Dear donors and friends,
Since its creation in 2014, the CERN & Society Foundation has successfully spread the CERN spirit of scientific curiosity for the inspiration and benefit of society. 2019 was another year of achievement in advancing this mission. Our partnership network was expanded with new donors, while we strengthened our relationship with existing ones. This allowed us to continue engaging the public with science, improving lives through CERN’s technologies, training future leaders in STEM fields and bridging the gap between arts and science. We thank all our partners and donors for making this possible.

In 2019, a key focus was the capital campaign for the Science Gateway project; more than two thirds of the target has now been raised. Once constructed, the Science Gateway will generate even more opportunities for science engagement and education, bringing new generations into research and technology.

As you will learn in detail from the pages of this Annual Review, the CERN & Society Foundation’s programmes reach people from across all continents. The highlights this year include:

• 57 students from across the globe were given access to particle physics, engineering and IT training at CERN through the Non-Member State Summer Student Programme;
• The Beamline for Schools competition engaged more than 1300 students globally in STEM subjects; and
• 179 teachers were trained in contemporary high-energy physics in order to inspire and empower their students in the pursuit of scientific careers.

The CERN & Society Foundation also contributed to the CERN Open Days in September 2019. Over these very special two days, more than 75 000 people visited the CERN site for the unique chance to experience the life of the Laboratory and learn about the research technologies developed by the CERN community.

As I conclude my mandate as Chair of the CERN & Society Foundation Board, I could not be prouder of the impact achieved over the first six years of the Foundation’s work. None of this would have been possible without the generosity and spirit of our supporters, as well as the CERN teams implementing the programmes. I thank all of you again for your commitment to our mission, and it is my hope that the CERN & Society Foundation will be able to count on your continued support in the future.

DEAR FRIENDS,

Word from Anne Richards,
CERN & Society Foundation Chair
WHO WE ARE

We believe in igniting scientific curiosity, inspiring more young people to choose scientific careers, working towards improving lives around the globe and engaging more people in science, technology and innovation. We operate nationally and internationally to pursue this mission, across three main areas: education and outreach, innovation and knowledge exchange, and culture and creativity. Since 2018, the CERN & Society Foundation has also supported and promoted the operation of the Globe of Science and Innovation, notably through its use as a venue for scientific exhibitions, conferences, meetings and public debates.

WHO WE SERVE

Our activities target primarily students and science educators and aim to engage more young people in the scientific method, while developing their interest in understanding and pursuing careers in STEM fields. Many of our initiatives also seek to improve society at large by developing practical applications from fundamental research, achieving greater public engagement with science and inspiring individuals beyond the scientific field.

WHAT SETS US APART

CERN has a long tradition of scientific excellence, generated by a culture of openness and knowledge sharing across borders, and nurtured through education and training. The CERN & Society Foundation is in a unique position to leverage this expertise and give it back to society.

THE IMPACT OF YOUR DONATIONS

OUR GRANTS SINCE 2014
(EXCLUDING SCIENCE GATEWAY)

BENEFICIARIES DIVIDED BY AGE GROUP
OUR REACH AROUND THE WORLD

BEAMLINE FOR SCHOOLS COMPETITION

Engaging high-school students in real experimental particle physics research at CERN.
1,310 students submitted 178 proposals.

Gender distribution:

NON-MEMBER STATE SUMMER STUDENTS

Giving the next generation of scientists the skills to contribute to the development of their communities. 57 students fully supported for eight weeks.

Gender distribution:

CERN NATIONAL TEACHER PROGRAMMES

Equipping teachers to empower students and the future of science through their own scientific education. 179 teachers trained.

Gender distribution:

CERN ENTREPRENEURSHIP STUDENT PROGRAMME

Engaging students of Master’s level in training on high-tech venture creation. 14 successful applicants supported for a five-week residency at CERN.

Gender distribution:

ARTS AT CERN

Artist residency programme bringing together artists and scientists to support artistic innovation and openness to fundamental research. 26 artists hosted at CERN.

Gender distribution:

ATLAS PHD GRANT

Unique education for outstanding PhD students in particle physics research. 3 PhD awards granted

Gender distribution:

HIGH-SCHOOL STUDENT INTERNSHIP PROGRAMME

Bringing students at an early age into close contact with research work and scientists. 24 students hosted at CERN over a two-week period.

