New-Year online meeting

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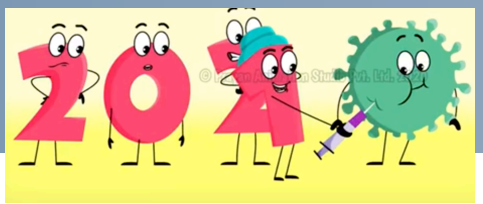
18 January 2021



Best wishes to you and your families for an excellent 2021, health, happiness and many nice accomplishments, hoping that 2021 will bring us back to a “normal life”.

Meilleurs voeux à vous et à vos proches pour une excellente année 2021, santé, bonheur et succès, dans l’espoir que 2021 nous permette de retrouver une “vie normale”.

Today's presentation: **the next 5 years**

Note: last year's retracing and accomplishments presented at 15 Dec 2020 online meeting

CERN's organisational and management structure for 2021-2025

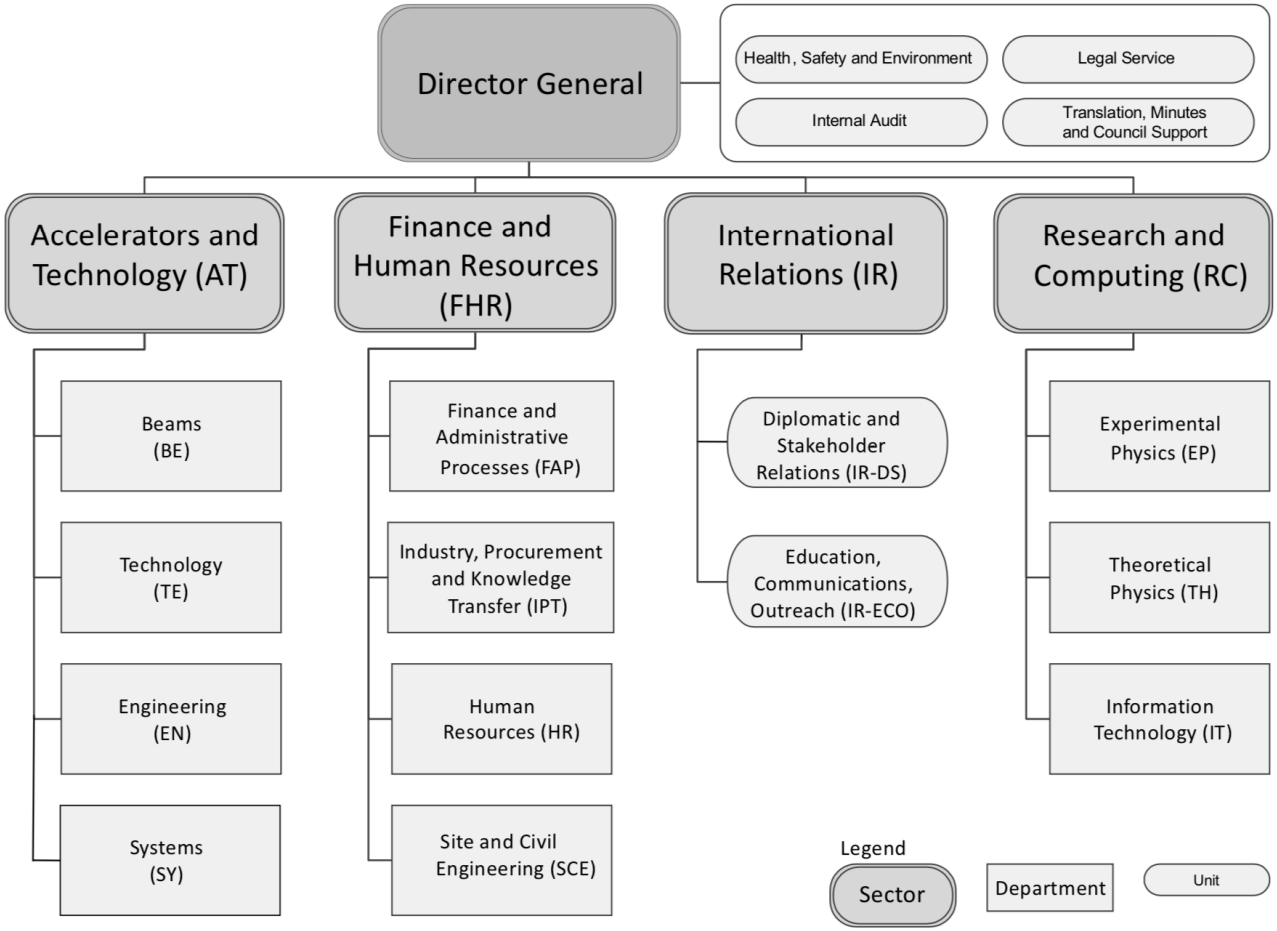
Main objectives and priorities for 2021 and beyond

