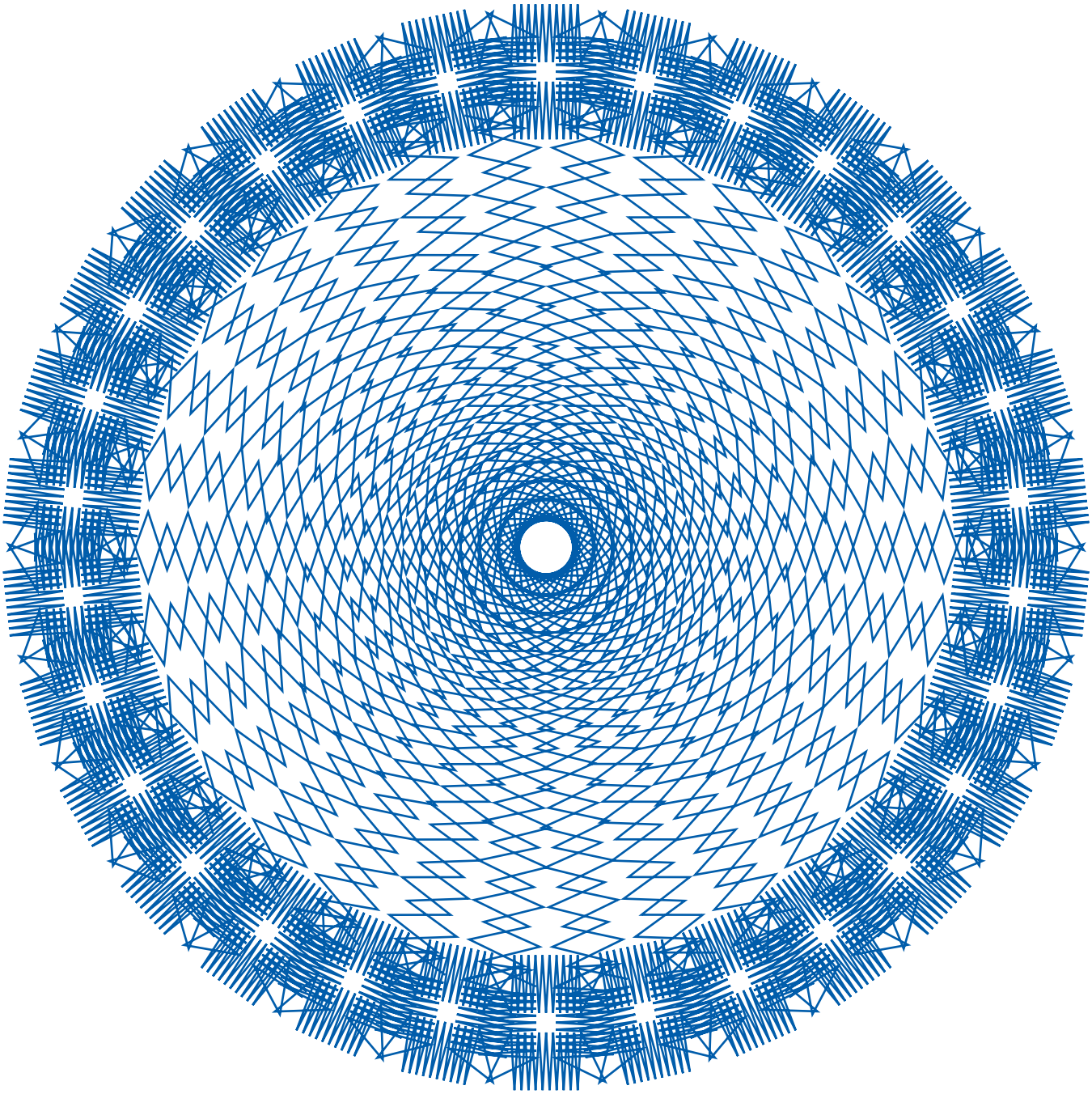
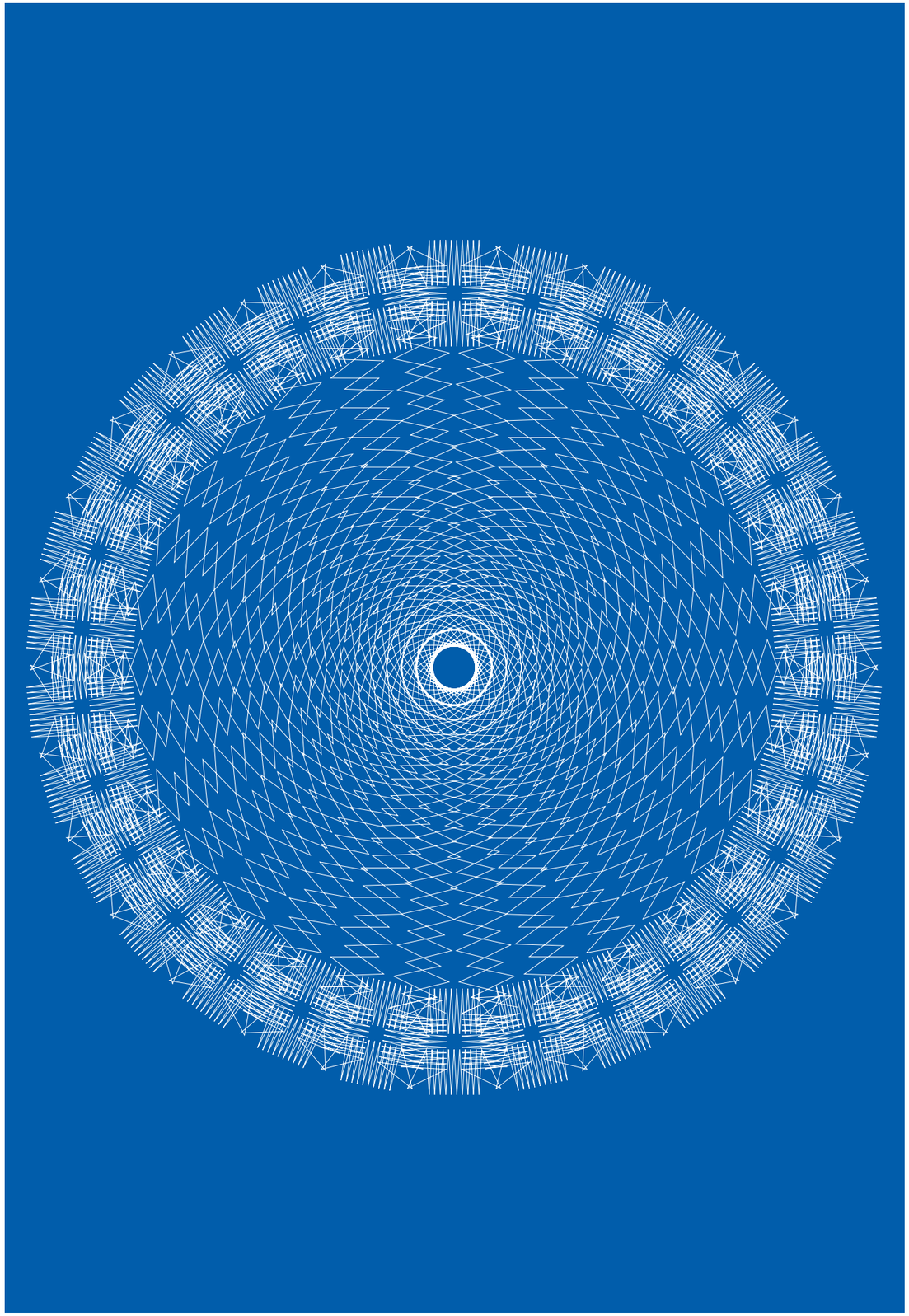


