



Fondazione
Politecnico
di Milano

**FONDAZIONE
POLITECNICO DI MILANO**

**TOGETHER FOR
INNOVATION**

2021



THE RECTOR

Losing our certainties to gain a new prospective. Abandoning old frameworks to see the world in a new light. Transform risks into occasions for growth. This is the legacy of a sudden and in some ways catastrophic event like the pandemic. An unexpected blow to society and to an academic system that, as a whole, reacted with great composure and spirit of initiative.

Fondazione Politecnico di Milano was established nearly 20 years ago, with the objective of bringing the university closer to the outside world. It has always carried out this task scrupulously, even in these difficult times. We will go forward, rebuilding our post-Covid world on the value of our relationships and the strength of our skills, and we will be ready for development that is even fairer and more inclusive.



THE PRESIDENT

One year on from the eruption of the health emergency, we must read the Covid-19 pandemic as an “accelerator” in a process of renewal that was dormant, and a “trigger” to deploy effort and investment, promote strategic innovation and launch fundamental decisions. I trust that companies, schools, universities and talented people will weave an ever more closely knit system of relationships to enable the virtuous process of cross-fertilisation of ideas and stimulate a journey of long-term sustainable development.

The commitment on our side is that the Foundation, alongside its traditional identity of supporting Politecnico di Milano’s “third mission”, will become an agile operational tool to expand the university's horizons on the international stage.

Andrea Sironi





FONDAZIONE POLITECNICO
DI MILANO

TOGETHER FOR
INNOVATION

ABOUT US

Fondazione Politecnico di Milano was established in **2003** on the behest of **Politecnico di Milano**, our city's main institutions and the regional government of Lombardy, with the support of several important business companies.

The Foundation **contributes towards innovating and developing Italy's economic and productive landscape**, operating to improve the efficiency of relationships between **Politecnico di Milano** and companies, institutions and public authorities. As a **credible and reliable partner**, the Foundation can be the catalyst for constructive dialogue between various subjects.



MISSION

1. **Strengthen and promote high quality research**, transfer of knowledge and education/training in Italy and **internationally**
2. Encompass a multi-disciplinary focus on **ethics, sustainability and social responsibility**
3. Encourage the creation and growth of **innovative technological enterprises**
4. **Increase our international perspective** to establish **world level alliances** and share our values, strategies and actions



UNIQUE SELLING POINTS



ACCESS TO KNOW-HOW

We know Politecnico di Milano, its setup, its professionals and its core subject matter inside-out, ensuring direct and focused access to its wide-ranging expertise



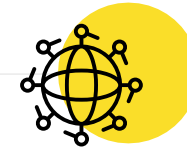
CUSTOMER- CENTRICITY

We know how to listen and we understand your requirements; this is the basis for selecting the specific skills to put in the field



PM & FINANCING

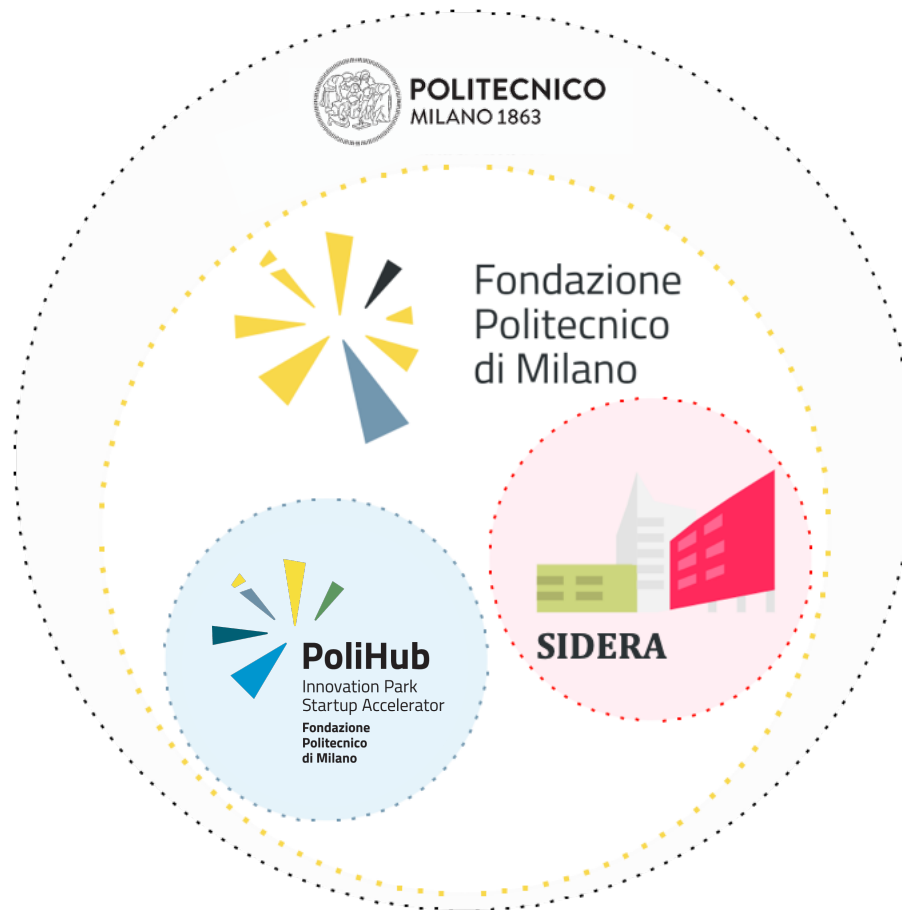
Solid capacities in project management and managing multi-disciplinary work teams, joined by our ability to pinpoint opportunities and targeted financial instruments



ECOSYSTEM & NETWORK

Access to a wide pool of players and professionals in many fields, through a strong network of connections with companies, institutions and research centres

Innovation Ecosystem



Founders

Institutional Participants

International Partners

Innovation Ecosystem

Founders



Associazione
Parizzi



UNIVERLECCO

Innovation Ecosystem

Institutional Participants

ABB

ALSTOM
• mobility by nature •

ARISTON
THERMO GROUP


ASSOLOMBARDA

ATM

BLS
MADE IN ITALY

BOMBARDIER

brembo

COLAS RAIL
ITALIA

CONTACT
CONTACT SYSTEMS

COVIVIO

EDISON

ELDOR
CORPORATION

enel

Faiveley Transport
A Wabtec Company

FNM
idee in movimento

FB Fondazione
Bracco

FPT
POWERTRAIN TECHNOLOGIES

FRANKE

GENERALI

GILARDONI

HITACHI
Inspire the Next

IBM

.italo
Nuovo Trasporto Viaggiatori

LUMSON
COSMETIC PACKAGING INDUSTRIES

MERCITALIA RAIL
GRUPPO FERROVIE DELLO STATO ITALIANE

Narvalo
Air of Change

Posteitaliane

RFI
RETE FERROVIARIA ITALIANA
GRUPPO FERROVIE DELLO STATO ITALIANE

SM
siae microelettronica

SITAV
Società Italiana Treni Alta Velocità

SNBITECH

Steriline
ASEPTIC PROCESSING

ST
life.augmented

TRENITALIA
GRUPPO FERROVIE DELLO STATO ITALIANE

vodafone

Innovation Ecosystem

International Partners

2400+
PARTNERS IN OUR NETWORK



Universities



SMEs



Institutes
and Bodies



Associations



Public
Authorities

Research for Development series

Fondazione Politecnico di Milano is **co-founder and special co-partner** of this series, by **suggesting themes and evaluating proposals** for new volumes. Research for Development addresses researchers, students, and policy and decision-makers around the world in government, industry, and civil society.

Research for Development series is an **asset** to promote well-balanced sustainable growth.