Introduction	Fabiola Gianotti
Accelerators and Technology	Mike Lamont
Research and Computing	Joachim Mnich
International Relations	Charlotte Warakaulle
Finance and Human Resources	Raphaël Bello
Conclusions	Fabiola Gianotti

CERN's organisational and management structure for 2021-2025

Organisational and management structure 2021-2025

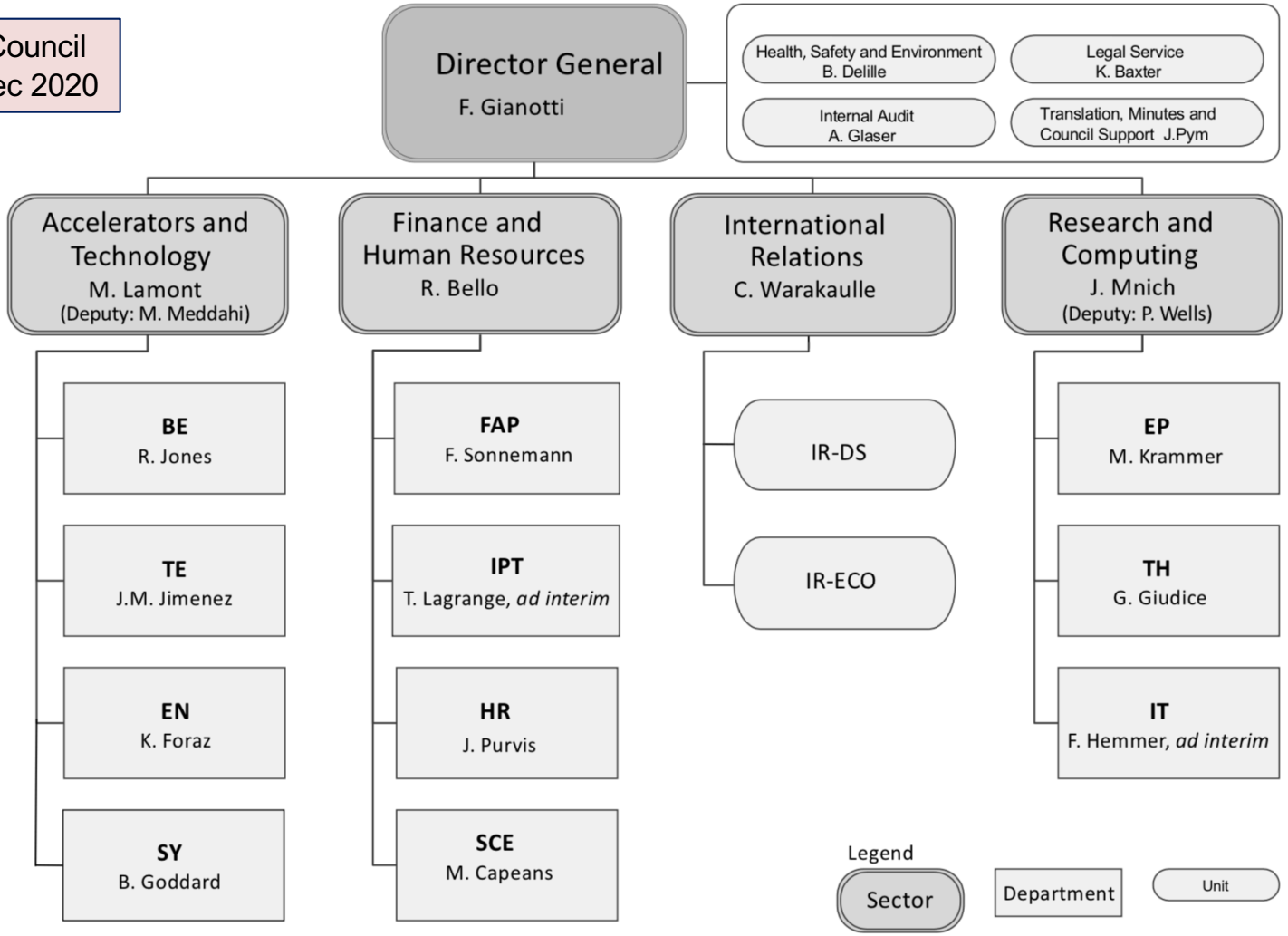
Endorsed by CERN's Council Sept 2020



- Four sectors as previously: each sector comprises several departments/units and is led by a Director. Four units are attached directly to DG.
- Main change: new **Accelerator Systems department** in AT sector, grouping together beam-related systems (beam instrumentation, RF, beam transfer, power converters, sources, targets, etc.)
  → enhance synergies by grouping functions and expertise; more manageable departments size
- Several changes within and across departments, units, groups (see talks by Directors), based also on recent experience, with goal of increasing synergies and optimising available resources.

Organisational and management structure 2021-2025

Approved by Council in Sept and Dec 2020



- DG and four Directors form the Directorate
- Enlarged Directorate brings together Directorate (and Deputies), Department Heads, Head of HSE
- 7 women/15 men (2 *ad interim*); 12 new/10 continue (2 *ad interim*)
- Only top-level organigramme shown here: thousands of people work at various levels of the structure, including many services and technical and admin support groups

Examples of operations, projects, additional support/services

(a non-exhaustive list)

Operation of the accelerator complex and computing; experimental programme at LHC and injectors.

~ 50 active EU-funded projects
(CERN's success rate in H2020: 34%, compared to overall success rate of 12%)

LHC Injectors Upgrade (~ completed)
HL-LHC
LHC detectors Phase 1 and 2 upgrades

CERN Environmental Protection Steering Committee (CEPS)

Science Gateway

Neutrino Platform