CERN'S Main Objectives

for the period 2021-2025



This document describes the CERN Management's vision for the period 2021-2025, its term of office. The objectives envisaged cover CERN's scientific programme and other strategic activities that are crucial to the mission and future of the Organization.

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INTRODUCTION

The next five years will be a very significant period for CERN, its Member and Associate Member States and the high-energy physics community in Europe and beyond, with great opportunities and numerous challenges.

Scientifically, the period 2021-2025 will be crucial not only for the full exploitation of the LHC programme, but also to prepare a compelling and exciting future for CERN, along the lines recommended by the European Strategy for Particle Physics which was updated by the Council in June 2020 (CERN/3493/C/Rev.).

At the same time, the world is facing unprecedented challenges, as humanity strives to fight a pandemic of unexpected proportions and economic consequences, and to solve increasingly urgent environmental and other problems. CERN cannot ignore this reality and, as a responsible research organisation, should multiply its efforts to increase its return to the Member and Associate Member States and to harness its competencies and technologies in support of society.

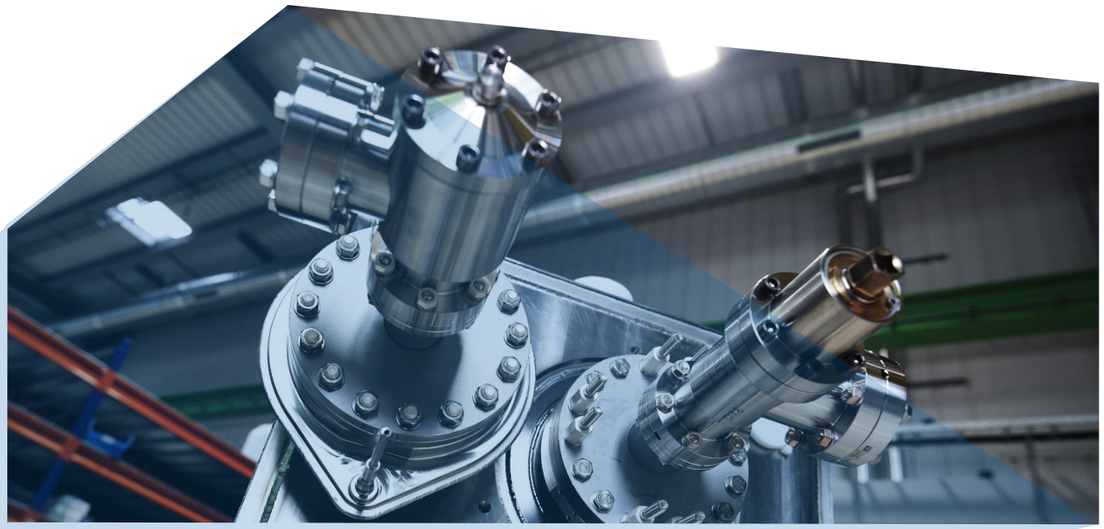
The CERN Management's vision for the coming years is guided by the above considerations and implemented through three main high-level objectives:

- deliver world-class scientific results and knowledge;
- increase the return to the Member and Associate Member States in several areas, including procurement, human resources, collaborations on advanced technologies, partnership with industry, and educational opportunities;
- strengthen CERN's impact on society.

