

# SDGs @ PoliT0

## Education and Research contribution

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**Politecnico  
di Torino**

# Agenda

1. Introduction about **Politecnico di Torino**
2. PoliTo Sustainable Path
3. SDGs initiatives at PoliTo
  - Education
  - Research
  - Student Engagement
4. Green Team organization and activities



Politecnico  
di Torino

# Students

A.Y. 2022/2023

- 38.700** Enrolled in Bachelor's and Master's programmes
- 740** Enrolled in I and II level Specializing Master programmes; Lifelong Learning courses; Training courses for businesses
- 1302** PhD Candidates
- 71,5%** Male students
- 28,5%** Female students
- 61%** Non-piedmontese students
  - 41% Italians living outside Piedmont
  - 20% international students
- 5.619** First-year students | A.Y. 2021/2022





Politecnico  
di Torino

# Course Catalogue

A.Y. 2022/2023

25

**Bachelor's degree  
programmes**

4 in Architecture  
21 in Engineering



**Percorso  
Intraprendenti**  
for Bachelor students



36

**Master's degree  
programmes**

9 in Architecture  
27 in Engineering



**Alta Scuola  
Politecnica (ASP)**  
for Master students



32

**in I and II level  
Specializing Master  
programmes and  
Lifelong Learning  
programmes**



18

**PhD programmes**  
in cooperation with  
other Universities (3)  
and research centers (2)



35

**Study paths  
in English**







Politecnico  
di Torino

# Research outputs

## 2022

**2110**

Publications in  
Scientific journal

**863**

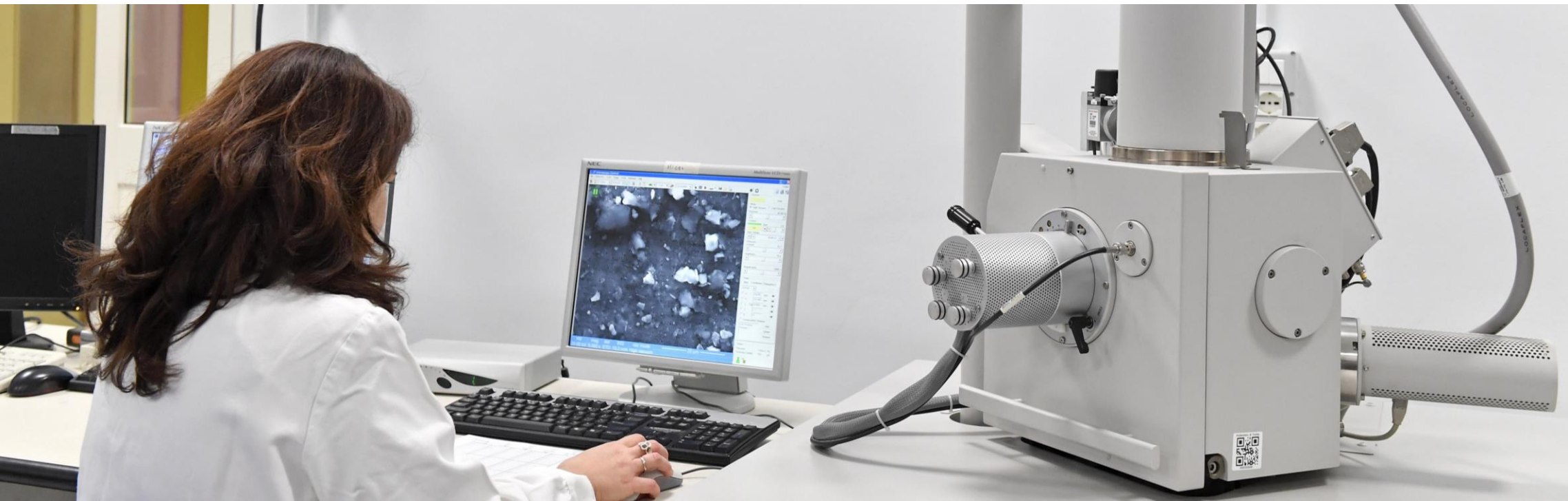
Conference  
proceedings

**62**

Monographs

**367**

Contribution in books



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# PoliTo Sustainable Path

2010

Creation of  
the Living Lab

2012

First participation in the  
**UI GreenMetric**  
university ranking



2015

**Creation of the  
Green Team**

2018

Launch of the  
initiative  
**SDG@Polito**

2019



Start of the presidency of  
**RUS network**



*sustainable  
development* concept  
included in the **Statute**  
and **strategic plan**  
**PoliTo4impact**

First participation in the  
**THEimpact** ranking



2022

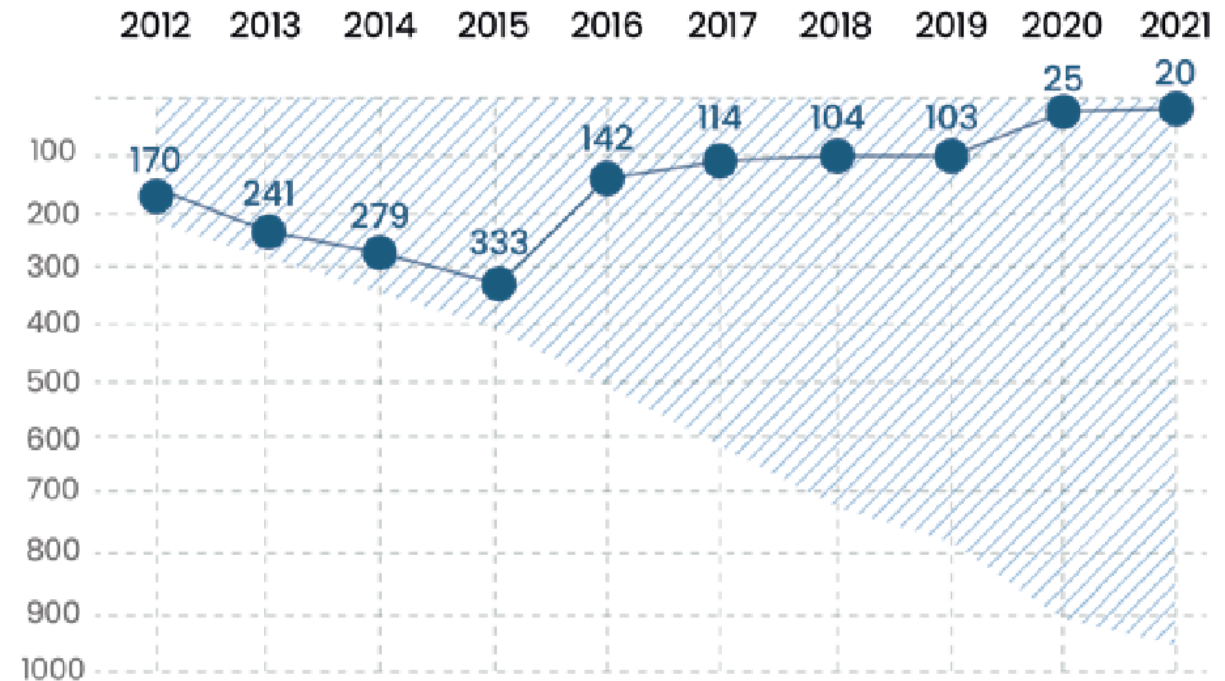
Empowerment  
of the  
**Sustainability  
administrative  
staff**