Gender distribution:

OUR REACH AROUND THE WORLD

Gender distribution:
2019 HIGHLIGHTS IN PICTURES

25 FEBRUARY
The ATLAS PhD Grants are awarded in the presence of the CERN Director-General, Fabiola Gianotti, and Peter Jenni, founders of the prize in 2014.

12 MARCH
As part of CERN’s celebrations of the 30th anniversary of the Web, an international team visits CERN to recreate the original World Wide Web browser.

27 MARCH
Arts at CERN announces two key ventures: Quantica, an exhibition project at the Centre de Cultura Contemporània de Barcelona, and a partnership that begins this year with the City of Barcelona as co-host for the Collide International residency award.

8 APRIL
CERN unveils the plans for its iconic new education and outreach facility, the CERN Science Gateway, designed by renowned architect Renzo Piano.

3 JUNE
Summer students from all over the world start arriving at CERN to spend eight weeks working and learning in a world-class scientific environment.

17-18 JUNE
Participants in the 2018 CERN-UNESCO School on Digital Libraries come to CERN for an in-depth training follow-up.

24-26 JULY
The CERN Table Football Club (CTFC) helps to spread the CERN spirit of scientific curiosity for the inspiration and benefit of society. It organises a charitable tournament and gives all proceeds to the CERN & Society Foundation.

23-28 JUNE
The Spanish Teacher Programme takes place for 20 secondary-level teachers. The Greek and Italian Teacher Programmes will take place in the following months.

22 JULY-23 AUGUST
The CERN Entrepreneurship Student Programme welcomes 14 successful applicants to a five-week full-immersion course on CERN technologies, with the aim of building and improving on their entrepreneurial expertise.

22 JULY-23 AUGUST
The CERN Entrepreneurship Student Programme welcomes 14 successful applicants to a five-week full-immersion course on CERN technologies, with the aim of building and improving on their entrepreneurial expertise.
During a very sunny Open Days weekend, CERN opens its doors to 75,000 people for a unique peek inside the life of the Laboratory.

The CERN & Society Foundation welcomes the supporters of the 2019 Beamline for Schools (BL4S) competition to an event held at DESY, Germany, during the competition’s experimental week. They have the chance to interact with the winning teams from the USA and the Netherlands.

24 German high-school students (HSSIP Germany) come to CERN for a two-week internship programme, with the goal to learn hands on about scientific research and innovation.

On #GivingTuesday, the CERN & Society Foundation launches its Christmas #LightTheirSpark campaign, raising funds to support a summer student coming from a developing country.
**A special thank you to those who included the CERN & Society Foundation in their last will and testament in 2019.**

*MY HUSBAND AND I BELIEVE IN THE POWER OF SCIENCE, WHICH, NO MATTER ITS INESCAPABLE LIMITS, EXPRESSES THE HUMAN NEED OF FURTHERING KNOWLEDGE AND UNDERSTANDING FOR THE BENEFIT OF ALL. THIS IS WHY WE DECIDED TO DONATE OUR PROPERTY ASSETS TO THE CERN & SOCIETY FOUNDATION FOR THE SUPPORT OF SCIENTIFIC EDUCATION WORLDWIDE.*—Bruna and Nicola Macario.
EMPOWERING STUDENTS AROUND THE WORLD

We strive to make today’s students tomorrow’s scientists. In a world with increasing demand for skilled experts in STEM fields, it is important to educate and engage young people in science at an early age. One of CERN’s key missions is education, and our professionals very much enjoy sharing their knowledge and expertise with students.

CERN BEAMLINE FOR SCHOOLS COMPETITION

The CERN Beamline for Schools (BL4S) competition is open to high-school students across the world, whose goal is to work in teams to develop and submit a scientific proposal for an experiment they could run at CERN, using specialised equipment and infrastructure. Every year, two winning teams of up to 10 students each are selected and then invited to conduct their experiment using a fully equipped particle beamline.

Due to the long shutdown of CERN’s accelerators for maintenance and upgrade, the 2019 winning teams – Particle Peers from the Netherlands and DESY Chain from the USA – conducted their experiment at DESY, a renowned particle physics laboratory in Hamburg, Germany.