These objectives are discussed in more detail in the following sections.

MAIN SCIENTIFIC OBJECTIVES

The period 2021-2025 offers exciting opportunities for the current scientific programme, with the third and last run of the LHC, a compelling and broad scientific diversity programme, and the ongoing technological developments for, and construction of, the High-Luminosity LHC (HL-LHC) and the experiments' upgrades. It will also be a decisive time for laying the foundations for CERN's scientific future beyond the HL-LHC through intensified R&D developments for advanced accelerator technologies and design studies for a future large facility. The objectives discussed below are determined by the 2020 update of the European Strategy for Particle Physics and will be carried out in strong collaboration with national laboratories, institutes and universities in the Member States and beyond.



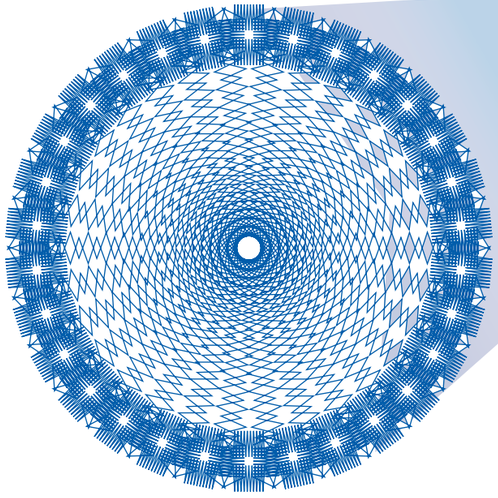
A key innovative technology of the high-luminosity upgrade of the LHC (HL-LHC), the Double Quarter Wave (DQW) Crab Cavity was designed to rotate the colliding bunches, contributing to up to 10 times more collisions in the LHC (Image: CERN)

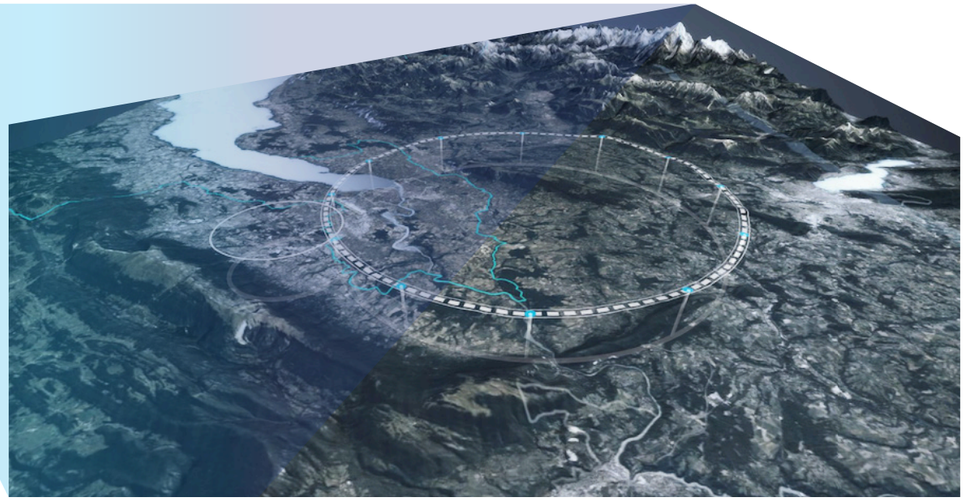
Current scientific programme

The main objectives are:

- A successful **Run 3**, enabling the full experimental exploitation of the LHC physics opportunities. Target integrated luminosities are: at least 160 fb-1 to ATLAS and CMS (which is equivalent to those delivered in Run 2) and 25-30 fb-1 to LHCb, both at a proton-proton centre-of mass energy of at least 13.6 TeV, and 6 nb-1 to ALICE in lead- lead collisions.

- Completion of the **HL-LHC** project and the Phase-2 upgrades of ATLAS and CMS, for installation during Long Shutdown 3 (LS3). On the accelerator front, the main challenges come from the development and construction of the new Nb3Sn dipole and quadrupole magnets, the latter being crucial to achieve the luminosity targets of the HL- LHC. The detector upgrades of ATLAS and CMS are ambitious and present several challenges in terms of technology, schedule and cost. Sustained support from CERN in several areas (from workforce aspects to host laboratory responsibilities, development of state-of-the-art microelectronic devices, management of the financial accounts, project status reviews, etc.) will be crucial to the experiments' success.





The update of the European Strategy for Particle Physics recommended a technical and financial feasibility study of the Future Circular Collider (FCC). A key aspect is the technical, administrative and environmental feasibility of the tunnel, a possible location of which is shown in this image. (Image: CERN)

- CERN's **scientific diversity programme**, undertaken principally at the injector complex and which serves a broad community of users. The injectors were significantly upgraded during Long Shutdown 2 (LS2) in the framework of the LHC Injectors Upgrade project and, over the course of Run 3, they will gradually ramp up to their target beam intensities, allowing exploitation of the enhanced physics potential by the experiments at HIE/ISOLDE, n_TOF, AD/ELENA, North-Area, as well as AWAKE and the test beam and irradiation facilities.