CERN Alumni

FCC
Physics Beyond Colliders (PBC)

5-yearly review of the financial and social conditions of personnel

Accelerator R&D
(including HFM, AWAKE, CLIC, Muon Colliders)
R&D for future detectors
Quantum Technology Initiative
CERN openlab

Additional support or services:
Staff Association
Ombudsperson
Pension Fund

The work of thousands of people!

Main objectives and priorities for 2021 and beyond

Note:

- ❑ preliminary → to be completed, adapted and refined as needed (your input is welcome!)
- ❑ high-level → more details in the Directors' talks
- ❑ scientific proriorities based on the 2020 update of the European Strategy for Particle Physics

Scientific programme: current programme

Successful Run 3

- ❑ at least 160 fb^{-1} for ATLAS and CMS at $\sqrt{s}$ = 13-14 TeV
- ❑ commissioning of LIU beams to target performance and operational exploitation by the user communities at experimental facilities

HL-LHC and Phase-2 upgrades of ATLAS and CMS (on schedule and budget)

Many challenges, e.g. Nb_3Sn magnets and several detector components

Continued support to scientific diversity programme

HIE/ISOLDE, n_TOF, AD/ELENA, fixed-target experiments, Neutrino Platform, new projects from Physics Beyond Colliders

Note: there is no future for CERN if the current programme, in particular LHC and HL-LHC, is not successful

Scientific programme: preparing the future

FCC feasibility study

Tunnel: high-risk zones, administrative aspects with Host States, environmental issues.
Technologies: magnets, energy consumption, environmental issues.
Funding: start to gather pledges for ~ 5 BCHF from outside CERN's budget.
"Consensus" building: governments, scientists from other fields, industry, the public.

Accelerator R&D

High-field magnets (Nb_3Sn, HTS) → budget doubled in 2020 Medium-Term Plan (MTP).
Other accelerator R&D (CLIC, Muon colliders, AWAKE, etc.).
Note: Laboratory Directors Group will release Accelerator R&D roadmap by end of year.