NON-MEMBER STATE SUMMER STUDENT PROGRAMME

The CERN Non-Member State Summer Student Programme (NMSSS) offers students pursuing Bachelor’s or Master’s degrees in physics, computing, engineering and maths a unique opportunity to join in the day-to-day work of research teams participating in experiment and accelerator projects at CERN.

Gulfairuz Serikbayeva

Gulfairuz, a 21-year-old from Kazakhstan, was determined to break social norms. She was ready to pursue her one true passion when she applied to the 2019 Non-Member State Summer Student Programme.

Her decision to pursue physics as a career was not so easy to digest in her social environment.

At CERN, Gulfairuz worked with ISOLDE and CERN MEDICIS, under the guidance of CERN scientists and technicians. She met students from around the world, worked with radioisotopes in depth, and even took part in her first hackathon at CERN!

More importantly, Gulfairuz’s time at CERN inspired her to pursue higher studies in the field of medical applications. With her zeal and positive outlook on life, she aspires to become a pioneer in this field back home in Kazakhstan, proving that there is no reason why a girl cannot become a successful physicist.

“PEOPLE BELIEVE THAT IT IS NOT EASY TO GET A JOB IF YOU ARE A PHYSICIST. IT IS NOT A ‘SUCCESSFUL’ CAREER OPTION – ESPECIALLY FOR A GIRL.” 

Gulfairuz Serikbayeva
CERN ENTREPRENEURSHIP STUDENT PROGRAMME

Bridging the gap between CERN technologies and society was the goal of 14 students from around the world who met for a unique five-week residency as part of the CERN Entrepreneurship Student Programme (CESP).

The programme, which ran for the second time in 2019, enabled the students to develop promising projects with the help of experts in technology and entrepreneurship, as well as mentorship from CERN’s Knowledge Transfer team. Some of the interesting ideas with the potential to become start-up companies in the near future include the use of CERN’s Structured Laser Beam to detect microplastics in wastewater, and the detection of wildfires using a flame detector developed at CERN.

ATLAS PHD GRANT SCHEME

The ATLAS PhD Grant offers students a unique opportunity to enhance their doctoral studies in a one-of-a-kind research environment under the supervision and training of experts from the ATLAS collaboration. Students receive two years of funding for their studies, spending one year at CERN and another back at their home institute.

Former ATLAS spokesperson Fabiola Gianotti and Peter Jenni established the grant using the award money from the Special Breakthrough Prize in Fundamental Physics that they received in 2013. So far, 18 students have received the award, which relies upon private contributions.

HIGH-SCHOOL STUDENT INTERNSHIP PROGRAMME

The High-School Student Internship Programme (HSSIP) aims to give students a better understanding of the wide spectrum of career opportunities in a big scientific laboratory such as CERN and allows the students to gain practical experience in science, technology and innovation.

In November 2019, thanks to the support of its donors, the CERN & Society Foundation funded the German HSSIP. Running over a two-week period, the programme brought 24 students, chosen from among 700 applicants, into close contact with research work and scientists, with the aim of inspiring them to pursue a scientific career.

“In pushing the boundaries of science, CERN and its researchers are a source of inspiration for Lombard Odier in its commitment to its rethink everything philosophy, which is the cornerstone of our firm’s 224-year history. A great number of engineering challenges encountered during the Large Hadron Collider (LHC) adventure have led to the development of new technologies, which have subsequently been used in other applications in various industries. Our firm strongly believes that it is essential to invest in the training of the new generation of researchers, both for the advancement of science and to help resolve society’s current and future challenges.”

Alexandre Zeller, Managing Partner responsible for innovation and new technologies at the Lombard Odier Group

“In view of the many excellent applications from Germany for the HSSIP, it was a pleasure for us to enable another 24 students to participate in this programme. Experience shows that nothing motivates young people to pursue a career in the STEM fields more than contact with scientists and real project tasks – and where could this succeed better than in the vibrant environment at CERN?”

Stefan Jorda, Managing Director at WE-Heraeus-Stiftung

Silje Uhlen Maurset

“I was very lucky to be selected as one of the 10 participants for the first edition of the programme in 2018. The five weeks at CERN were challenging and inspiring, and I learned a lot about technology entrepreneurship that I still use today. Moreover, I learned how to better collaborate across nationalities and cultures.