- Activities at the **Neutrino Platform**, which plays a crucial role in supporting the European neutrino physics community involved in long-baseline accelerator projects in the United States and Japan and has been making crucial scientific and technological contributions in particular to the Long-Baseline Neutrino Facility (LBNF) and the DUNE experiment in the United States. Investments in the Neutrino Platform, including the recent undertaking to build the second cryostat for the DUNE detector, aim at both supporting the engagement of the European community involved in projects outside Europe and strengthening the relations and the reciprocity of collaboration with non-Member State partners.

- Research in **theoretical particle physics**, which produces original ideas, opens new avenues of exploration, motivates experimental investigation and supports the experimental programme through essential knowledge and tools. CERN's theory activities will continue to be supported, with the following main goals: produce advanced research in various domains (from formal theory to phenomenology, heavy ions, quantum gravity, cosmology, astroparticle physics, etc.); serve the international theoretical physics community, in particular by attracting hundreds of visitors annually; and support the activities of the Laboratory.

By successfully executing the current scientific programme, CERN and its particle physics community will demonstrate their strength and ability to meet the highest expectations and thus pave the way for a bright long-term future. In this context, it is important to emphasise that CERN is primarily a user facility attracting some 13 000 scientists from all over the world. The Management plans to **strengthen CERN's support to the users, by offering increasingly more welcoming site facilities and more efficient services.** To this end, a dedicated working group has been established in 2021 to review the services and support provided to the user community and to make recommendations for improvement.

Preparation of CERN's future

The main objectives are:

- A reinforced **accelerator R&D programme** covering a broad portfolio, in order to develop the technologies needed for a Future Circular Collider (FCC) as well as prepare alternative options in case, following the FCC feasibility study discussed below, this project is not pursued further. In the 2020 Medium-Term Plan (MTP, CERN/3499/Rev.), significant additional resources were secured for the development of high-field superconducting magnets, in strong collaboration with laboratories and institutes in the Member States and beyond. R&D on key technologies for the Compact LInear Collider (CLIC) will also continue, in order to maintain it as an option for a future collider at CERN, as well as work on areas of common interest with the International Linear Collider (ILC) and contributions to preparatory activities for the ILC. A new initiative on muon colliders has commenced, with the goal of boosting European efforts in this domain and assessing, by the time of the next European Strategy update, whether investment into a full conceptual design report and a muon collider demonstrator is justified from the scientific perspective. Plasma wakefield acceleration is being pursued at AWAKE, the only facility in the world using proton beams to drive electron acceleration, which will start its second run in 2021, supported by resources (26 MCHF) allocated in the 2019 MTP (CERN/3430). More generally, R&D work will continue at CERN on a myriad of technologies (vacuum, cryogenics, new materials, etc.) triggered by both new studies and operational needs arising from the facilities currently in operation. Ongoing programmes and future plans will be reviewed once the roadmap for accelerator R&D in Europe, currently being developed under the auspices of the Laboratory Directors Group following a recommendation of the 2020 European Strategy update, has been released.

- The **technical and financial feasibility study of the FCC**, which will cover several aspects. Firstly, establishing the technical, administrative and environmental feasibility of the tunnel is a major endeavour that will be addressed in close collaboration with CERN's Host States. Secondly, the assessment of the financial feasibility of the project requires significant potential contributions from outside CERN's budget to be identified. Thirdly, the technology studies include R&D towards 16-20 T superconducting magnets, superconducting radiofrequency accelerating structures, high-efficiency power production and other energy-saving, sustainable and environmentally friendly technologies. The results of all the components of the feasibility study, which will need to be accompanied by a well-calibrated and measured communication campaign aiming at broadening the engagement of the high-energy physics community and gradually increasing the support for the project from scientists from other fields, governmental authorities, industry and the general public, will be summarised in a Feasibility Study Report to be completed by the end of 2025.

- Maintaining and expanding a compelling **scientific diversity programme**, with new ideas initially debated in the framework of the Physics Beyond Colliders (PBC) study group and then passed on, when appropriate, to the relevant scientific committees (INTC, SPSC and LHCC) for consideration and recommendation once they achieve maturity. Some of the projects considered in the PBC context may be implemented at European national laboratories, with CERN's support. Others contribute to strengthening the collaboration with neighbouring fields, such as nuclear physics and astroparticle physics. The resources allocated to PBC, which currently covers possible upgrades of existing experiments at the injectors, new beam-dump projects, the fixed-target programme at the LHC, etc.,

Several initiatives are paving the way for the development of new solutions to match the data storage and processing requirements of the HL-LHC and of future projects. (Image: CERN)

were trebled in the 2020 MTP, as a compelling and diversified scientific programme complementary to high-energy colliders is crucial to address the outstanding questions in fundamental physics from a different perspective.

- **Detector R&D**, for which a strategic programme was launched by CERN's Experimental Physics department in 2019 and to which initial resources amounting to 80 MCHF over ten years were allocated in the 2019 MTP. This initiative aims at developing the most promising technologies for detectors at future collider and non-collider experiments, with particular attention paid to environmentally friendly solutions, in close collaboration with interested institutes in Europe, and with emphasis on areas where CERN has significant expertise and infrastructure. Ongoing programmes and future plans will be reviewed once the roadmap for detector R&D in Europe, currently being developed under the auspices of ECFA following a recommendation of the 2020 European Strategy update, has been released.

