
International development and cooperation and Economics and Business



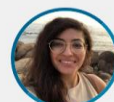
Sarah Mahadeo
Urban and Regional Planning, Maritime Spatial Planning



Salvatore Midulla
Environmental Engineering



Najat Sarkouh
Geology



Jihene Nouairi
Earth and Environmental Studies



Matteo Ranalli
Marine and maritime environmental policies, international cooperation, sustainable development



Victor Rubio Monterde
Environmental Sciences



Alaa EmadEIDin Selim
Renewable Energy Engineering, Hybrid Energy Systems, Electrical Engineering, Control Systems



Mohamed Adlane Silhadi
Marine and coastal environment



Ronald Tardiff
Marine resource ecology, aquaculture, international



Carine Simon
Mathematics, Telecommunications

	2018	2019	2020	2021	
Algeria	2	2	2	3	9
Egitto				1	1
Francia				1	1
Grecia		1			1
Iran	1				1
Italia	8	1	2	6	17
Lebanon			1		1
Libia	1	1			2
Marocco	3	3	3	7	16
Palestina	1				1
Romania	1		1		2
Serbia		1	2		3
Spania				2	2
Stati Unite				1	1
Trinidad		1		1	2
Turchia			1		1
Tunisia	4	5	6	2	17
Yemen				1	1
	21	15	18	25	79