R&D for future detectors

Effort in EP department in collaboration with other institutes in Europe and beyond.
Covers collider and non-collider experiments.
Note: ECFA will release Detector R&D roadmap by end of year.

Physics Beyond Colliders

Additional resources allocated in 2020 MTP to prepare the future for scientific diversity programme.

Resources and site infrastructure

Human resources

- ❑ Five-Yearly Review of financial and social conditions of personnel: completion & implementation
- ❑ Finalise implementation of “Work Well Feel Well” recommendations (including lessons from Covid)
- ❑ Develop personnel plan for coming years (including new “graduate programme”)
- ❑ Expand support to users and to experiments’ workforce (dedicated WGs being established)
- ❑ Enhance commitment towards more diverse and inclusive workforce (gender, national balance, …)

Working with Staff Association on many of the above topics

Financial resources

Identify financial pledges for FCC from outside CERN’s budget.
Explore opportunities for creating financial leeway in CERN’s budget (currently no margin).

Procurements

Improve return to poorly-balanced Member and Associate Member States.
Possible savings from review of specifications procedures
(Note: ~ 580 MCHF spent every year in supplies and services).

Site and buildings

Large investment in 2020 MTP for new buildings and for site facilities → towards a more comfortable and welcoming environment for the community (CERN Masterplan 2030)

Increasing CERN's visibility through its impact on society

Maximising CERN's impact on society is a duty of a responsible public research organisation and a crucial, strategic tool to expand CERN's visibility and ensure its long-term future

CERN's science and values

Communication strategy promoting importance of fundamental research for the future of humanity and CERN's values (collaboration across borders; open science and universally accessible education as keys to reducing knowledge-based inequities and contributing to a more sustainable society; inclusiveness and solidarity). Very relevant in the post-Covid era.

Environment

- ❑ Environmental and sustainability considerations must be included in all we do *ab initio*
- ❑ Meet (ambitious) objectives of first Environment Report (released to the public in 2020) https://hse.cern/environment-report-2017-2018
- ❑ Energy savings and re-use (e.g. East Area, LHC Point 8, Computing Centre in Prévessin)
- ❑ Explore and pursue CERN's technologies with potential applications to environment

Knowledge Transfer

Proactively identify CERN technologies with potential applications in other domains of society and support their dissemination. Medical applications and technologies to protect the environment play a special role.

Science Gateway

Complete fundraising and construction, finalise content → open to the public in 2022/2023

The new Directorate

Directing CERN in 2021-2025 will be a team work

Although each Director has specific competences and a well-defined area of responsibility, the overall strategies and plans, as well as the main problems and operational aspects, will be handled together → benefit from everybody's competence, experience, and viewpoint.

Mike Lamont

Charlotte Warakaulle

Joachim Mnich

Raphaël Bello

Before concluding

Proposed TOP 5 objectives for 2021-2025

Current scientific programme

Run 3: safe and effective operation of LHC and injectors and full exploitation of physics potential.
HL-LHC construction and Phase-2 upgrades of ATLAS and CMS towards completion.

FCC technical and financial feasibility study

Technology developments

Accelerator and detector R&D (execution of roadmaps in collaboration with external institutes).
Quantum Technology Initiative.

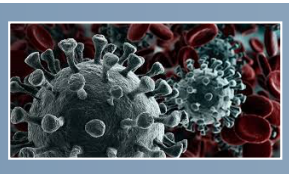
Human and financial resources

5-yearly review of financial and social conditions of personnel.
Revisit the way we work (based also on Covid-19 lessons) to enhance well-being and inclusiveness.
Increase financial margin in CERN's budget.

Increase CERN's visibility through impact on society

Knowledge transfer, including medical and environmental applications.
Completion of Science Gateway and opening to the public.

CERN and Covid-19



Recent news

- ❑ Number of positive cases from CERN's personnel since beg of pandemic: **281** (none contracted on-site)
- ❑ Current telework framework (100% telework mandatory for people who can telework and are not needed on site) extended until end of Feb. This is still aligned with recent (tighter) restrictions in CH and F.