- **Computing**, which is an essential component for the future of the field and presents huge challenges for CERN in both the near and far terms. The expected storage and processing requirements of the experiments for operation at the HL-LHC are currently a factor of three greater than the flat-budget projections based on the evolution of existing technology. New solutions are therefore needed in areas ranging from heterogeneous architectures to data management, computing models, advanced software, etc. Their development has already begun through initiatives that are either led by CERN or have strong CERN participation (e.g. the HEP Software Foundation, CERN openlab, the European Open Science Cloud), in collaboration with the experiments, institutions in the Member States and beyond, other disciplines (e.g. astroparticle physics, medical application projects) and industry. The new computing centre in Prévessin and the recently launched Quantum Technology Initiative at CERN are integral parts of this vision.

Collaboration with neighbouring fields

CERN has a strong **nuclear physics** programme, playing host to the HIE/ISOLDE and n_TOF facilities and running a unique heavy-ion programme at the NA61 experiment and the LHC. Significant upgrades to these projects have recently been completed and more may come in the future. CERN will also continue to cooperate with nuclear physics facilities in Europe and beyond (e.g. the European Spallation Source in Sweden and the Electron-Ion Collider proposed in the United States) in areas of common interest and/or by sharing technologies where it has special competencies.

Opportunities for collaboration with **astroparticle physics** are increasing, as challenges become more and more similar in terms of project complexity, scale, governance and technology requirements. Numerous initiatives exist at CERN in support of astroparticle physics projects, including: the Recognized Experiment status; collaboration agreements for the development of computing and other technologies of common interest; consultancy and assistance in areas where CERN has unique expertise, such as cryogenics, vacuum, superconducting magnets, geological studies for underground installations, and governance of large projects; support to test-beam activities; and the new centre for astroparticle theory (EuCAPT) initially hosted at CERN. Support for these and other initiatives, within the available resources, will allow the Member and Associate Member States' investments in CERN to also benefit other challenging projects, such as a possible Einstein Telescope, to which they contribute.

RETURN TO THE MEMBER AND ASSOCIATE MEMBER STATES

CERN's 67-year history and extraordinary record of scientific and technological accomplishments would not have been possible without the sustained support of its Member States. To ensure that this support continues, it is imperative that CERN constantly expands the benefits it brings to the Member and Associate Member States through all dimensions of its work. Therefore, over the coming five-year period the Management will ramp up its efforts to improve these benefits in all their facets, through a number of targeted actions.

The support from Member and Associate Member States underpins CERN's extraordinary record of scientific and technological achievements. (Image: CERN)

Concerning **industrial return,** the recommendations issued by a recently established working group on the optimisation of procurement specifications and processes will be implemented. These recommendations aim at improving the procurement strategy in order to expand the pool and geographical spread of the bidders, for instance by avoiding over-specified requirements, by identifying from the outset items suitable for purchasing in very poorly-balanced countries through limited tendering, and by defining qualification criteria at the market survey stage so as to allow a broader participation of companies from all Member and Associate Member States.
In order to increase the number of adjudications available for tendering to all Member and Associate Member States, the request for a solid justification for single-source contracts exceeding 10 kCHF and 50 kCHF, to be signed by the relevant group leader and department head respectively, has been introduced.
Awareness of poor industrial return will continue to be raised, with CERN's procurement service regularly providing departments and groups with statistics about the geographical spread of their contracts.
Other opportunities to improve the industrial return to the Member and Associate Member States will be pursued, e.g. through further strengthening the links with Industrial Liaison Officers, the revision of the policy for bank guarantees, etc.

More than 7000 students and teachers take part in hands-on experiment workshops in CERN's S'Cool LAB each year, just one of several scientific education opportunities offered by CERN. (Image: CERN)

CERN Science Gateway, CERN's new education and outreach centre, is planned to open to the public in 2023. (Image: RPBW)

Finally, Industry Days, either dedicated to individual countries or thematically focussed on specific areas, are key mechanisms for attracting and preparing industry for tendering processes. In 2018 and 2019, a total of 16 Industry Days events were organised at CERN, of which three were dedicated to very poorly balanced countries (i.e. countries for which the industrial return coefficient for supplies is below 0.4). It is now proposed that, from 2022 onwards, 25% of the events dedicated to individual countries should target the six most imbalanced Member and Associate Member States, and 25% of companies invited to thematic Industry Days at CERN should be from the six most imbalanced countries.
The overarching goal of all these initiatives is to reduce the number of very poorly balanced countries for supplies from the current six to three by the end of 2025. This will also imply improving the return to a number of poorly balanced countries.