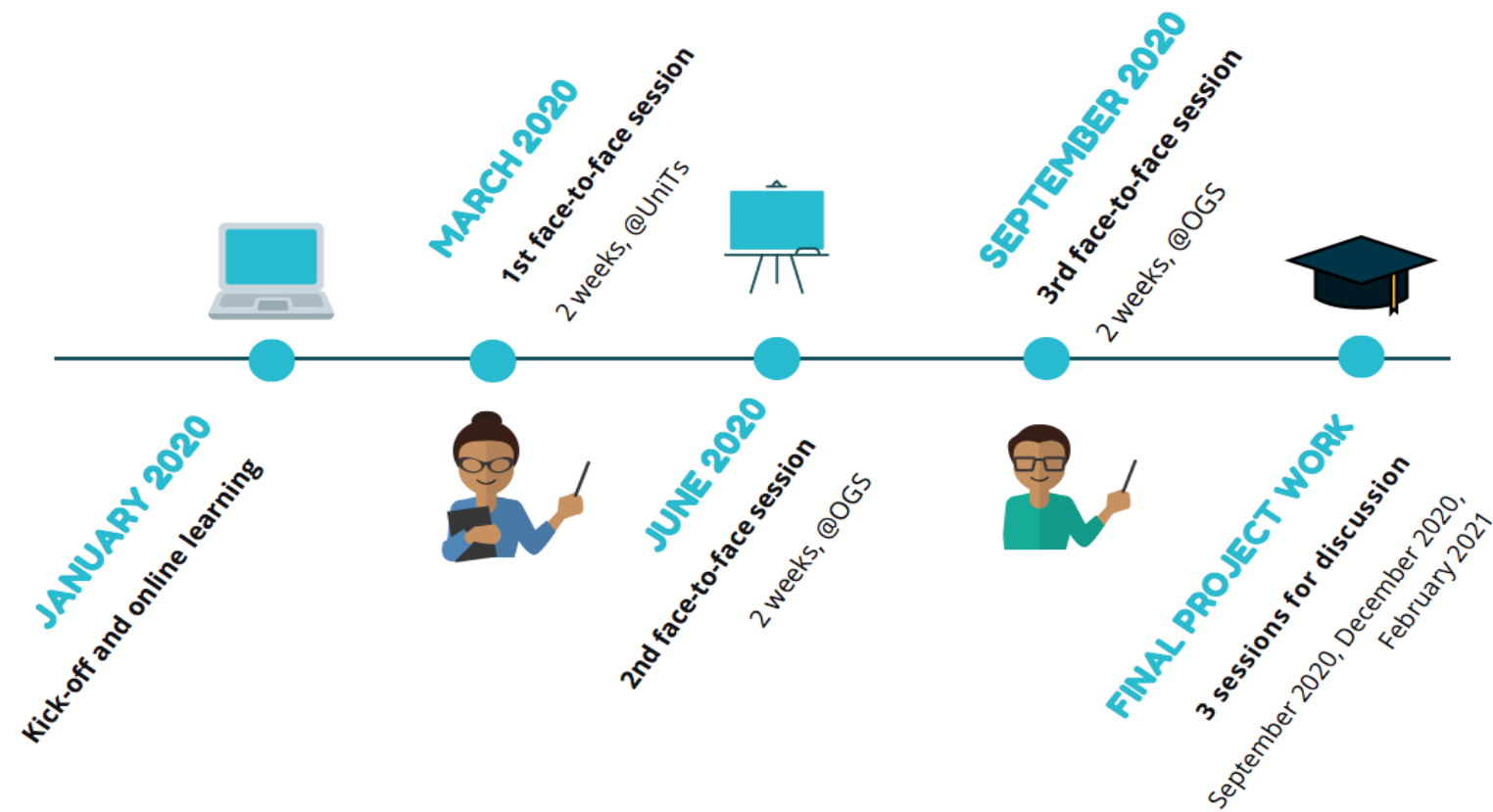


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Digital transformation of the teaching methods

The screenshot shows the 'Blue Growth' website header with navigation links: 'Advanced Master', 'Summer School', 'Deep Blue', 'About Blue Growth', 'The 5+5 Dialogue', and 'News'. The main content area is titled 'Advanced Master' and includes a description of the Master in Sustainable Blue Growth. Below this is a 'User account' section with a login form. The form has two tabs: 'Log in' (selected) and 'Request new password'. It contains two input fields: 'E-mail or username *' and 'Password *', each with a placeholder text. A 'Log in' button is located at the bottom of the form.

Blue Growth Research, Innovation and Higher Education

Advanced Master Summer School Deep Blue About Blue Growth The 5+5 Dialogue News

Advanced Master

The Master in Sustainable Blue Growth is established to bring scientific excellence and technological innovation at the centre of a number of Blue Growth initiatives.

- About the Advanced Master
- Registration
- Students
- Contact

- Information
- Faculty
- Topics
- Program

User account

[Log in](#) [Request new password](#)

E-mail or username *

Enter your e-mail address or username.

Password *

Enter the password that accompanies your e-mail.

[Log in](#)

Changing mobility schemes



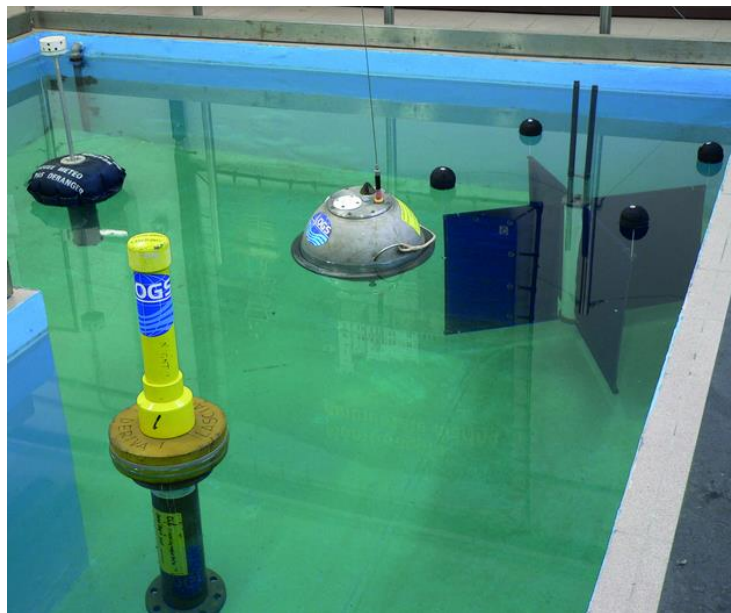
This **mobility** opportunity aims to increase capacity building for blue career development and foster **brain circulation** across the Euro- Mediterranean Region offering an innovative **on-the-job-training** to young professionals in the marine and maritime sectors through a **job shadowing** experience for 3- 6 months.