# Sustainability Rankings

## 2022 Results

<b>World Ranking</b>	<b>20</b>
Setting Infrastructure	669
Energy and Climate	40
Waste	10
Water	8
Transportation	5
Education and Research	1
<b>Italy Ranking</b>	<b>3</b>
Setting Infrastructure	32
Energy and Climate	3
Waste	1
Water	1
Transportation	2
Education and Research	1

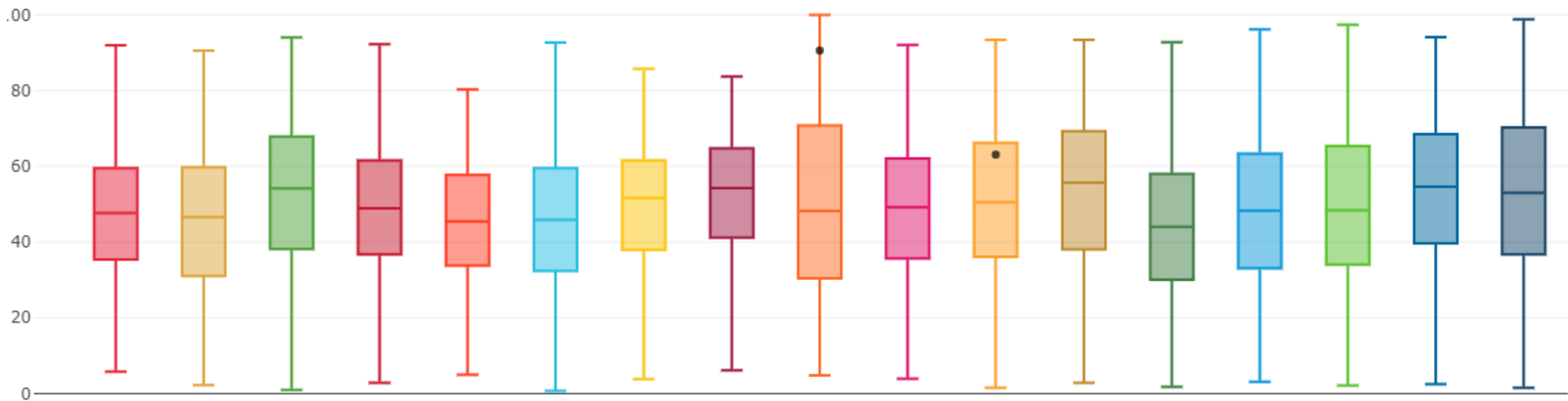
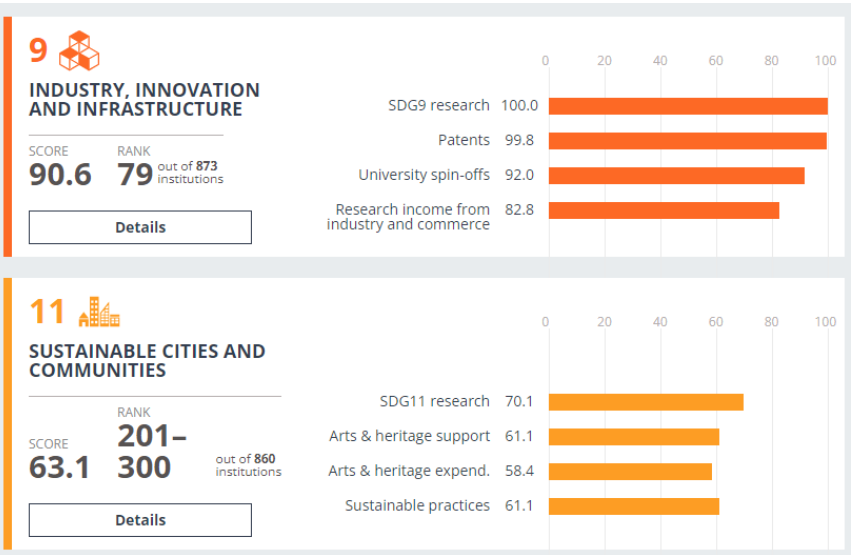