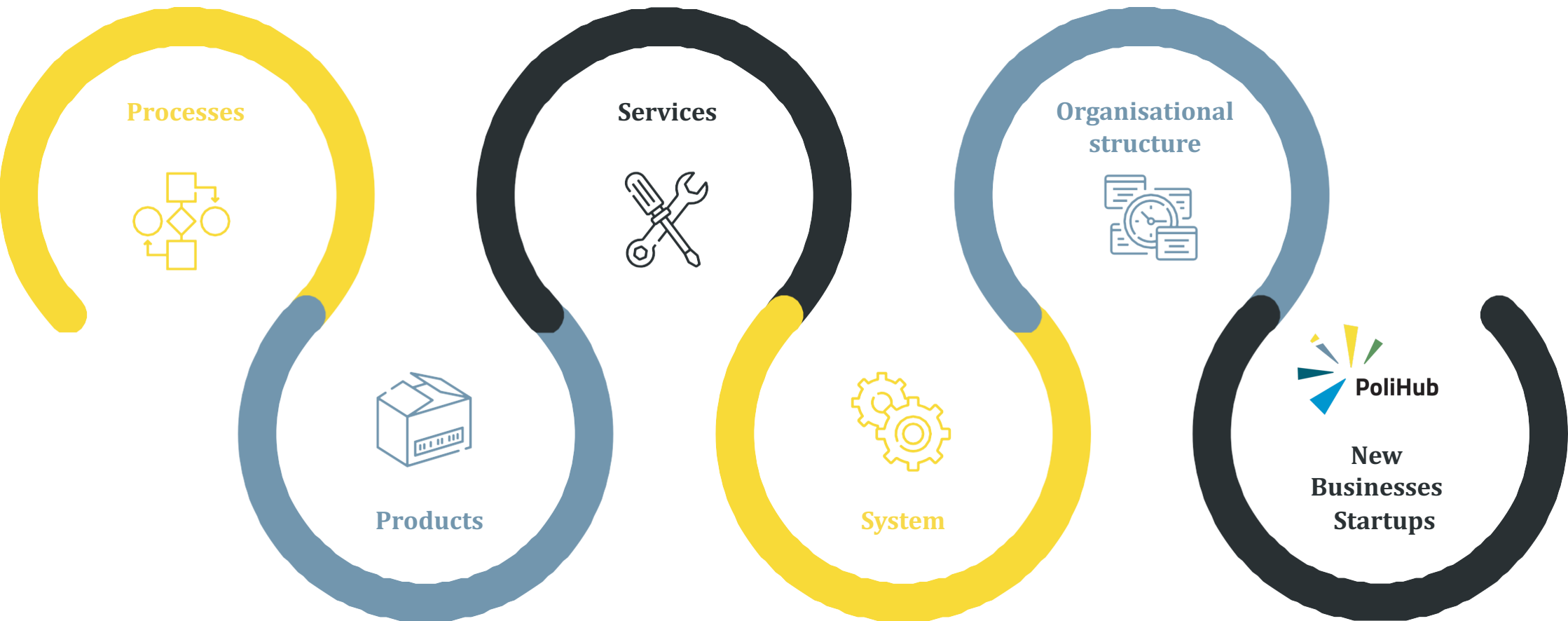




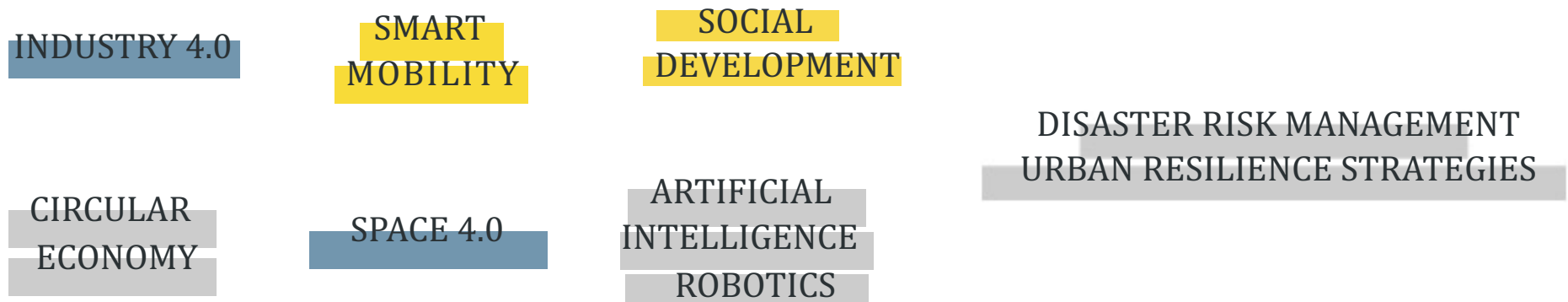
FONDAZIONE POLITECNICO
DI MILANO

WHY CHOOSE
FONDAZIONE

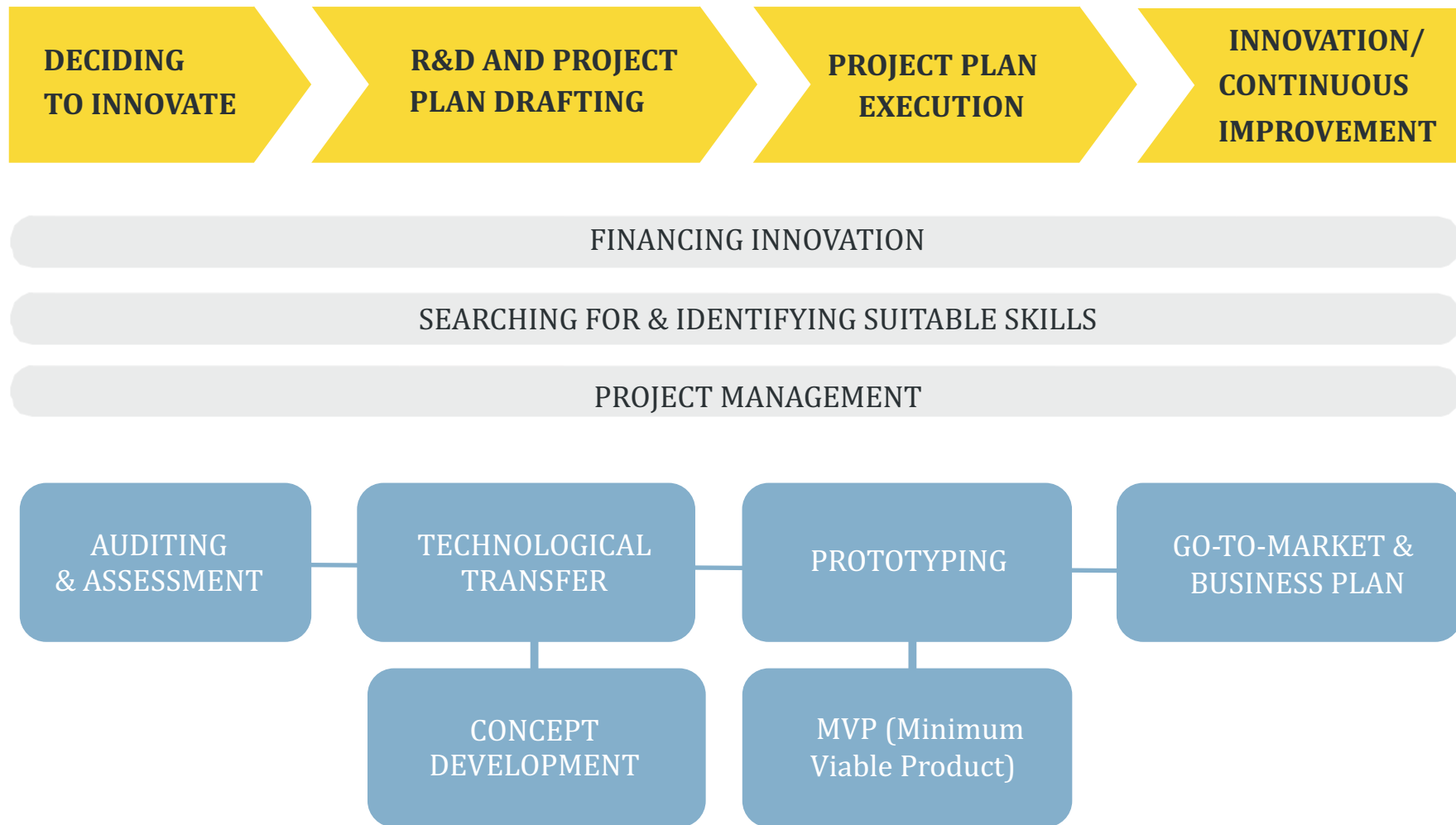
Innovation in all its shapes and forms...



...in many sectors, always paying attention to the big issues of tomorrow...