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Practical approach: living labs



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Training-of-trainers on marine spatial planning, Trieste



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Training-of-trainers
on environmental
monitoring
techniques to
manage the
environmental
impacts on
fisheries and
aquaculture, Sfax



University of Sfax (Tunisia)



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Training-of-
trainers on
fishery
resources and
aquaculture,
Bizerte



ISPAB - Higher Institute of Fishing Technologies and
Aquaculture of Bizerte (Tunisia)

Mobility



Deep Blue stories: Sergio in Greece

Deep Blue Stories #3 | Sergio Rejado travelled all the way to Athens to join the Mediterranean Information Office for the Environment, Culture and Sustainable Development (MIO-ECSD) in very important tasks.



Deep Blue stories: Cherif in Slovenia

Deep Blue Stories #2 | Cherif El Khalil is one of the six candidates that participated in the Deep Blue Project in 2020. 29 years old, Moroccan, he had the opportunity to spend 6 months in the Slovenian National Institute of Biology and study the coastal water quality of the Slovenian coast, using remote sensing data to monitor pollution.



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Mobility



Deep Blue stories: Piero in Greece

Deep Blue Stories #1 | **Piero Fontolan** participated in the Deep Blue mobility project this year, travelling to the Grecian isle of Lipsi to take part in an evaluation of the Katsadian bay. The main goal was to *“evaluate how much less stress an ecosystem such as Katsadia would suffer thanks to the installation of ecological fixed moorings”* to prevent an excessive number of boats affecting its ecological value.



Deep Blue stories: Doaa in Rome

Deep Blue Stories #4 | **Doaa Hussein** participated in the Deep Blue Mobility Program to accomplish a clear goal: the application of life cycle assessment methodology for sustainable production of marine fisheries in Gaza Strip-Palestine, in order to preserve quality of life adhering to sustainability principles.



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Involvement of youngest



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Upskilling and reskilling



VOCATIONAL
EDUCATION
TRAINING



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Recommendations:

- 1) Trends
- 2) Skills
- 3) Youth and women

The **trend** today is towards the digital transformation and green deal and therefore it is important to promote opportunities for green jobs.

Skills are needed in environment and sustainability related jobs, automation, digitalization and port logistic operations, amongst others.

Need to enhance opportunities for **youth & women** offering good social conditions and attractive jobs

Conclusion

Higher education and academia can make blue economy capable of fully embracing technological progress, new innovative business models or managing the shift from global to more local economies and above all the transition to a greener, smarter and more resilient blue economy.

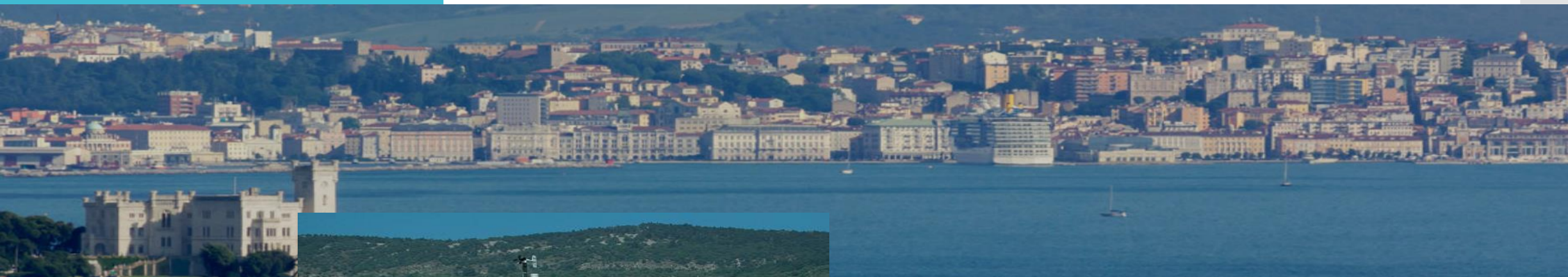


**GREENING
THE BLUE
ECONOMY**



If you want to walk fast,
walk alone. But if you want
to walk far, walk together.

thank you!



Mounir Ghribi