# Sustainability Rankings



## 2023 RESULTS



# Agenda

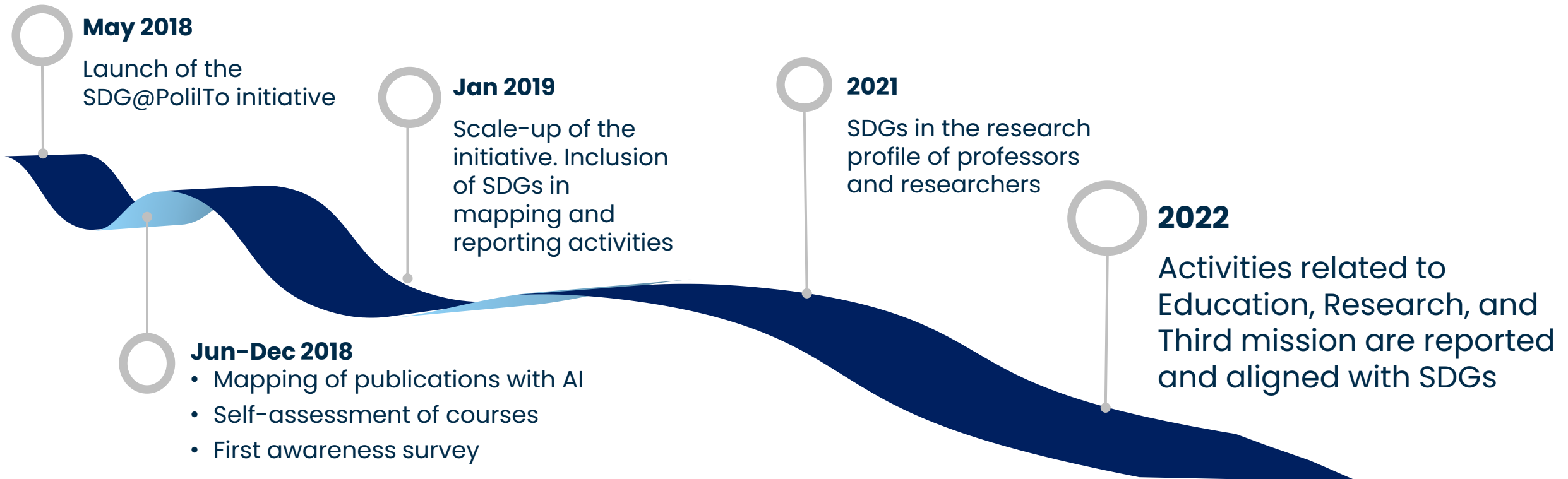
1. Introduction about Politecnico di Torino
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# SDGs@PoliTo

**Map** the SDGs on Education, Research, and Third mission activities

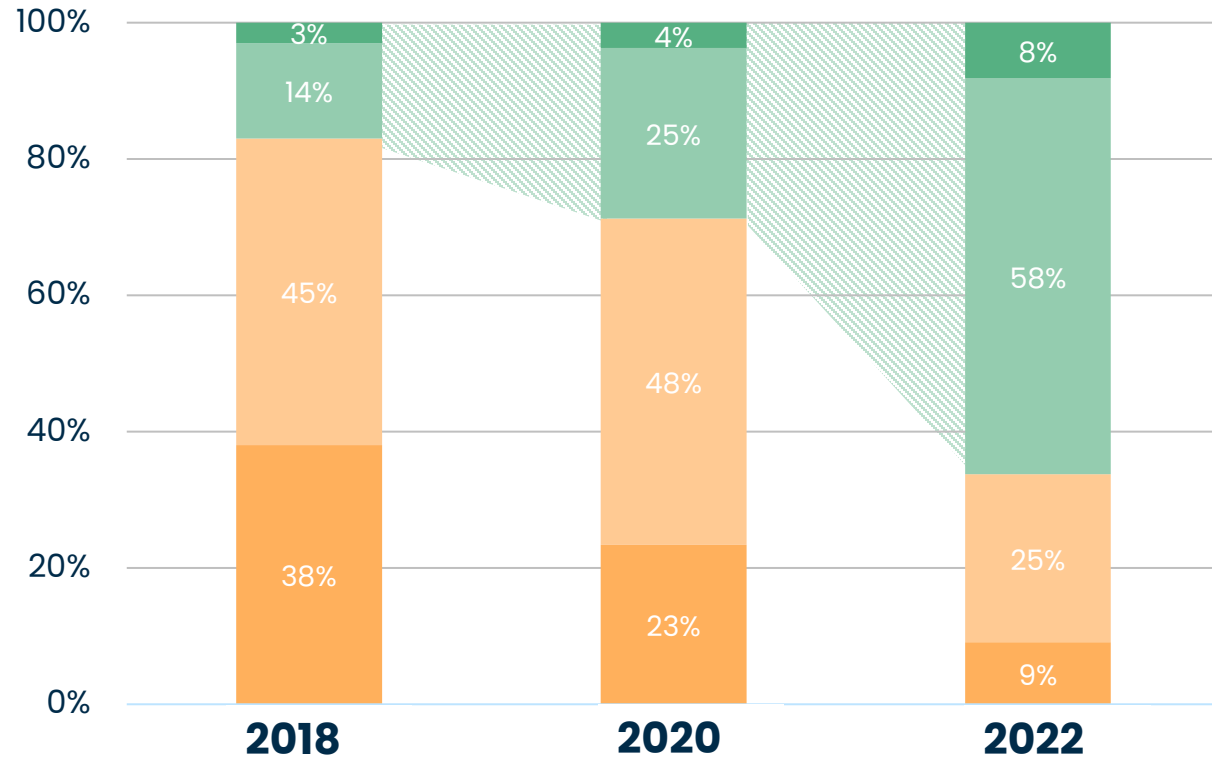
**Raise** awareness on the importance of sustainable development goals in the Polito Community

**Progressively align** the vision to the SDGs



# SDGs@PoliTo\_Engagement

## Awareness about SDG



I have never heard about SDG

I have heard something about SDGs

I know the content of SDG

I'm an expert on the topic

- The number of people who know about SDG is constantly increasing
- The percentage of people who have never heard about SDG decreased from 38% in 2018 to 9% in 2022

# SDGs@PoliTo\_Education

## Course mapping vs SDGs

**From 2019**

- **Increase awareness** on Sustainable Development
- **Promote SDG knowledge** among students.
- **Classify teaching courses** according to the SDGs

Involvement of:

- *Study courses boards*
- *Department boards*

Lecturers have been asked to include in the syllabus of courses:

- **1 primary SDG** (where applicable)
- **Max 2 secondary SDGs**

### Course topics

Energy, Environment and Development: synergies and conflicts. The main sources of renewable and non-renewable energy. The national and global energy scenario. Historical evolution, current situation and future developments. National and international strategies for the development and promotion of renewable energies. World protocols and national energy accounts. The total energy requirement and the electricity requirement. The electricity grid, the free market and the actors involved. The role of green energy in the market and its impact on the national electricity grid. A dynamic socio-economic scenario in continuous evolution.

**HYDROELECTRIC:** Water reservoir, dams and flowing water systems. Principles, definitions and examples. Design criteria, main concepts of power and energy. Main types of turbines, flow duration curve and its use in hydroelectric plants. The scheme of a hydroelectric plant, main works, accessories and safety. Main types of dams. Run-of-river power plants. Types of systems, evaluation of energy potential and constituent elements. The mini and micro-hydroelectric, typologies and examples. Incentive mechanisms and development opportunities. The environmental impact of hydroelectric plants and related mitigation. The minimum vital flow, the environmental impact assessment and the administrative procedures for obtaining the hydroelectric concession.