...and we oversee all the phases
of the innovation process



We enable a virtuous circle

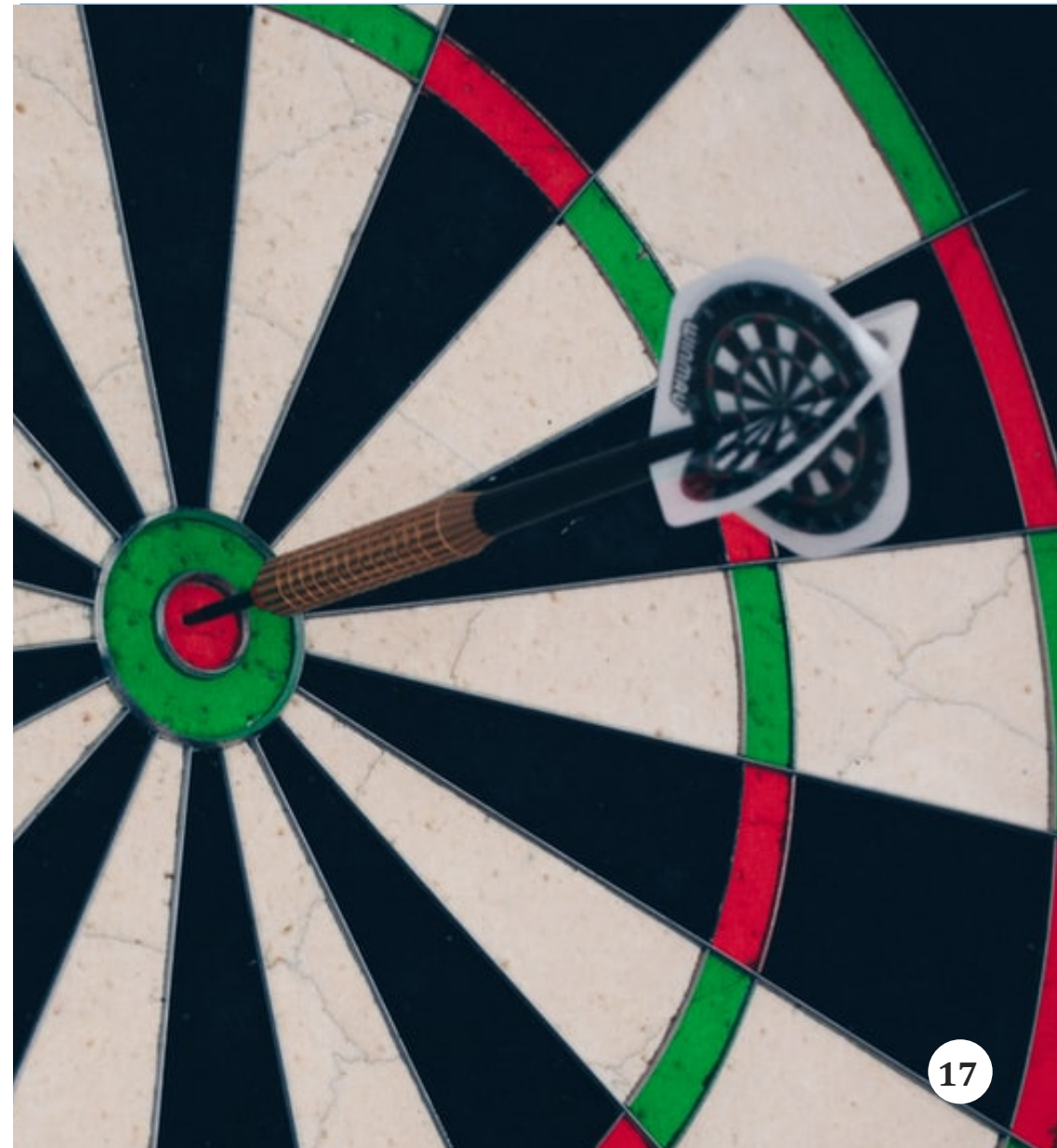
We help you generate:

- **Value**
- **Impact**
- **Development and Expansion** in Italy and internationally
- **Growth of Human Capital**

This is true for

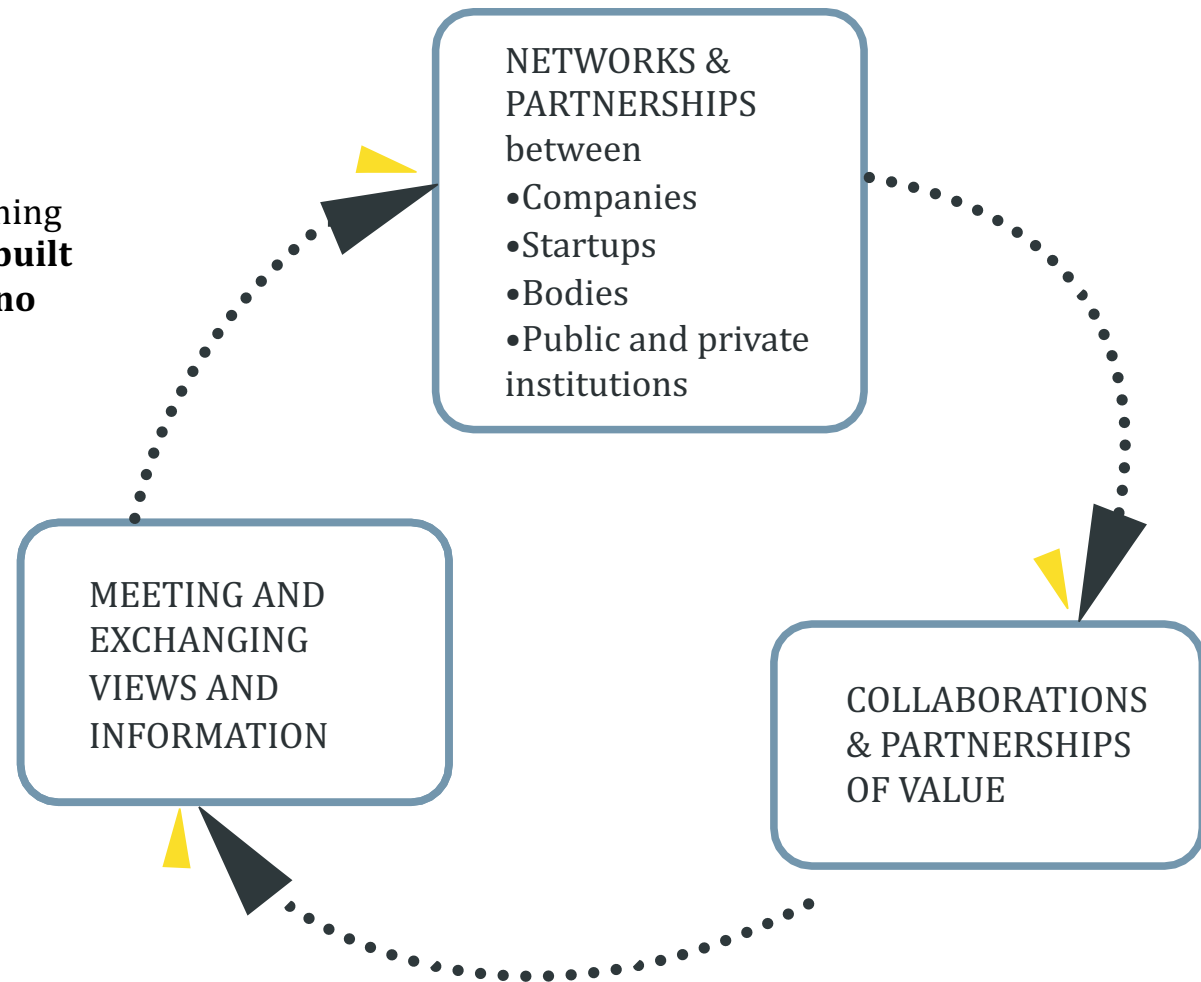
- **STARTUPS/NEW BUSINESS**
- **ESTABLISHED COMPANIES**
- **PUBLIC AUTHORITIES**

...including from an international outlook perspective.



We open the doors to a network of partners

Going to Fondazione means gaining
**access to subject knowledge built
up within Politecnico di Milano
and** to much more

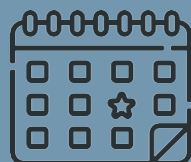


Our numbers



2400+

**Partners in
our network**



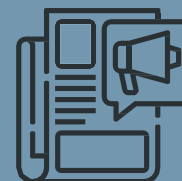
32

**Events
organised**



215+

**Projects run
in 2020**



3500

**Press
articles**



93

**Millions of euros
generated in 2020**

**(of which 62.5
million financed
through various
programmes)**



FONDAZIONE POLITECNICO
DI MILANO

SERVICES
IN DETAIL

Our services

0

Identification of Needs

Before reaching for
our customer's
hand, we help them
to understand IF
they need us and
WHAT we can do for
them

1

Core Services

2

Step by step towards innovation

3

Up-stream and down-stream in the innovation process

Audit and Assessment

*The tool that opens up the possibility
of embracing other routes to innovation*

Company digitalisation, the revision of procedures and any kind of innovation process must start from an **initial assessment**.

We can **assist** in this initial phase through:

- **Meetings with the various actors involved in the process**
- **As-is process analysis**
- **Checklists for self and external assessment of skills**
- **Discussions and analysis of needs**

These actions will allow us to prepare a **detailed, targeted and precise Action Plan**.