A few months after the end of the programme, I applied to become the administrative student who would coordinate CESP for the coming year.

When I started working at CERN, I immediately got involved in all the planning processes behind the educational programme: partnerships, marketing, the application and selection process, coordination of speakers and participants, budgeting and the day-to-day programme, all of which I learned a lot from. The most amazing experience was to finally meet and mentor the participants we had selected for the programme and to see them grow, collaborate and develop their concepts further. I still follow their journey, and I am excited to see where they all go next!”
CERN's scientific advancements push the frontiers of technology, going beyond the field of high-energy physics and having a positive impact on society worldwide.

CERN-MEDICIS

Innovative ideas and technologies from physics have contributed to great advances in the field of medicine over the last 100 years, since the advent of radiation-based medical diagnosis and treatment and following the discovery of X-rays and radioactivity.

CERN-MEDICIS (Medical Isotopes Collected from ISOLDE) is a unique facility designed to produce innovative radioisotopes with the right properties to enhance the precision of both patient imaging and treatment, and provide the opportunity to radically improve the success of cancer treatment. The aim of this project is to expand the range of radioisotopes available for medical research – some of which can be produced only at CERN – and send them to hospitals and research centres in Switzerland and across Europe for further study. Recently, MEDICIS produced a new isotope (terbium 155Tb), which is considered to be a promising radioisotope for diagnosing prostate cancer, as early results have shown. Many more are yet to be discovered and tested.

CERN-MEDICIS is an effort led by CERN, with contributions from its dedicated Knowledge Transfer Fund, private foundations and partner institutes. It also benefits from a European Commission Marie Skłodowska-Curie training grant, which has been helping to shape a pan-European medical and scientific collaboration since 2014.

ZENODO

Free and easy access to research results, data and analysis code – Open Science – is the very heart of the scientific process. All such information must be available to everyone, anywhere in the world, and needs to be safely stored in a long-term repository available to society at large, if we want society to fully benefit from public research results.

Zenodo was born at CERN, through the European Commission’s OpenAIRE project, to address this very need, i.e. to make the publishing, sharing and long-term stewardship of scientific data and analysis code a reality for all researchers.

Launched in 2015, Zenodo is constantly improving in order to accommodate the community’s needs. It already has 80 000 registered users and 145 Tb of content data. In 2019 alone, it has recorded over 460 000 records for 64 TB of data.

SPARKS!

SERENDIPITY FORUM AT CERN

With the support of the CERN & Society Foundation, CERN is launching an annual two-day multidisciplinary science innovation forum and public event. Sparks!, the serendipity forum at CERN, will bring together renowned scientists from diverse fields around the world, along with decision-makers, representatives of industry, philanthropists, ethicists and the public in order to bring a novel, multi-faceted approach to addressing some of the big questions of our time. The goal?

To foster a new community and develop a platform to spark innovation in issues related to science, technology, engineering and mathematics that are relevant to society and further CERN’s mission of science for peace.

Sparks! will begin with a cycle of three pilot events focusing on a single theme in order to test the concept. The experience gained from this cycle will lead to a yearly event with multiple themes addressed each year. The event will become a flagship for CERN’s new Science Gateway.
In the summer of 2019, Arts at CERN announced its Quàntica (Quantum) venture, an exhibition project at the Centre de Cultura Contemporània de Barcelona (CCCB).

Quantum was the second iteration of an exhibition project that brought together 10 artworks resulting from art residencies at CERN, juxtaposed with scientific objects to introduce pivotal concepts from quantum physics and the research pursued at the Laboratory.

The exhibition explored the influence of physics beyond the scientific domain, including its effects on our everyday lives. The artworks illustrated the scientific quest to understand the fundamental laws of the universe and investigate the limits of human knowledge through the lens of artists, scientists and educators. The exhibition received 80,000 visitors and became the fourth most visited exhibition in the 25-year history of the CCCB.

As part of its mission to educate and engage the public in science and to share knowledge and technology for the benefit of society, CERN is launching the Science Gateway, a new facility dedicated to scientific education and outreach. The purpose of the project is to create a hub for scientific education and culture, open to everyone, with the aim of inspiring the public and, in particular, the younger generation with the beauty of science.