**WIND ENERGY:** Operating principles. The national and European Wind Atlas, Betz theorem and estimation of the wind power on a specific site. Wind analysis and basic design of wind farm. Wind turbines: characteristics and types. Regulatory framework and main applications. Landscape and environmental impact.

**ENERGY FROM SEA AND OCEANS:** Energy from tides. Offshore wind farms. Energy from the waves. Other marine energy sources. Current status, energy potential and future developments.

**GEOHERMAL:** Classification of geothermal resources and their uses. High enthalpy geothermal plant types: dominant steam, dominant liquid, EGS. Closed circuit geothermal heat pump systems: geothermal poles, horizontal collectors, geothermal probes. Thermal Response Tests. Design methods for geothermal probe systems. Open circuit geothermal systems: hydraulic characterization of the aquifer, numerical simulations and analytical formulas, main management problems. Potential environmental impacts on aquifers. Reduction of polluting emissions. Notes on costs and economic evaluation.

**BIOMASS SYSTEMS:** Biomasses and substrates usable for energy valorisation. Anaerobic digestion: principles, operating conditions, installation methods. Pre-treatments for anaerobic digestion. Mass and heat balances for full scale plants, valorisation of biogas and digestate generated. Environmental compatibility of the anaerobic digestion process. Reduction of polluting emissions. Notes on costs and economic evaluation.