New initiatives to improve the **human resources return** for Member and Associate Member States will be explored and implemented. A new graduate programme is being developed, which will streamline the current myriad of opportunities and enhance the geographical spread of applications and thus the diversity of CERN's talent pipeline. The primary aim of the programme is to train future generations of physicists, engineers and technicians, the majority of whom will return and bring strong competencies to their home countries, and a small number may subsequently be hired by CERN.
In parallel, an Organization-wide diversity and inclusion initiative is being launched, called "25 by '25", which aims to enhance both gender and nationality diversity in each department. Specifically, wherever a national cluster exceeds 25% of the workforce in a given department or group, tailor-made improvement plans for future hires will be developed between the Human Resources department and the group or department in question.
Furthermore, outreach, sourcing and communications actions, with specific efforts such as direct sourcing by CERN managers when recruiting staff members, will focus on "under-represented" countries, defined as those where the fraction of their nationals in the total staff complement is less than 50% of the fraction of their contributions to the CERN budget (there are currently 12 countries in this category). The success of these actions will be measured against the target of 25% of candidates shortlisted and invited for interview coming from "under-represented" countries by 2025, up from an average of 19.5% over the past four years.
CERN has numerous scientific and **technological collaborations** with other European laboratories and with institutes in the Member States and beyond. These collaborations take various forms. In some cases, CERN contributes directly to projects in the Member States, e.g. through the testing of magnets for the FAIR facility at GSI, Germany, or the secondment of expert personnel to the European Spallation Source in Sweden. In other cases, CERN and institutes in Europe and beyond collaborate on R&D programmes (e.g. on superconducting magnets) or on the development of components for CERN's projects (e.g. crab cavities for the HL-LHC). More generally, the Member and Associate Member States derive benefit from the unique competencies, tools and infrastructure developed at CERN for activities at home. These exchanges will continue and be intensified in the years to come, with new opportunities emerging in particular from accelerator R&D, detector R&D, quantum technology, etc.

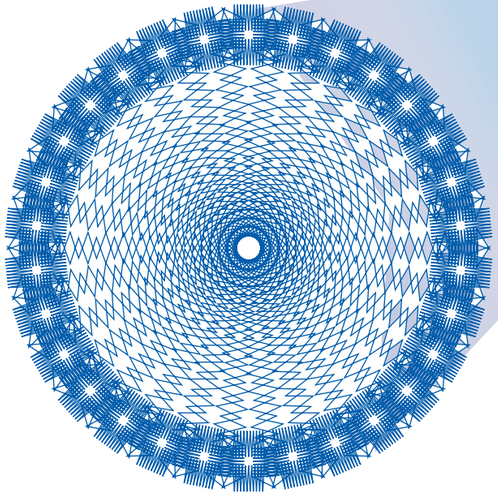
In addition, CERN strives to strengthen **partnership with industry** in the Member and Associate Member States, in particular through knowledge transfer (KT) activities.
Entrepreneurship is nurtured through various actions, including collaborations with several business incubation centres (BICs) in Member and Associate Member States to provide bespoke support to start-ups using CERN technologies. In the years to come, CERN will work with its Member and Associate Member States towards a closer involvement in mutually beneficial partnership with industry. The country representatives in the KT Forum will have a crucial role to play in this process. Finally, reports on KT activities specific to each Member and Associate Member State will be produced every year.

An important element of return also comes in the form of **scientific education opportunities** for teachers and students, as well as initiatives to inspire public engagement with science. Current activities include guided tours of the site (150 000 visitors annually, 70% from Member and Associate Member States), two permanent exhibitions (100 000 visitors annually), hands-on experiment workshops in S'Cool Lab (7000 participants annually), national and international teacher programmes (1000 participants annually), summer student programmes (300 participants annually), as well as travelling exhibitions and joint public events in Member and Associate Member States.
Building on the experience gained with virtual engagement during the COVID-19 pandemic, this portfolio is now being expanded, notably with a virtual visit component, an online course in particle physics and CERN's discoveries and technologies for high-school students and teachers, and other virtual programmes to complement on-site activities. The goal is to host 10 000 high-school students and teachers per year on the online course by the end of 2023.

CERN's new education and outreach centre, the Science Gateway, planned to open in 2023, will become the focal point for delivery of additional educational opportunities for the Member and Associate Member States, including development of education materials that can be used for activities at home, live link-ups with national events, and a rich programme of temporary exhibitions highlighting activities in the Member and Associate Member States. The goal is to host at least 300 000 visitors annually at Science Gateway by the end of 2024, thereby doubling the current number of visitors on the CERN site. An additional aim is to host 90 high-school students (30 per year) in externally-funded educational camps at the Science Gateway by the end of 2025.

CERN'S IMPACT ON SOCIETY

One of the Management's top objectives for the next five-year period is to increase CERN's impact on society, thereby boosting the Organization's visibility and consolidating the support of governments and the general public.



CERN's primary impact on humanity is through the **scientific knowledge** it produces. Discoveries like those of the W, Z and Higgs bosons have allowed us to make monumental steps forward in our understanding of how nature works at the most fundamental level and how the universe took its present shape. To ensure a bright future for CERN and high-energy physics in Europe, it is essential to reach out to governments and the general public and explain to them in an enticing, effective and simple way the importance of CERN's scientific mission, of curiosity-driven research and of advancing knowledge for the knowledge's sake, as well as the opportunities offered in this context by a post-LHC collider. More efforts need to be made on this crucial subject. CERN's Education, Communications and Outreach group is working with EPPCN (European Particle Physics Communication Network) to develop an integrated communication and engagement plan that will support the vision outlined in the 2020 update of the European Strategy for Particle Physics and to implement this plan through a concerted approach with CERN's Member and Associate Member States.

Since it was founded in 1954, CERN has promoted scientific collaboration across borders, inclusiveness and open science, transcending political and other conflicts. **CERN's values**, which are enshrined in the Convention, are as relevant as ever. The "CERN model" of global cooperation is taken as an example by other intergovernmental organisations and endeavours (including in the fields of climate change, health and quantum computing). Open science, i.e. knowledge, technology and education that are accessible to all, is a crucial tool to reduce inequities across the world and thus to build a sustainable society. Communication around CERN's values will be reinforced and expanded with targeted initiatives, notably through events and activities at Science Gateway as well as CERN's 70th anniversary celebrations in 2024, for which a high-impact event is foreseen at CERN and satellite events could be organised in the interested Member and Associate Member States.