Our services

0

Identification of Needs

1

Core Services

We offer support
throughout and across
all phases of the
innovation process

2

Step by step towards innovation

3

Up-stream and down-stream in the innovation process

Financing Innovation

*Support and assistance in searching for
funding for innovation*

We help our customers find **sources to fund** their operations at **each stage of the process of innovation**.

We provide support for:

- **TENDERS AND FUNDING PROGRAMMES**
- **SUBSIDISED FINANCE**
- **TENDERS, COMPETITIVE BIDDING AND PRE-COMMERCIAL PROCUREMENT**

Through:

- **Regional** ●
 - **National** ●
 - **European** ●
 - **Worldwide** ●
- initiatives

Work closely with you throughout the entire design phase

Provide assistance when you are bidding for a financed project, support you in managing, monitoring and evaluating the process, and in establishing a partnership

Search for funds (radar)

Identify opportunities and targeted financial instruments

Searching for & identifying suitable skills

A network of partners

able to oversee every angle and aspect

Going to Fondazione means gaining **access to subject knowledge built up within Politecnico di Milano.**

With the experience and unique knowledge acquired over the years, **we can put our customers into contact with the actors necessary to their specific innovation.**

We know which expertise lies where in Politecnico di Milano and within the pool of our professional partner companies, and can select the most suitable players for the purpose on the basis of their **tested knowledge, thereby creating value and growth.**

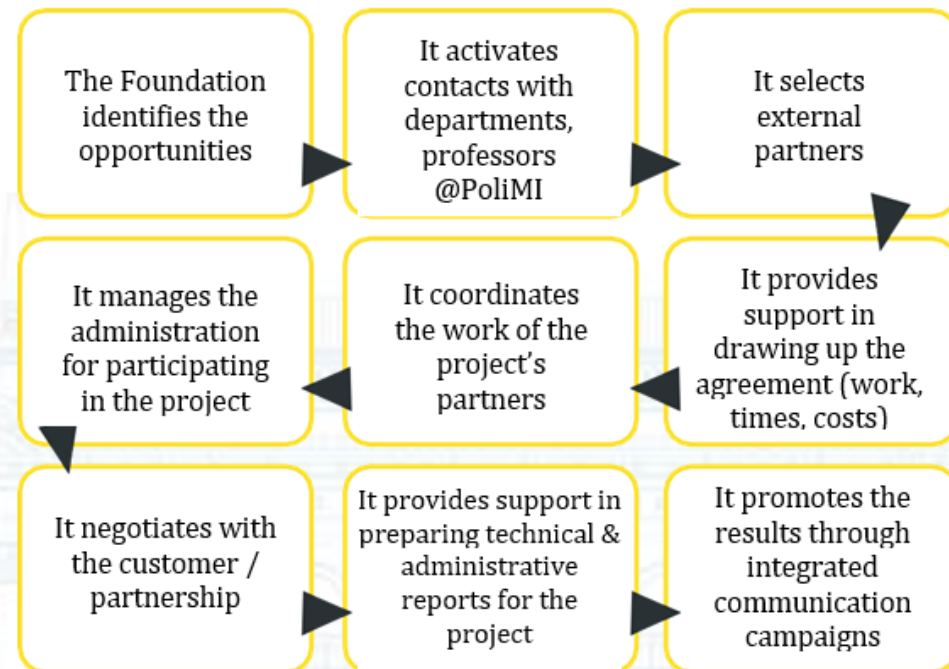


Project Management

*Expertise in managing
complex multi and inter-disciplinary initiatives*

We provide **personalised 360° support** for all project management operations, from **managing the initial phases**, **planning** and **coordinating** all the action to **delivering the results**. We can also **supervise the content**.

A targeted and personalised path to **successfully innovate!**



Our services

0

**Identification
of Needs**

1

Core Services

2

**Step by step
towards innovation**

We will be at your
side, step by step, at
every stage of the
innovation process,
on the basis of your
specific requirements

3

**Up-stream and
down-stream in
the innovation
process**

Technological Transfer

*A **bridge** between knowledge and the business world*

We play a key part in transferring scientific knowledge from academia to the market, contributing to social, cultural and economic development within the business fabric and in wider society.

Because of **our gateway to the know-how at Politecnico di Milano**, we can operate as true **intermediaries between the demand and offer of innovation**, enabling the process of **technological transfer**.

1. Patent Search

We can verify the state-of-the-art for the entire scenery of scientific-patenting literature



2. Preliminary market analysis

Study of the competitive landscape and identify opportunities



From concept to pre-industrialisation

*To sustain the innovation idea
until it is accomplished, in all its phases*

We provide support at every stage of the innovation process, **from concept development, to prototyping and the pre-industrial phase.**

This does not only apply to product innovation in a strict sense. Our close collaboration with all departments at Politecnico di Milano, a pulsing R&D centre, and our wide network of partner laboratories and real operational centres, means that Fondazione has the **capacity to preside over any kind** of innovation.



1. Proof of concept (POC)

From concept development to feasibility tests and proving the validity of the single elements



2. Prototyping

First endorsement of the concept, providing the subsequent specifications and setting the bases for a real working system rather than a theoretical idea



3. Minimum Viable Product (MVP)

Support during all the pre-industrialisation phase, with our access to real operating settings, up to the MPV stage, where the idea is ready to be launched on the market

Go-To-Market & Business Plan

End to end support

When your innovation is up and running, we can still **oversee its effective entry to the market or, at any rate, its practical implementation/execution.**

We provide support in:

- **CONDUCTING MARKET RESEARCH**
- **DRAFTING A BUSINESS PLAN**

Conducting Market Research

If your final objective is to take your innovation to market, we can help you analyse all the necessary information for the market of reference through desk research, as well as quantitative and qualitative analyses



Drafting a Business Plan

Furthermore, regardless of the type of innovation, we can help you prepare a detailed action plan that covers all the key elements for its success, from defining it, to its relative marketing plan, investment plan and estimated budget

Our services

0

**Identification
of Needs**

1

Core Services

2

**Step by step
towards innovation**

3

**Up-stream and
down-stream in
the innovation
process**

The Foundation's
impact up stream
and down stream in
the innovation
process

Education, Training & Capacity Building

*We prepare
the ground for innovation*

The Foundation develops and implements personalised **corporate training projects and learning models based on competency-based training in various contexts and for different recipients.**

Training and new/improved skills are fundamental for building an economy based on knowledge and are the **cornerstone of organisational and professional change geared towards innovation.**

Education for Schools

The Foundation encourages and supports processes of innovation in teaching and online collaborations, and is the reference point for higher technical training, especially in STEAM subjects (Science, Technology, Engineering, Art, Mathematics)

Capacity Building

The Foundation is actively engaged in working alongside companies in developing countries, enabling vertical training and the development of soft skill



Business Incubator & Entrepreneurship Support

*The point of call for
innovative enterprises*

The Foundation manages **PoliHub, Politecnico di Milano's Innovation Park & Startup Accelerator**, a point of call for every innovative enterprises, from startups to SMEs, with proven track record of providing support within this setting to companies in continuous evolution.

A destination point for innovation? And a starting point and an exchange point.