Sustainable development goals





# SDGs@PoliTo\_Education

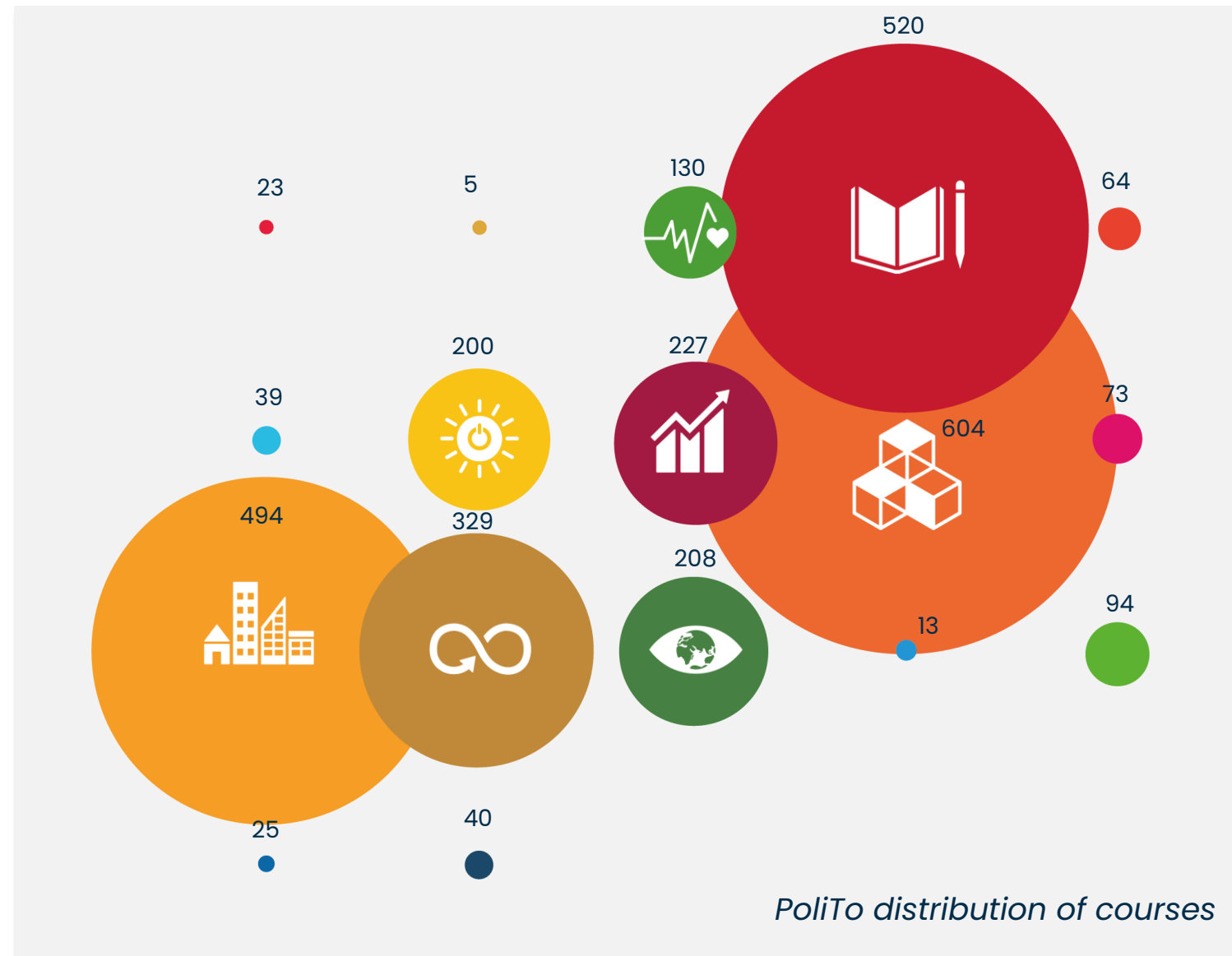
## Course mapping vs SDGs

2023

**84%** of courses have identified a contribution to the 2030 Agenda

### Future Goals

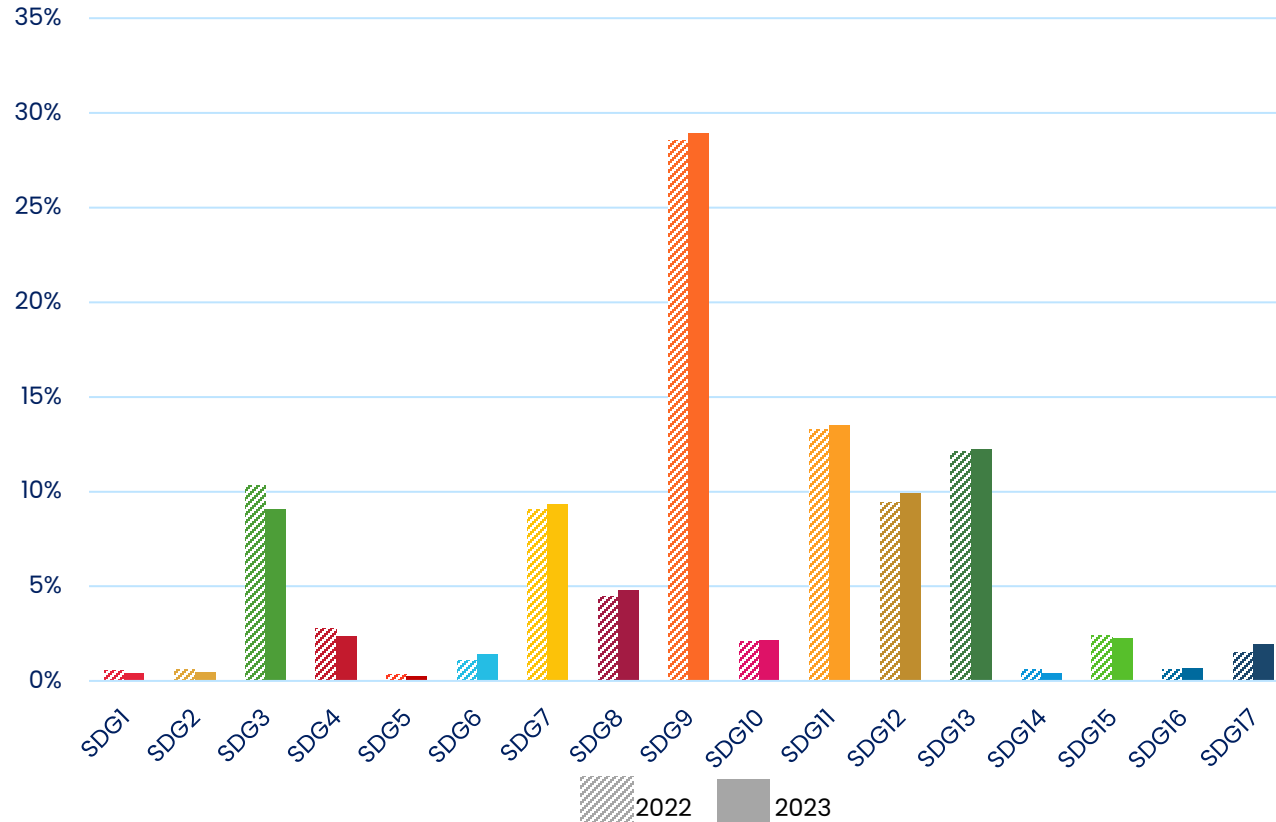
- Reduce SDG4 associations
- Course classification with mandatory assignments and feedbacks processes



# SDGs@PoliTo\_Education

## Master thesis mapping

### SDGs associated with master thesis



**From 2022**

Students have to identify **1 to 3 SDGs** associated with their master thesis

- **Increase awareness** on Sustainable Development
- **Promote SDG knowledge** among students.
- **Classify master thesis** according to the contribution to SDGs

# SDGs@PoliTo\_Education

## SDG-related teaching tools



- **Agenda 2030 and SDGs:** Online MooC developed with ASviS available for students and employees



- SDG-focused **courses for PhD students** organized with the Joint Research Centre (EC-JRC)



- **«Big Global Challenges» course** about challenges of the 2030 Agenda combining technical and humanistic knowledge

[Big global challenges – link](#)

# SDGs@PoliTo\_Research

The classification of research outputs aims at **creating awareness on research contribution on SDGs and 2030 Agenda**

(from 2018)

## Step 1

### Research outputs association with SDGs

1. Preliminary association with AI
2. Self-evaluation by authors

(from 2021)