The MEDICIS facility produces non-conventional radioisotopes used in medical research. It is one of several medical applications of accelerator and detector technologies that will be further pursued, bringing benefits to society. (Image: CERN)

In today's world dominated by technology, the number of STEM (Science, Technology, Engineering and Mathematics) jobs grows three times faster than any other job type. **Scientific training** is therefore essential to prepare tomorrow's workforce. Training is part of CERN's core mission and the Organization prepares generations of talented people for employment in research and in other parts of the public and private sectors. Every year CERN trains some 1700 young people, including physicists, engineers, technicians and administrative students, through a variety of opportunities (doctoral and technical students, fellows, summer students, apprentices, etc.) which will be further enhanced with the new graduate programme mentioned above. In 2019, CERN delivered a total of some 352 000 training days. A preliminary goal is to increase this number by 10% by 2025; more objectives will be established in the future, based on the experience gained with the deployment of the new graduate programme.
At any given time some 3000 PhD students from universities all over the world do their theses on CERN's projects. Many of these young people attend the highly appreciated CERN schools, which take place at different locations and cover high-energy physics, accelerators, computing, instrumentation, etc. Most of the young people trained at CERN or in the collaborating institutes leave the field and are hired in industry. A recent survey indicates that their experience at CERN provides them with invaluable skills and competencies that help them find jobs commensurate with their talents and expectations. Several initiatives have been launched recently in the experimental collaborations, in the framework of ECFA (European Committee for Future Accelerators) and at CERN (e.g. in the context of the Alumni programme) to support the young people in the transition to the next step of their professional career.

CERN develops **advanced technologies** in a broad range of domains, in collaboration with laboratories and institutes in the Member States and beyond. Historically, some of these technologies have had a positive, disruptive impact on society, such as the World Wide Web and the detector developments that led to the PET (Positron Emission Tomography) scanner. While it is committed to supporting all existing and future opportunities to develop technologies that are useful for society, the Management has chosen to focus primarily on the following three areas (These are in line with the priorities announced by the President of the European Commission.): environment and sustainability; health; computing.

Three main development directions have been identified for **environment and sustainability:**

- Minimise the Laboratory's impact on the environment by implementing the recommendations regularly updated by the CEPS (CERN Environmental Protection Steering) board for 11 high-priority environmental domains. Significant resources from CERN's budget (some 25 MCHF over the period 2019-2023) have been secured to fund these activities, which include, among others, R&D on new, environmentally friendly gases for particle physics detectors and the construction of water retention basins to limit the risk of chemical pollution. The first public environment report, describing the current status and setting

ambitious goals for the future, was released in 2020. The next one will be issued in September 2021 and subsequent editions will follow every two years. A staff member in charge of “green procurement” has recently been appointed, with the goal of including environmental considerations in CERN’s procurement actions. Through these initiatives, CERN aims to establish itself as the model for transparent and environmentally responsible research organisations.

- Pursue actions and technologies aiming at energy saving and reuse, under the supervision of CERN’s Energy Management Panel. The renovation of the East Area during LS2 included the installation of pulsed magnets and energy recovery between cycles, which will generate savings of up to 90% of the energy consumed by the accelerator in that area. Similar improvements will be implemented for the North Area renovation, which will be completed during LS3. A project to recover the heat from the accelerator’s cooling towers at the LHC Point 8 to warm up a new housing development in the neighbouring commune of Ferney-Voltaire is on schedule for completion in 2022. Heat recovery is also being considered at the LHC Point 1. Once operational in mid- 2023, the new Computing Centre in Prévessin will provide heating to the buildings on the Prévessin site. Finally, in the framework of accelerator R&D, technologies such as high-efficiency klystrons are being developed for efficient power production at future colliders, with potential applications also in industry.

- Identify and develop CERN’s technologies that may contribute to mitigating the impact of society on the environment. Examples include vacuum technologies, which have been used to build solar panels, and high-temperature superconducting links (like those developed for the high current transmission lines being built for the HL-HLC) for the transport of electricity with minimal losses. These developments and their transfer to society are being carried out as a collaboration between the Accelerators and Technology sector, the Occupational Health and Safety and Environmental Protection (HSE) unit and the KT group.

Concerning **health,** CERN has an excellent record of knowledge transfer in the field of medical applications, in particular relating to the use of accelerator and detector technologies for cancer treatment and medical imaging. The strategy approved by the Council in June 2017 (CERN/3311) constitutes the basic guiding framework. The Medical Applications section of the KT group promotes, supports and gives coherence to initiatives across the Organization. Developments that will be pursued in the period 2021-2025 include: an R&D programme on critical accelerator technologies for innovative ion therapy (NIMMS, Next Ion Medical Machine Study), comprising magnet technologies, ion linacs, improved synchrotron designs and superconducting gantries; a radiotherapy facility at the Lausanne University hospital for irradiation with ultrafast bursts of electrons (FLASH) based on CLIC technology; the exploitation of the MEDICIS facility for non-conventional radioisotopes; detectors and electronics for imaging and dosimetry; and computing technologies for data storage, management and analysis. All these initiatives are being carried out in partnership with institutes in the Member and Associate Member States. CERN will continue to engage with external partners (hospitals, research centres, industry) in order to identify new opportunities for the transfer of its technologies to the medical field beyond the already established applications.