The place to go for Innovators in Deep Tech



Startup



Scaleup



Company



FONDAZIONE POLITECNICO
DI MILANO

GOVERNANCE

Governance



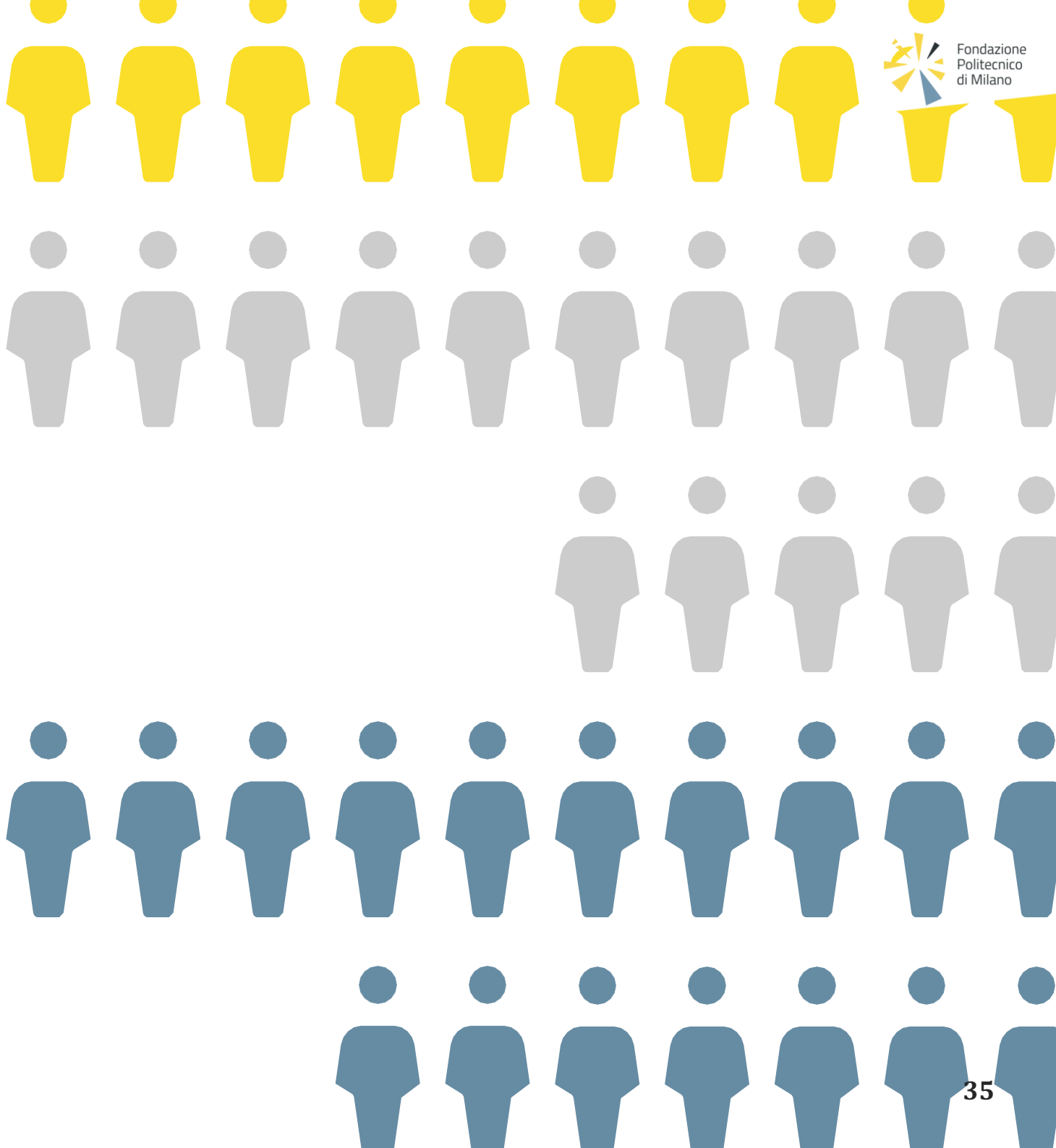
BOARD OF
DIRECTORS



ASSEMBLY OF
FOUNDERS



SCIENTIFIC
COMMITTEE

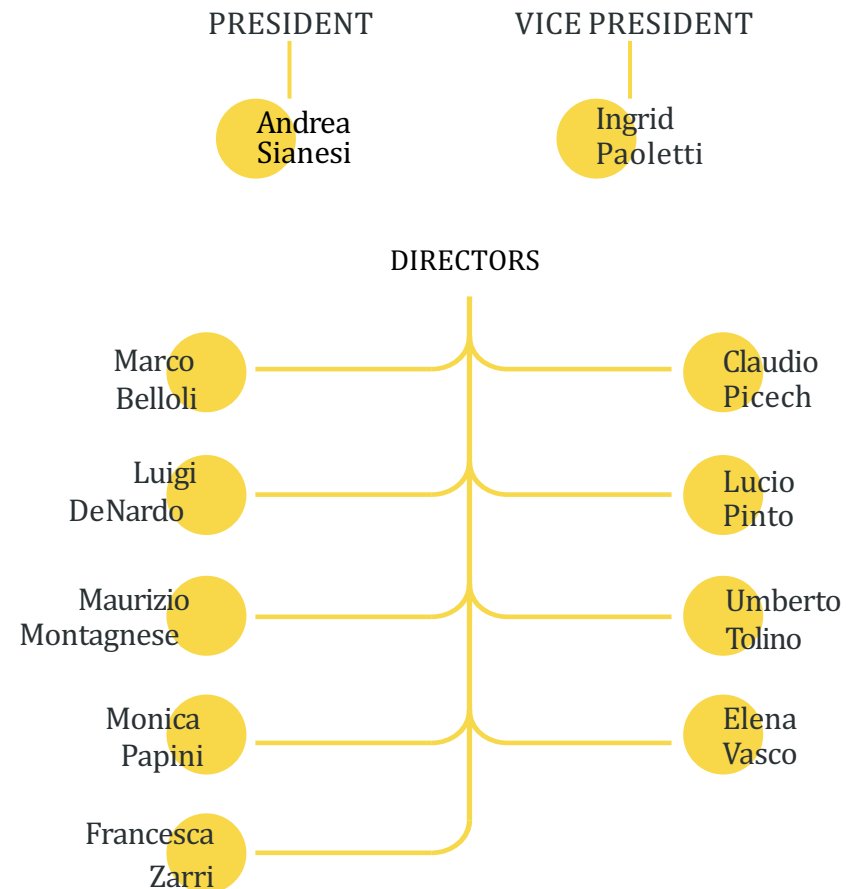


Governance

Board of Directors

Main duties:

- Defining the guidelines for the Foundation's work and the relative objectives and programmes
- Appointing the General Director
- Administering the Foundation's assets
- Approving the forecast and actual financial statements



Governance

Assembly of Founders

The Assembly consists of one representative for each Founder.

Among its duties, it:

- Makes recommendations to the BoD concerning the general direction, objectives and programmes for the Foundation's work
- Gives its opinion on the forecast and actual financial statements
- Appoints four Directors to the Board

PRESIDENT

Attilio
Fontana
President of
Lombardy
Region

VICE PRESIDENTS

Cristin
Tajani
Councilor with
responsibilities for
work policies,
production, commerce
and human resources,
Municipality of Milan

Vico
Valassi
President of
UniverLecco

MEMBERS



Associazione
Parizzi



INTESA  SANPAOLO



SIEMENS
Ingegno per la vita

UNIVERLECCO



Governance

Scientific Committee

The Scientific Committee is the Foundation's advisory body: it **advises and collaborates** with the Board of Directors **in defining the annual general programme** for the Foundation's events and undertakings.

PRESIDENT

Andrea
Sianesi

MEMBERS

Giovanni
Arvedi

Giorgio
Diana

Pietro
Guindani

Presidente
Comitato
Partecipanti
istituzionali

Gaela
Bernini

Sergio
Dompè

Alberto
Meda

Manfredi
Catella

Mauro
Fenzi

Paola
Mungo

Enrico
Cereda

Giorgio
Ferrari

Alessio
Rocca

Rappresentante
degli studenti

Adriano
DeMaio

Pasquale
Forte

Paola
Delmonte

Luciano
Galimberti

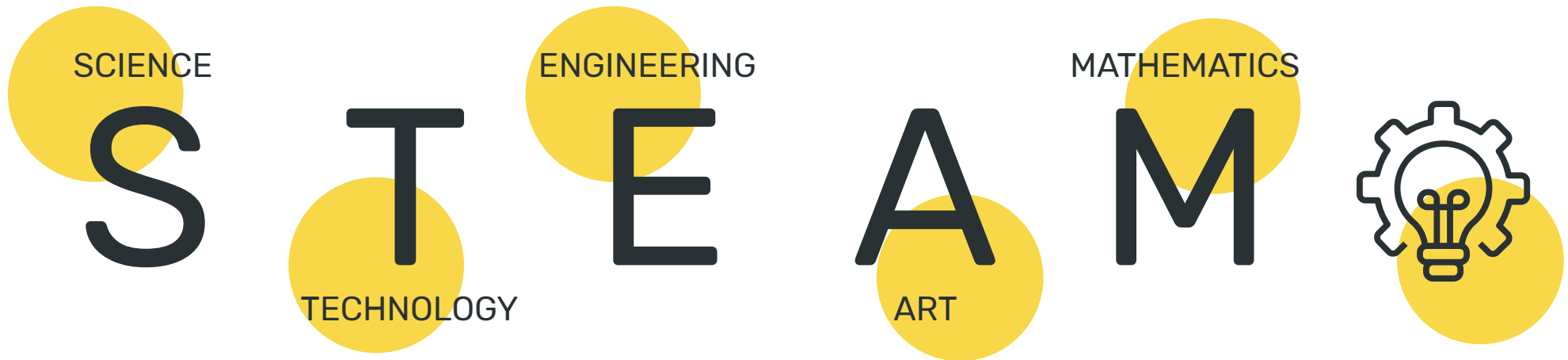
Marinella
Soldi

A PRESENT AND FUTURE CALLED

STEAM

Nothing in life is to be feared, it is only to be *understood*. Now is the time to *understand more*, so that we may *fear less*. I am among those who think that science has *great beauty*.