## Step 2

### Researcher profiles self- association with SDGs

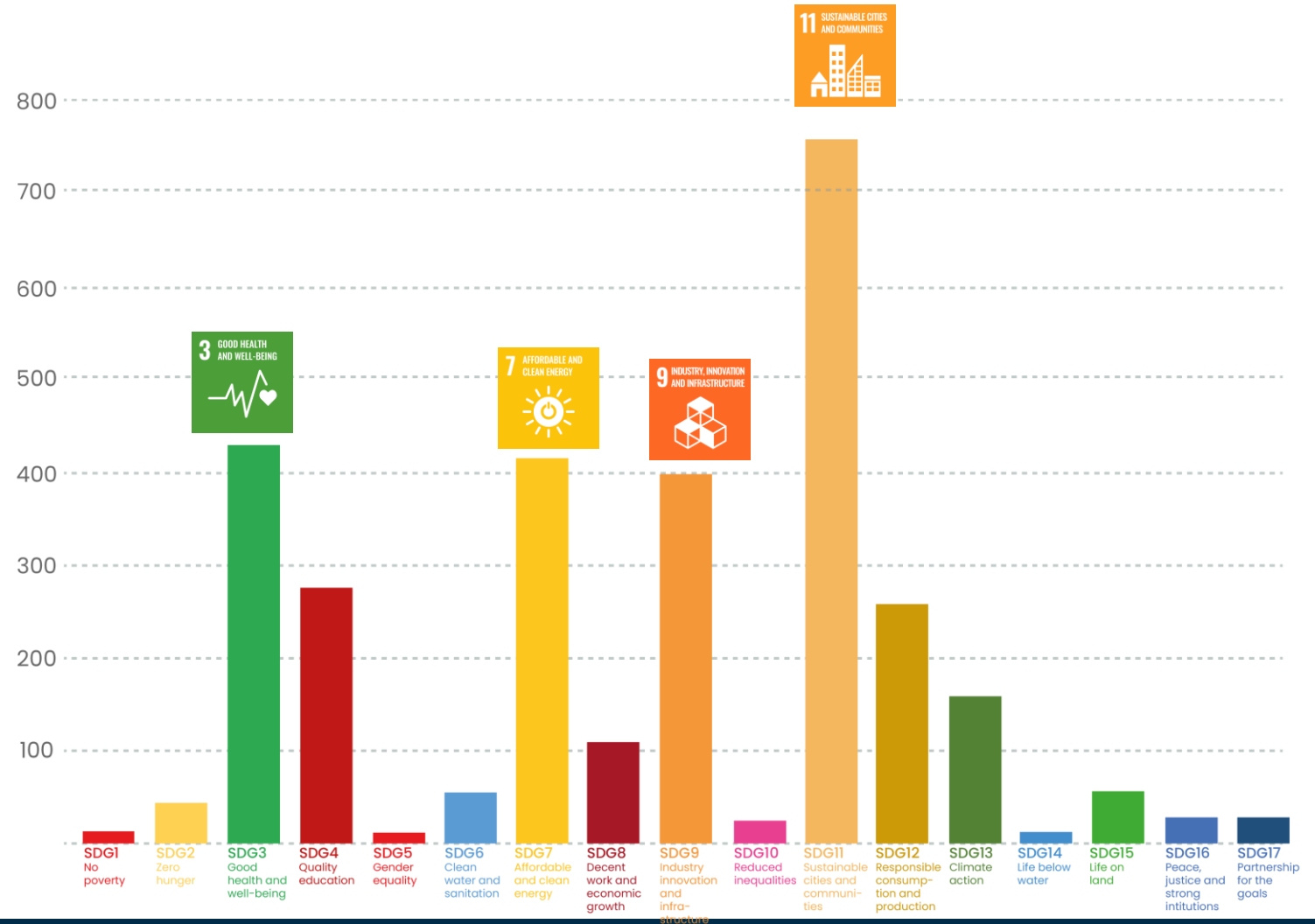
# SDGs@PoliTo\_Research

## Self-classification of Research Outputs

From 2018

- **Classify publications** according to the SDGs
- **Measure PoliTo contribution** in creating a more sustainable society
- **Familiarise with SDGs knowledge.**

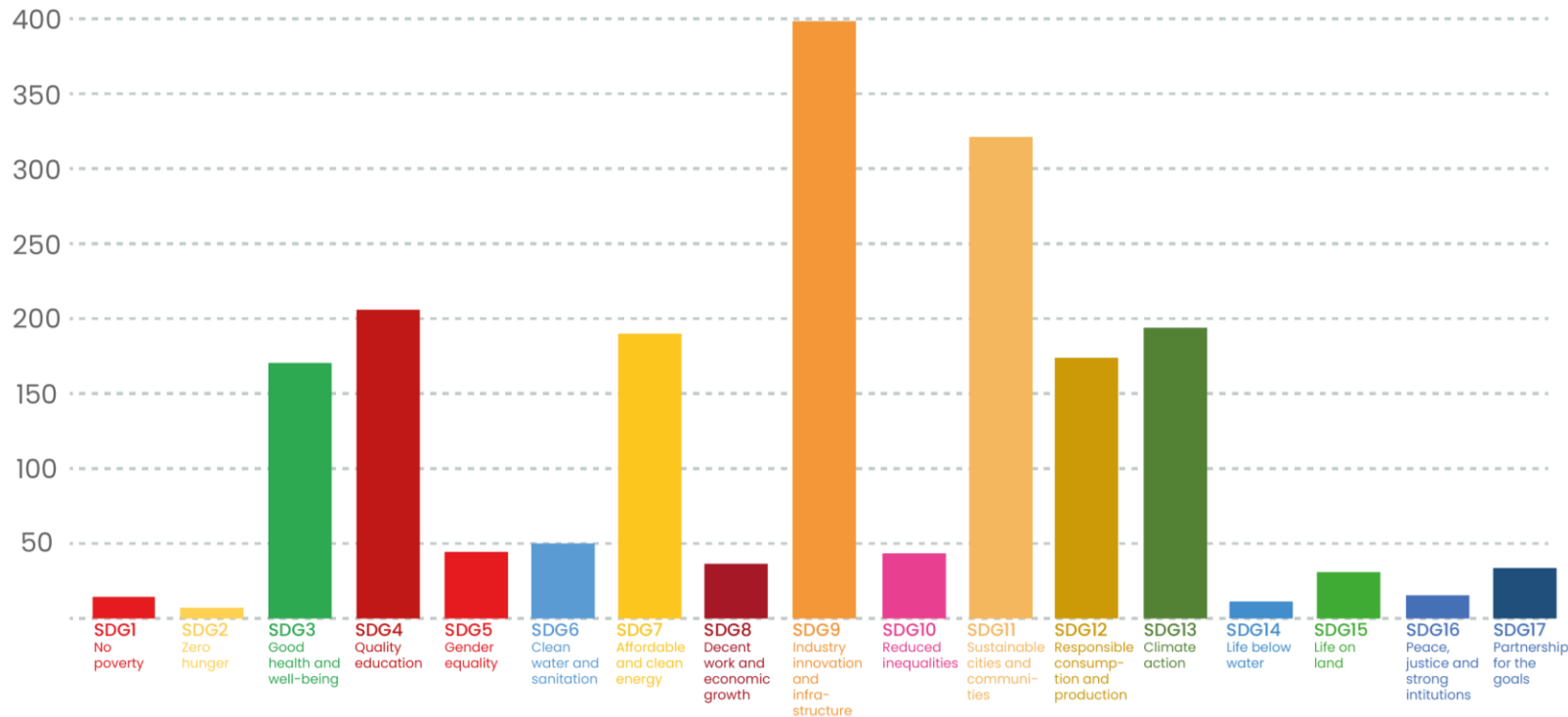
Number of publications per SDG





# SDGs@PoliTo\_Research

## Self-classification of Research Profiles



**From 2021**

Faculty members can include one or more SDGs to **describe their research profile according to the impact on the 2030 Agenda**

*Research profile according to SDG in the CRIS*

# SDGs@PoliTo \_ Student Engagement

## Student teams

### Teams:

Group of students tutored by a professor. Students work together to create projects that allows them to boost their cultural and technical skills through a **plurality of competencies and skills**

### Associations:

**Non-profit organizations** for the development of recreational, training, and cultural activities for students.



**MiLegoAlTerritorio** – LEGO®'s models to inform and raise awareness about natural phenomena' dangers.



**WEEE Open** – Repair of obsolete computers and electronic appliances



**Policumbent** – Human Powered Vehicles such as recumbent bikes, trikes, velomobiles and streamliners

....