Covid-19 testing at CERN

RT-PCR tests started with support of a medical lab in Meyrin (Proxilis):

- ❑ tested at Proxilis: suspected cases, close contacts and people coming from high-risk countries (the latter only when presence on site is crucial for CERN's activities)
- ❑ tested on-site (as of 25 Jan): vulnerable people or people who have to travel for professional reasons (once current restrictions lifted); periodic tests of exposed groups (e.g. control-room shifters)
- ❑ duration of isolation (suspected cases) or quarantine (close contacts) determined by Medical Service based also on test results

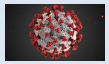
Covid-19 vaccination

- ❑ Personnel, family members and retirees resident in France or CH will be called by the Host State in which they reside according to priority, i.e. vulnerable and exposed people first. CERN is making sure that our community is included in the national plans. Swiss-card holders resident in France can be vaccinated in CH.
- ❑ CERN is exploring with Host States possibility of on-site vaccination → will take time as current vaccine's availability limited, and distribution restricted to few designated centres in the countries.

Proximeter

Essential for rapid, comprehensive, sustainable contact-tracing → to break infection chain and protect health of people on-site. Mandatory as of 1 March.
1000 out of 10000 distributed so far → please book a slot to collect yours:
http://www.cern.ch/proximeter-dist

Conclusions

Excellent accomplishments of CERN and its community on the scientific programme and other fronts **in 2020** (see online meeting 15 Dec 2020) despite 
This was only possible thanks to the continued support of the Member States, and the flexibility, adaptation to the health and work procedures, ingenuity and forbearance of the personnel
→ **thank you for your unswerving commitment**

Thanks to **effective and well-adapted Covid-19-specific measures**, the **hard work of many services and people** and the **exemplary compliance of personnel:**

- ❑ on-site activities could continue at a sustained pace (except during safe-mode)
- ❑ no spread of infection on site

The pandemic will be with us for most of 2021 → cannot lower the guard
→ **we count on your continued responsibility**

The **2021-2025 organisational structure is the evolution of the previous one**, with improvements aimed at increasing efficiency and synergies.
It will allow the Organization to achieve its challenging strategic objectives.
No structure works without the crucial contribution of people, and we count on you to animate it and make it successful. 2021 will be a year of changes → **thank you for your patience**

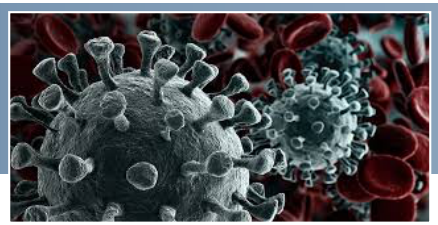
The next 5 years will be crucial for the future of CERN and particle physics in Europe:
we will have to deliver on the current programme and lay the foundations for the future of the field
→ lot of work to do across all CERN's activities, many tough challenges, but also
great opportunities for CERN and for your own professional development.

I am looking forward to working with you all in what will hopefully be a MEMORABLE time for CERN, its community, and the field.

CERN

EXTRAs

2020 Highlights … despite



Covid-19 pandemic

Effective health measures deployed and adapted. Excellent compliance by personnel.
All services worked hard to support personnel on site and teleworking. CERN against Covid-19 Task Force.

Accelerator complex

LS2 activities proceeded safely and on schedule, but ~ 3 months lost due to Covid-19
LHC Injectors Upgrade completed → commissioning started
HL-LHC: underground CE work ~ completed; progress on many machine components

Experiments

Many beautiful physics results from full scientific programme (LHC, fixed-target, etc.)
Good progress on Phase-1 upgrades of LHC experiments, with strong impact of Covid-19 in some cases.
Technical and financial (commitments by Funding Agencies) progress on Phase-2 upgrades of ATLAS, CMS.

European Strategy for Particle Physics unanimously updated by Council in June 2020
→ foundation for a bright future for CERN and European particle physics

Medium-Term Plan 2021-2025 approved by Council with strong support → includes first implementation of updated Strategy and significant additional resources for site and building renovation

99.5% of annual financial contributions from Member and Associate Member States received despite the testing year → demonstration of great appreciation for CERN's accomplishments and personnel

First public Environment Report released: describes current status and sets ambitious goals for future.

Directors and Department Heads for 2021-2025 appointed by the Council