MARIE CURIE



STEM skills are and will be the skills of the future.

The future in industry and economy is based on **digital creativity**, on developing exciting new technology and offering solutions in many fields.

We can say that STEM is founded on **research, curiosity, the desire to discover and create new**

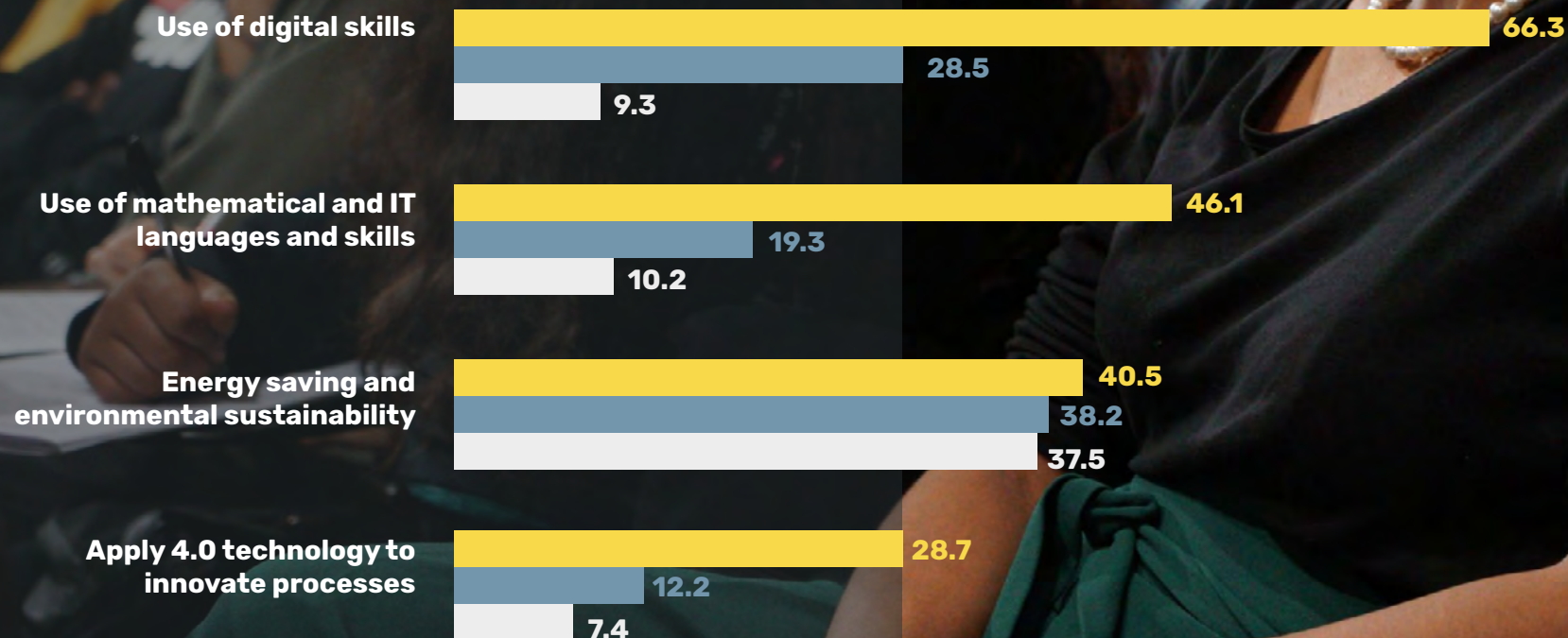
things, a passion for what is beautiful and for order, rules being the way to undiscovered roads.

STEM is now expanding into **STEAM (Science Technology Engineering Art Mathematics)**, requiring profiles that are evermore “Social & Human in nature”.

Market

Digital and green drive market demand. Over the next five years, the work market will require 1.6 million workers able to deliver eco-sustainable solutions and strategies and 1.5 million workers with good digital skills, equal to 56% of all jobs on offer.

E-SKILLS & GREEN SKILLS



A present and future called STEAM

Future professions

Over the next 5 to 10 years, the main professions in companies linked to digital will be:



#SOFTWARE
APPLICATIONS
DEVELOPERS



#ANALYST



#INFORMATION
TECHNOLOGY
SERVICES



#BUSINESS
INTELLIGENCE
ANALYST



#CLOUD
COMPUTING
EXPERT



#DIGITAL
TRANSFORMATION
SPECIALIST

In STEAM subjects, the area for improvement will be gaining multi-disciplinary skills; in some profiles, the level of technical and scientific expertise is high, but interpersonal and communication skills are low.

A present and future called STEAM



THE WORD TO COMPANIES

FOCUS

*Back
Human Capital*

A present and future called STEAM

A country that needs STEAM graduates

23% of companies looking for STEAM graduates are unable to find people with the right skills. On paper, studying for a degree in these subjects could be a great opportunity. And there are one million jobs available for scientific profiles, scattered in various companies across the country.

In Italy, only **27%** of students are taking STEAM subjects, and the trend is more or less stable.

Lombardy plays a major role in STEAM subjects, with the highest number of Italy's STEAM students (17%), followed by Lazio (13%) and Campania (12%).

Hard skill mismatch in STEAM subjects

Hard STEAM skills that companies are looking for (value %)

Marketing SEO/SEM	23%
Software development	22%
Network and IT security	14%
Statistical analyses and data mining	14%



Students' self-assessment of their STEAM hard skills

4.7	Marketing SEO/SEM
4.9	Software development
4.9	Network and IT security
5.5	Statistical analyses and data mining



Source: Deloitte - Basi Osservatory: Companies (b.300) - percentages shown (9%);
University STEAM students (b.104) - average score (min 1; max 10)

What do companies need in a STEAM outlook?

To tackle digital and green challenges, the production system needs highly competent technical and scientific professionals. Today, Italy is turning out fewer STEAM graduates than business demands. We need an effective and widespread system to highlight the opportunities linked to STEAM subjects from primary school onwards, incentive industrial doctorates and strengthen collaborations between universities and companies, including championing in-house business “academies”.

How can education and the world of work meet?

To go forward, Italy, this country battered by social, economic and health crises, needs the drive of well-qualified human capital. Education programmes do not always include the type of technological innovation where AI, cloud computing, blockchains and quantum computing are defining the 4th industrial revolution. This creates a skill gap that is hindering development.

Collaboration between private companies, universities and the public sector can certainly bring significant contribution to the job market's key human capital.

ENRICO CEREDA
President IBM Italia
and Technology Leader EMEA



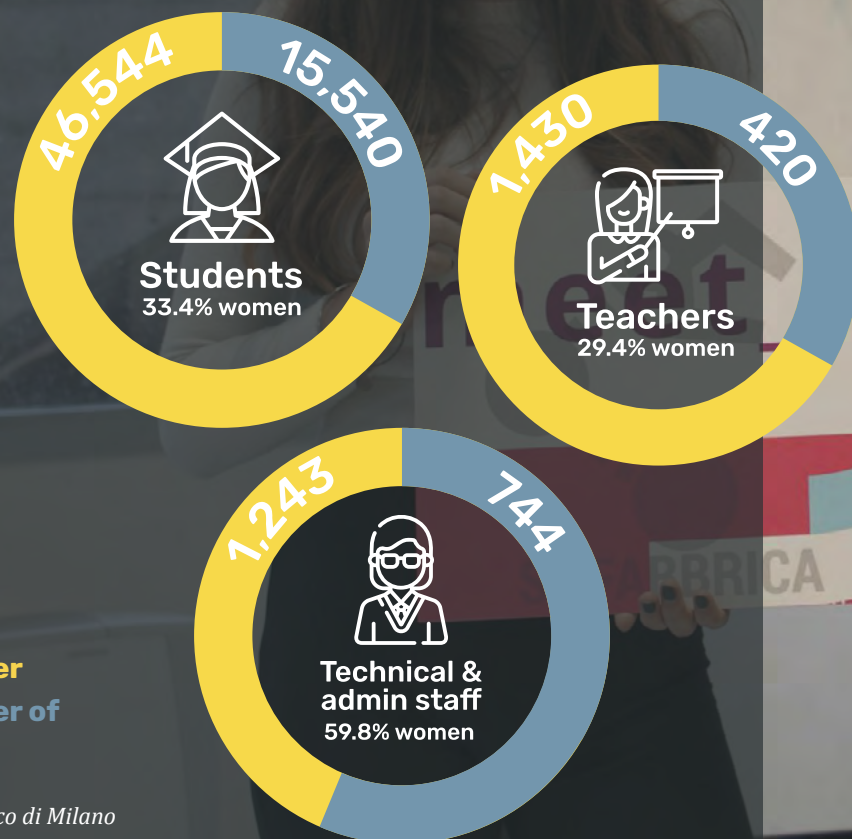
THE WORD TO UNIVERSITIES

FOCUS

*Gender Gap.
Politecnico di Milano,
our point of
reference*

Objective

Politecnico di Milano strongly believes in the value of gender parity, and one of its strategic objectives for 2020-2022 is to reduce by at least 20% the number of male dominated courses and programmes, that is all the programmes with less than 35% female students.