With a footprint of 7000 square metres, the building will offer a variety of spaces and activities, including exhibitions explaining the secrets of nature, from the very small (elementary particles) to the very large (the structure and evolution of the universe). The exhibitions will also showcase CERN’s accelerators, experiments and computing, how scientists use them in their research and how CERN technologies benefit society. Hands-on experimentation will be at the heart of the Science Gateway’s educational programme, allowing visitors to gain a vivid idea of what science is all about. Immersive activities will foster critical thinking, evidence-based investigation and the use of the scientific method, which are important processes in all walks of life.

The Science Gateway will be hosted in an iconic new building designed by world-renowned architects Renzo Piano Building Workshop, in Meyrin, next to another of CERN’s emblematic structures, the Globe of Science and Innovation. Construction is planned to start in 2020 and end in 2022.
YOUR SUPPORT MAKES GREAT THINGS HAPPEN

In the preceding pages, you have seen some of the projects where we can achieve more together. There are many ways to support the CERN & Society Foundation’s initiatives:

- **MAKING A GIFT**
  You can choose to either support our initiatives via specific donations or make an unrestricted donation that can be used to address immediate and pressing needs within CERN & Society projects.

- **GRANTS AND SPONSORSHIPS**
  Foundations, corporates and other organisations can help us to leverage the positive impact of science on society by collaborating with us in a joint venture or by granting the necessary resources to increase the impact of CERN & Society projects.

- **USE THE GLOBE**
  Individuals, companies and other organisations can use the Globe of Science and Innovation for their private events. The Globe is a unique and remarkable venue that can welcome up to 300 people and is fully equipped for meetings, conferences, cocktails and dinners.

- **AT THE CERN SHOP**
  If you happen to be close to CERN, please pay a visit to the CERN Gift Shop. There you will find authentic LHC data tapes that make an original gift or souvenir of your visit with a contribution of 10 CHF or more. 100% of your donation will go directly to supporting CERN & Society projects.

- **MAKING AN IMPACT BEYOND YOUR LIFETIME**
  You can also consider supporting the CERN & Society Foundation in your personal estate planning. With legacies and bequests, you can pass on your values to the next generation and help us plan for the future.

**OPERATING COSTS**

CERN provides the Foundation with the vast majority of the operating resources it needs. Unless otherwise agreed with the donor, a small fraction of unrestricted donations are used to cover processing fees applying to contributions received by credit card or PayPal, and other operating expenditures. Otherwise, all funds go directly to supporting our projects and increasing their impact.

* 1 Fr.

* excluded Science Gateway

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**CERN & SOCIETY FOUNDATION BOARD**

Anne Richards (UK), Chairperson of the Foundation Board, Chief Executive Officer, Fidelity International

Peter Jenni (CH), Deputy Chairperson of the Foundation Board, Former ATLAS Experiment Spokesperson

Olivier Coutau (CH), Member of the Foundation Board, Delegate to international Geneva, Republic and State of Geneva

Fabiola Gianotti (IT), ex officio member of the Foundation Board, CERN Director-General

Rolf-Dieter Heuer (DE), member of the Foundation Board, Council President, SESAME Laboratory

Nathalie Leuenberger (CH), member of the Foundation Board, Mayor, Ville de Meyrin

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On 28 November 2019, Michel Spiro, President of the International Union of Pure and Applied Physics (IUPAP), and Daphné de Laleu, Senior Partnership Manager Corporates and Foundations at Save the Children Switzerland, were elected as new members of the Foundation Board. Their mandates officially began on 1 January 2020.
FINANCES

TOTAL AMOUNTS RAISED

CERN & SOCIETY PROJECTS

1 559 904 CHF

- Companies: 24%
- Foundations & Organisations: 61%
- Individuals: 15%

SCIENCE GATEWAY CAPITAL CAMPAIGN

21 250 000 CHF

- Foundations & Organisations: 100%
- Companies: 0%
- Individuals: 0%

TOTAL EXPENDITURES

22 716 100 CHF

- Grants: 99.7%
- Other operating expenditures: 0.1%
- Fundraising costs: 0.2%