Historically, high-energy physics has been at the forefront of **computing** innovation, from the invention of the Web to the deployment of large-scale infrastructures such as the worldwide LHC Computing Grid (WLCG), and the development of simulation, data processing and storage tools that find applications in other domains of research and society.

In a world of rapidly increasing developments and investments in information technology, the CERN community has an important role to play given the size of the dataset produced by the experiments (currently Exabyte), the specific problems to be solved and the complexity of the algorithms required. In the coming years CERN, in collaboration with institutes and industry in the Member States and beyond, and through initiatives such as Quantum Technology and openlab, will pursue and expand R&D and training programmes in areas in which it can bring unique expertise to society, including artificial intelligence, quantum technology, open-access data repositories, etc.

Across all these areas of activity, CERN will continue to ensure that their impact also contributes to advancing the Sustainable Development Goals (SDG), adopted by all United Nations Member States in 2015. Collaboration with CERN’s Member and Associate Member States, with international organisations and other partners will be enhanced to identify and pursue further synergies in support of the SDGs, building on CERN values, competencies and technologies.

CONCLUSIONS

CERN is Europe’s greatest asset in particle physics, a source of inspiration and pride for physicists around the world, a strong driver of technology and innovation, a hub of knowledge, training and education, and a brilliant example of worldwide scientific cooperation. The vision and objectives presented in this document aim at preserving and expanding CERN’s multi-faceted role and making it more visible to and recognised by society, thus ensuring a bright future for the Organization.

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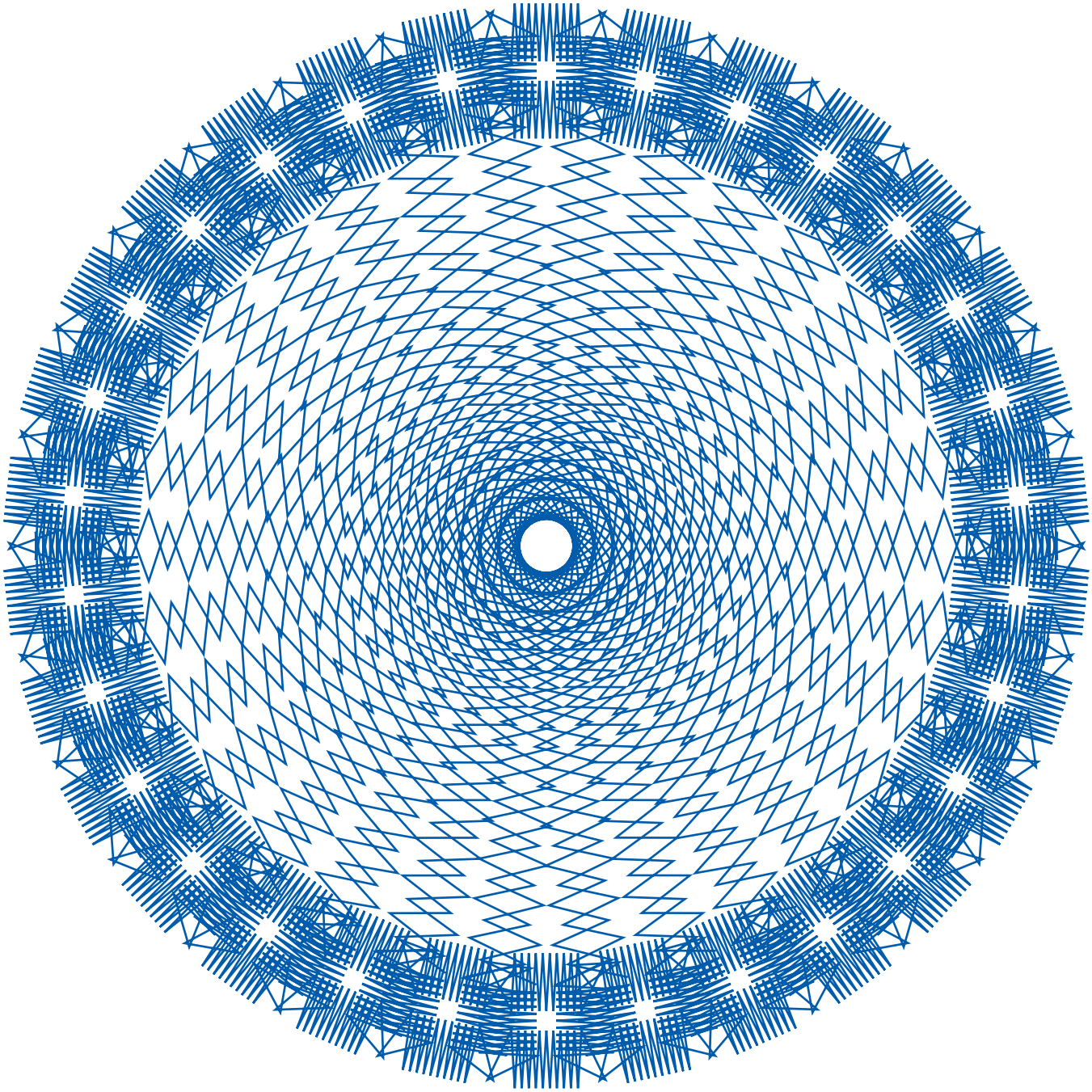


CERN