Total number
Total number of
women

Source: Politecnico di Milano



A present and future called STEAM

Where there still is a gap

According to the most recent gender gap report, the number of female students taking three-year Engineering courses went up by 8 percentage points over the past five years. More girls than boys are studying Biomedical Engineering (46% vs 44%).

In most courses with a clear-cut production and industrial vocation, especially Mechanical Engineering, Electrical Engineering, IT and Aerospace Engineering, the percentage of male students is still over 80%.

Politecnico di Milano has introduced Diversity&Inclusion, a space shared by the University with external stakeholders to encourage inclusion, in line with its strategic plan for Politecnico Equal Opportunities (Pari Opportunità Politecniche - POP).



What is the real gender gap?

Diversity begets a fairer approach to economic and social issues. Here is where we must give our backing, if we want long-term change that is able to address the training gaps in Italy, where there are still too few graduates in STEAM subjects, the true keystone for the future.

How can we get the importance of STEAM subjects out in the world?

More and more men and, above all, women graduating in STEAM subjects are and will be crucial for the present and future of our society. We must get the message across about the importance of STEAM subjects, showing that they are not the preserve of men, but belong to all of us, where we as women can create our own space.

MARIAPIA PEDEFERRI
Director of the Department of Chemistry,
Materials and Chemical Engineering

A present and future called STEAM



Fondazione
Politecnico
di Milano

THE WORD TO THE FOUNDATION

FOCUS

*Bringing together
two worlds that must
talk: universities and
companies*

A present and future called STEAM

The key? Research & Development

The level of investment in R&D in Italy is still below other EU countries, as set out in the EU's Country Report for Italy 2020.

Difficulty to access credit and the small size of the risk capital market are obstacles in particular for young innovative businesses.

Something is changing. The pandemic has highlighted the need to focus on human capital, digital and sustainability.

Within a continuously evolving market, companies must keep in step with change, enabling innovation at all business levels.

1 digital skills

2 digital humanities technical-scientific skills and in the humanities

3 problem solving flexibility and the ability to adapt

4 programming IT and reading data

5 new soft skills distance interaction and digital communication

Soft and technical skills that became more important during the Covid-19 pandemic

What is the impact of Covid-19
on digitalisation?

It is certainly too soon to measure the impact that the Covid-19 pandemic will have on the perception and appeal of STEAM subjects and professions. The health crisis and digitalisation to academic and professional worlds could revive interest and inject new life into the sector, including by re-examining the functions linked to digitalisation. Gender differences are a boon to companies, they increase productivity, competition and innovation, driving the company's social development.

EUGENIO GATTI
Director Fondazione Politecnico di Milano

How can we strengthen the presence of women in STEAM?

We must have policies to strengthen and propagate a technical and scientific culture, and promote gender mainstreaming, by fighting stereotypes and discrimination in education and work-based training.

Companies play an important part in supporting women in STEAM jobs through policies of recruitment and the development of human resources that go beyond gender-based stereotypes, and by activating family-friendly measures in work organisation practices.

MANUELA PIZZAGALLI
Chief Operating Officer
Fondazione Politecnico di Milano

A present and future called STEAM



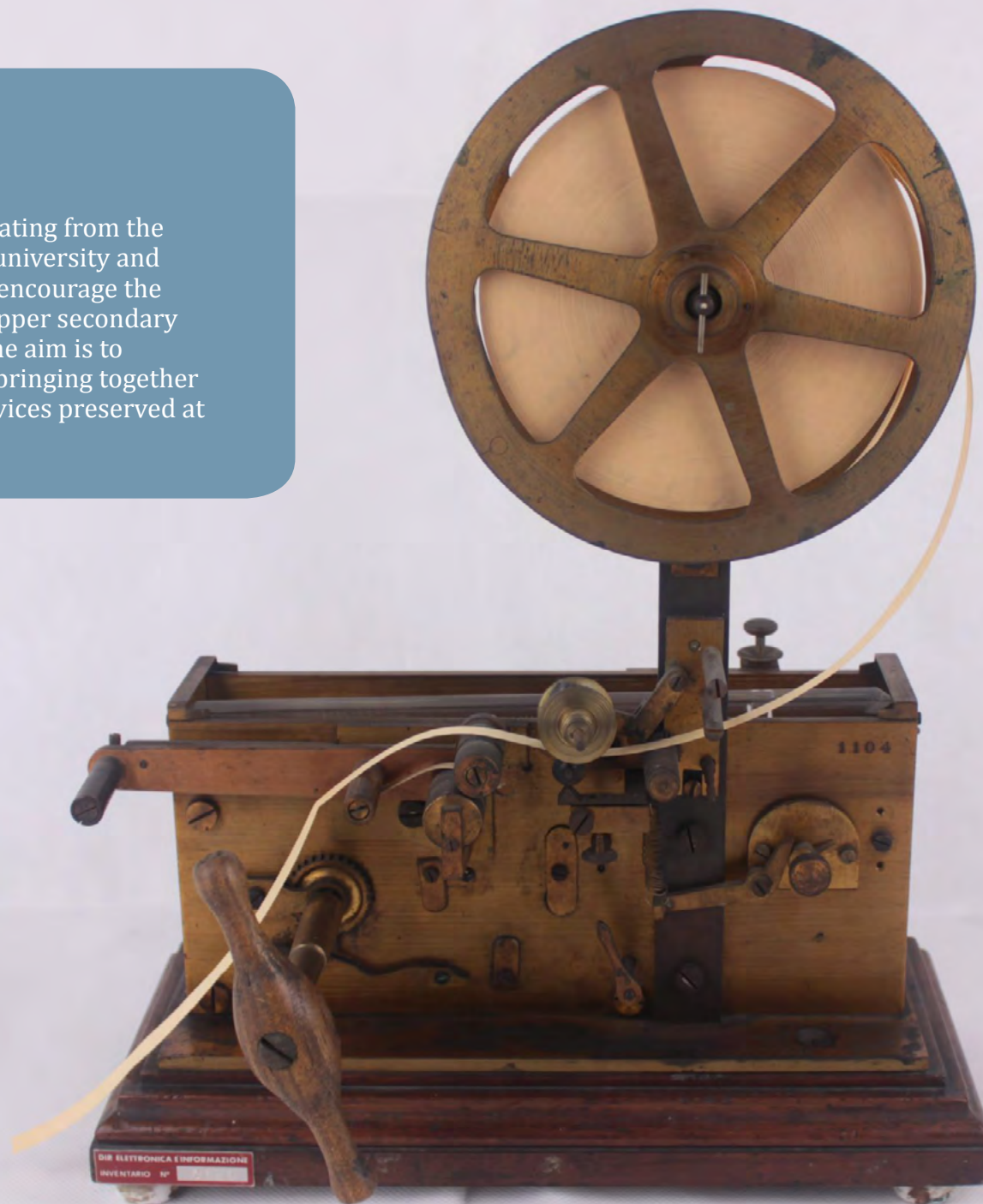
Fondazione
Politecnico
di Milano

AND WHAT NEXT?

Fondazione Politecnico di Milano
is evermore **committed** to taking
actions that **promote** innovation
and the **diffusion** of STEAM.

POLIMUSEO

POLIMUSEO is a project originating from the synergy between schools, the university and several companies, to actively encourage the uptake of STEAM subjects in upper secondary schools. With “POLIMUSEO”, the aim is to implement a virtual museum, bringing together the historical and scientific devices preserved at Politecnico di Milano.



Leonardo's Adda

With “Leonardo's Adda River”, our purpose is to develop a multimedia app following the course of the river, as it flows from Trezzo d'Adda to the hydroelectric plant at Paderno d'Adda. The app was designed for people with reduced mobility or disability, allowing them to trace the steps of Leonardo da Vinci through the places where he carried out his scientific and artistic studies.