# SDGs@PoliTo \_ Student Engagement

## Student Sustainability Hub

From 2023

**A place to collect, promote, coordinate, and co-create student initiatives about Sustainable development and SDGs**

The Hub includes

- Student representatives of teams and associations that work on sustainability
- Students interested in the topic



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# Green Team organization and activities



**>80 members**

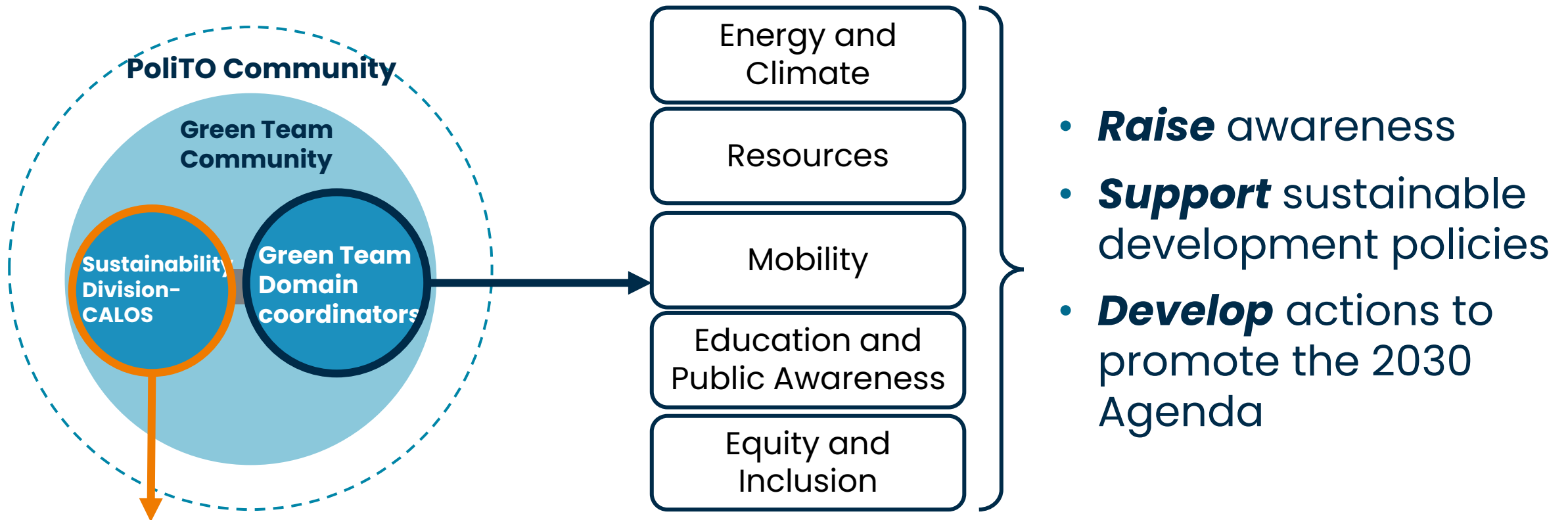
Representatives of University departments, administrative areas, student associations



- **Raise awareness** of sustainability issues with specific actions within the University
- Develop **actions to promote the 2030 Agenda**
- Support **sustainable development policies** in the local and regional frameworks



# Green Team organization and activities



**4 full time employees**

+ 1 internship

- **Coordinates university initiatives** on Sustainable Development and supports the Green Team
- **Promotes awareness initiatives** on sustainability issues
- Support the participation in sustainability **Networks** (e.g. the coordination of the RUS)

# Sustainability Engagement

## Events about sustainability



SUSTAINABILITY WEEK



WASTE MOB



BIKE TO WORK



M'ILLUMINO DI MENO



CLIMBING 4 CLIMATE



GREEN STORMING



CIRCONOMIA

...

# SDGs@PoliTo\_Engagement

## Events about sustainability

### University journal "Poliflash"

- Section "**Sustainable Campus**"
- **#Agenda 2030** to map Sustainability-related articles