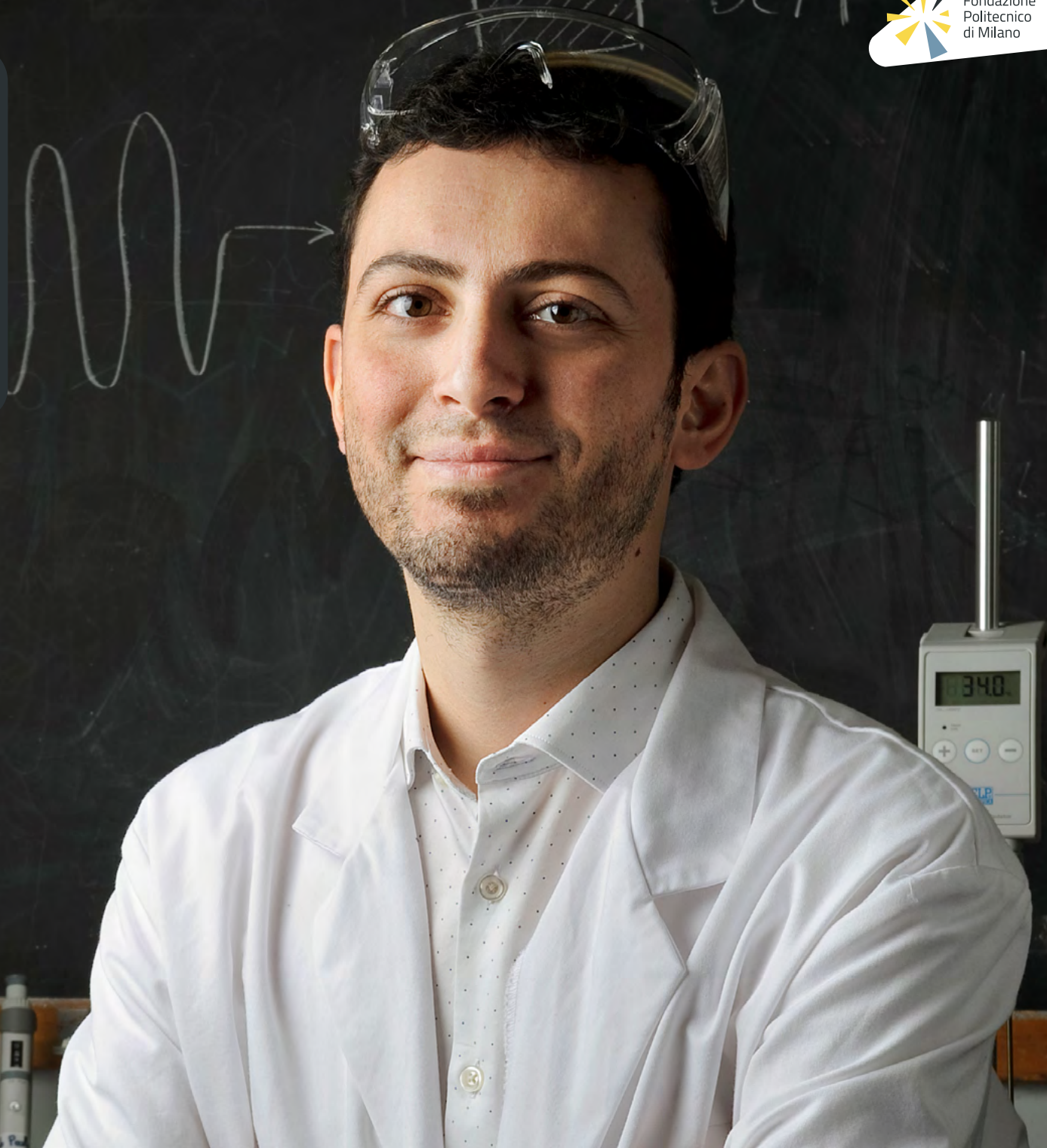
STEAMiamoci- STEAMtogether

Assolombarda launches STEAMiamoci-STEAMtogether, an initiative to reduce gender gap and uphold the importance of women in the country's cultural and production fabric. We, at Fondazione Politecnico di Milano, are also taking part in this initiative to spark a cultural change within female professions.



FELDER AWARD

A one million euro prize, set up in memory of the chemist Ernst Felder and launched by Fondazione Bracco, Bracco Imaging and Fondazione Politecnico di Milano, was awarded through an international call targeting young Italian researchers and scholars currently working abroad and specialising in “flow chemistry”. The prize was won by Gianvito Vilè.

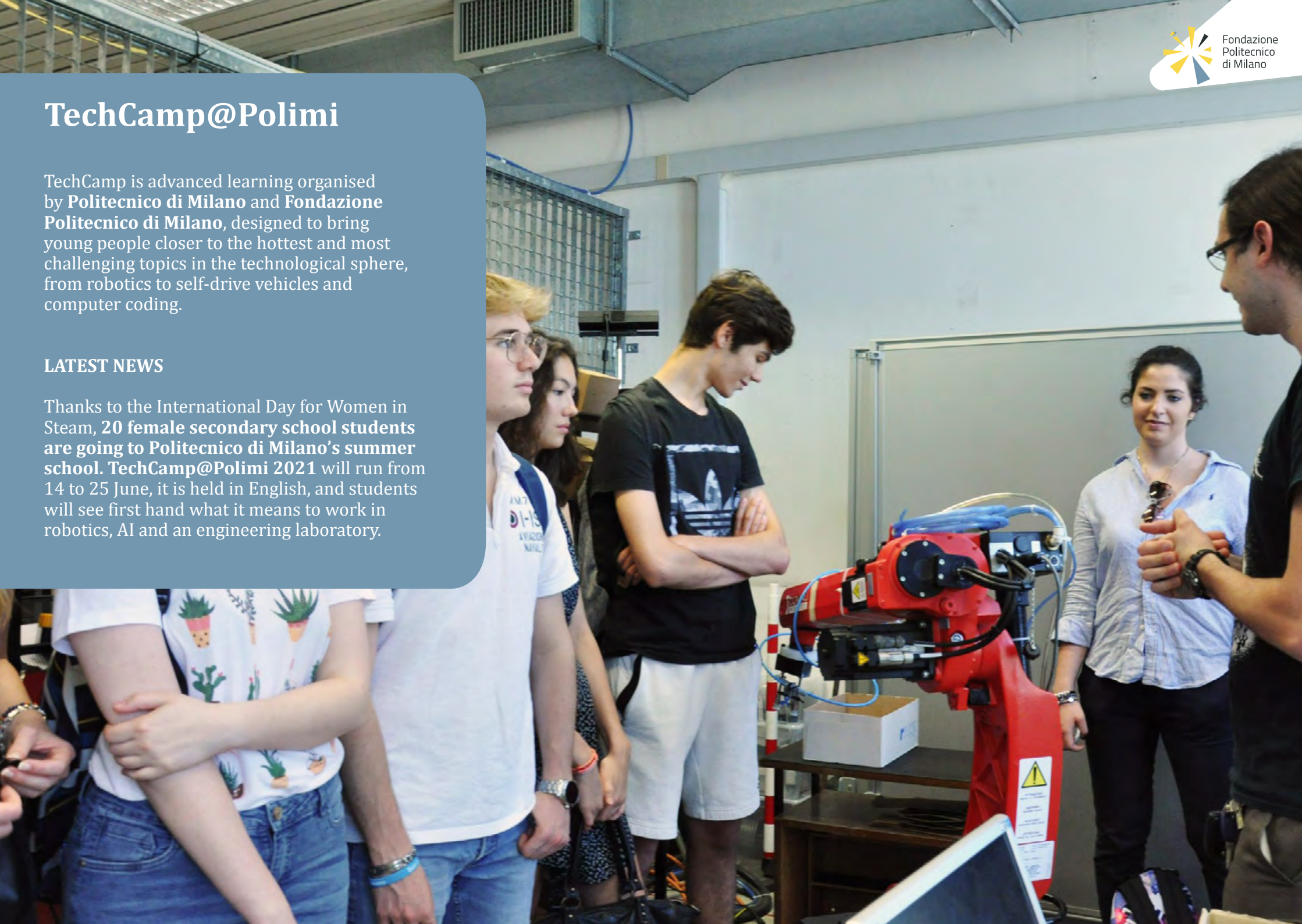


TechCamp@Polimi

TechCamp is advanced learning organised by **Politecnico di Milano** and **Fondazione Politecnico di Milano**, designed to bring young people closer to the hottest and most challenging topics in the technological sphere, from robotics to self-drive vehicles and computer coding.

LATEST NEWS

Thanks to the International Day for Women in Steam, **20 female secondary school students are going to Politecnico di Milano's summer school. TechCamp@Polimi 2021** will run from 14 to 25 June, it is held in English, and students will see first hand what it means to work in robotics, AI and an engineering laboratory.



Progetto SI School-Company-Family Interaction

Fondazione Cariplo and Fondazione Politecnico di Milano launch a challenge together: 1,500,000 euros, 74 institutes involved to relaunch technical education and close the gap between school and work.



#innovate #believe
#morethanbefore
#know #listen
#join_in



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