10/05/2023

**Un progetto innovativo per gestire le emergenze sanitarie in Africa**

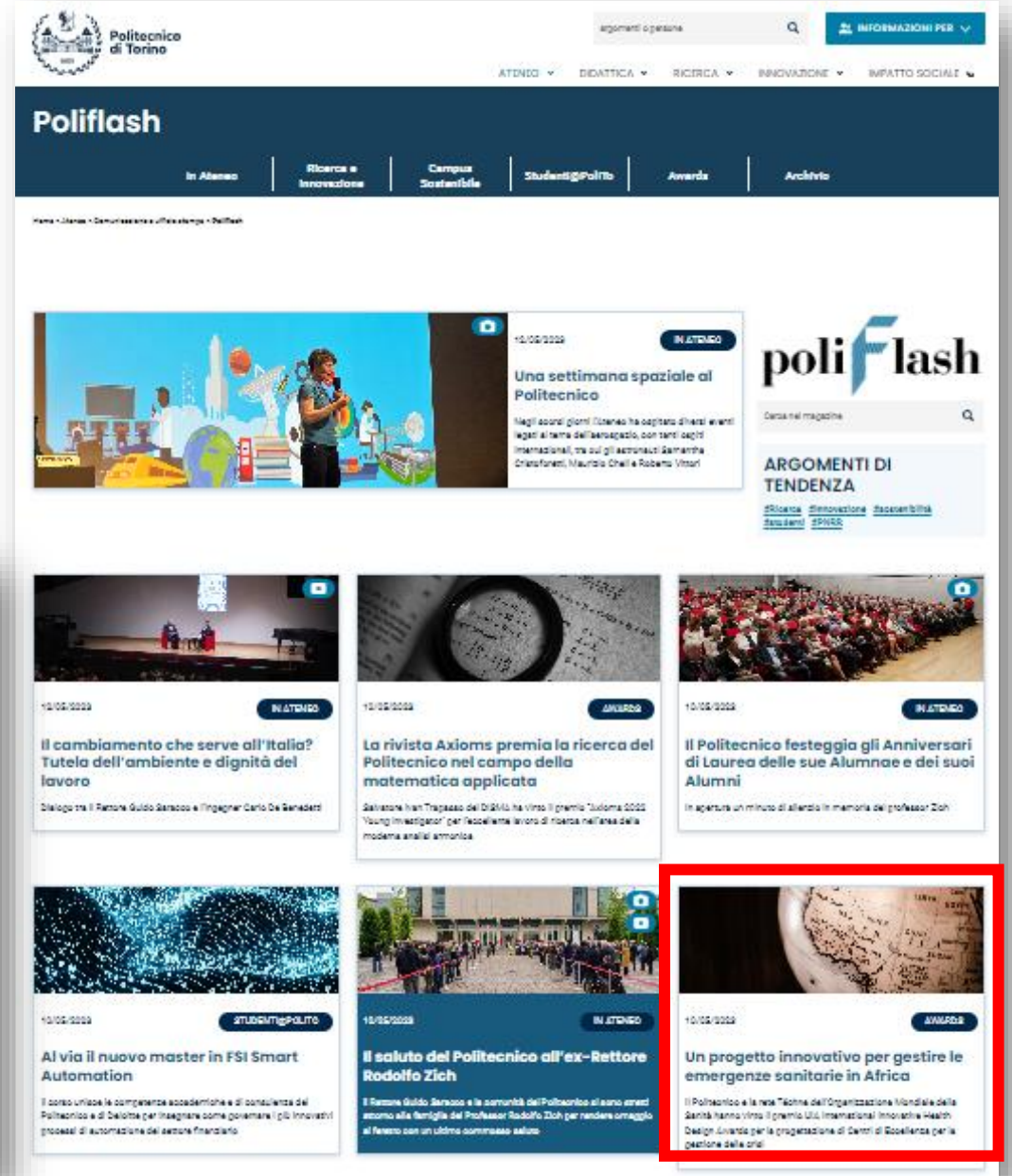
par\_13060

Il progetto "*Design for Healthcare SURGE. A Toolkit for the African Region*", nato dalla collaborazione tra il Politecnico di Torino e la rete internazionale *Téchné* (Technical Science for Health Network) dell'Organizzazione Mondiale della Sanità (OMS-World Health Organization), ha vinto il premio *UIA International Innovative Health Design Awards* nella categoria "Theoretical Work", che verrà conferito

**AWARDS**

**TAG**

- #Organizzazione Mondiale della Sanità
- #Téchné
- #salute
- #Africa
- #sostenibilità
- #progettazione
- #architettura
- #Social Sciences and Humanities
- #DAD
- #ENERG
- #awards



Politecnico di Torino

argomenti o persone

INFORMAZIONI PER

ATENE DIDATTICA RICERCA INNOVAZIONE IMPATTO SOCIALE

**Poliflash**

In Atene Ricerca e Innovazione Campus Sostenibile Studenti@PoliTo Awards Archivio

Home > Utensili > Comunicare e diffondere > Poliflash

10/05/2023 **IN ATENE**

**Una settimana spaziale al Politecnico**

Negli scorsi giorni Torino ha ospitato diversi eventi legati al tema dell'espansione, con tanti ospiti internazionali, tra cui gli astronauti Samantha Cristoforetti, Maurizio Cheli e Roberto Visoli

**poliFlash**

Cerca nel magazine

**ARGOMENTI DI TENDENZA**

- #Ricerca
- #Innovazione
- #Sostenibilità
- #Design
- #PoliTo

10/05/2023 **IN ATENE**

**Il cambiamento che serve all'Italia? Tutela dell'ambiente e dignità del lavoro**

Dialogo tra il Rettore Guido Saracco e l'ingegner Carlo De Benedetti

10/05/2023 **IN ATENE**

**La rivista Axioms premia la ricerca del Politecnico nel campo della matematica applicata**

Salvatore Ivan Trapanese del DiSMo ha vinto il premio "Axioms 2022 Young Investigator" per l'eccezionale lavoro di ricerca nell'area della moderna analisi armonica

10/05/2023 **IN ATENE**

**Il Politecnico festeggia gli Anniversari di Laurea delle sue Alumnae e dei suoi Alumni**

In apertura un minuto di silenzio in memoria del professor Zich

10/05/2023 **STUDENTI@POLITO**

**Al via il nuovo master in FSI Smart Automation**

Il corso unisce le competenze accademiche e di consulenza del Politecnico e di Torino per insegnare come governare i più innovativi processi di automazione del settore finanziario

10/05/2023 **IN ATENE**

**Il saluto del Politecnico all'ex-Rettore Rodolfo Zich**

Il Rettore Guido Saracco e la comunità del Politecnico si sono uniti intorno alla famiglia del Professor Rodolfo Zich per rendere omaggio al Rettore con un ultimo commosso saluto

10/05/2023 **AWARDS**


**Un progetto innovativo per gestire le emergenze sanitarie in Africa**

Il Politecnico e la rete Téchné dell'Organizzazione Mondiale della Sanità hanno vinto il premio UIA International Innovative Health Design Awards per la progettazione di Centri di Eccellenza per la gestione delle crisi



# Sustainability Engagement


## Website and report

**Politecnico di Torino**

POLITO ▾ EDUCATION ▾ RESEARCH ▾ INNOVATION ▾ SOCIAL IMPACT ▾ 🔍 👤

### Sustainable campus

For several years now, Politecnico di Torino has been pursuing a path of **integration of sustainability principles** in its activities: teaching, research, third mission and campus management. The path undertaken is aimed at developing the principles of sustainability in a shared and systematic strategy, in acknowledgement of the Sustainable Development Goals adopted together with the 2030 Agenda by the United Nations in 2015



The principles of sustainability, of the University's impact on the environment and natural resources, and actions to promote sustainable development of the territory, had already been introduced in the Statute of Politecnico di Torino in 2012. In 2018, a specific line of the PoliTO4Impac University Strategic Plan was dedicated to the development of a sustainable campus and the role of the University in the exchange of knowledge and technologies for sustainable development.

Since 2019, the Politecnico has the presidency of the Italian Network of Universities for Sustainable Development and coordinates its activities. Since 2023, it also leds the RUS Working Group dedicated to mobility issues.

Through the Sustainable Campus section of this site, it is possible to get an overview of all the University's actions

Sustainable campus	×
Action2040 Decarbonisation	+
Fields of action	+
Impact monitoring	+
Reports and documents	
About us	
Events and opportunities	
News and calls	

2016



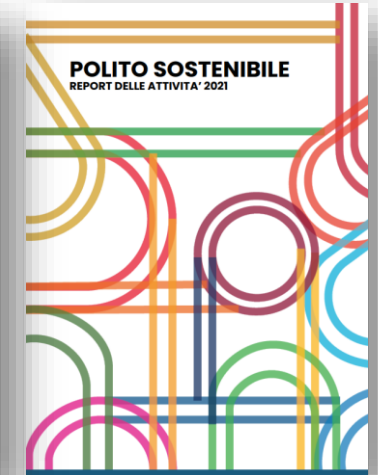
2019



2020



2021



<https://www.polito.it/ateneo/campus-sostenibile>

# Thank you for your attention

[sostenibilita@polito.it](mailto:sostenibilita@polito.it)

<https://www.polito.it/en/polito/sustainable-campus>



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