



Federal Ministry
of Education
and Research

Current view to FC @ CERN

Future Collider @ CERN Community Event, 23.05.2024

Eckart Lilienthal, BMBF

„Particles“ – Funding Instruments: Present

Institutional
Funding

Institutional funding: DESY, GSI, KIT

Membership contribution: CERN

Planning and
Construction
of RIs

Construction of FAIR

Phase-II Upgrades ATLAS and CMS

Project
funding ErUM-
Pro

Operation and development of Experiments @CERN and other RI

Construction of FAIR Experiments

Cross-Cutting activities (accelerator, detectors, ..)other

Shaping of the RI Landscape

Current numbers for CERN in 2024

CERN Member State contribution DE: 267 Mio. € / year

Phase-II-Upgrades ATLAS/CMS : 130,5 Mio. € / 14 years

ErUM-Pro CERN Experiments : FP 2021-2024 : 50,9 Mio. €
FP 2024–2027 : 55 Mio. €

→ Strong commitment of BMBF to CERN

→ Future of CERN highest priority to BMBF



Future of CERN = FCC?

*“The cost estimates in the feasibility study are subject to a large number of **uncertainties**, the effects of which are still largely unknown. **The financing plan is extremely vague** and requires a high level of **commitment from external partners**, which is neither assured nor even in prospect at the present time.*

*Under the current economic conditions, **Germany is not in a position to provide the planned funding**. In view of all these points, the **FCC has to be considered as not affordable**.*

*Hence, CERN has to **diversify its efforts and prepare for different scenarios** including one without the FCC-ee.”*

BMBF Statement in CERN Council Meeting 02/2024



CERN Budget - current

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- Scientific Outcomes of HL-LHC
- CEPC in 2035?
- Environmental and Energy framework 2045ff?



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- Feasibility Study/ „pre TDR“ → cost transparency; governance
- Compared funding of „future projects“
- CBD projection



CERN Budget – estimation with FCC

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FCC Calculation in SFR

- Basic Configuration (Tunnel, 2 IP): 12,8 Bln
- Upgrade: 4 IP, tt-bar: +2.2 Bln SFR
- Uncertainties and risks
- ➔ German Share 21%: 4-5 Bln EUR Invest
- Costs for experiments not even included
- Operational Cost FCC >1,3 Bln SFR/a; high uncertainties through energy prices
- CERN staff: run HL LHC while planning FCC



FCC: Commitment from external partners

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- Significant Private Donations?
- EU shares: conflict with national spending
- Appropriate participation of host countries, esp. for civil engineering
- Crisis of RI (ESFRI roadmap and beyond)



FCC: Estimated german contribution

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Long-term Budget constraints:

- „Schuldenbremse“ VerfG decision on strict limits for deficit spending
 - Climate change mitigation: VerfG decision on mandatory funding
 - NATO self commitment: 2% GDP on Defense Spending
- Limited margin for extra investments



FCC: Affordability

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FCC „Not Affordable“?

- Research will remain German priority BUT
- Constant CERN funding – at best!
- FCC overall costs are extremely high
- Risks and uncertainties as a thread
- External donors will not „save us“
- Host Countries??



FCC: Alternatives and Plan B

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If FCC planning does not show significant changes, it cannot become successful.

→ German community should prepare for alternative scenarios!

Last ESPP: „*Full exploitation of HL-LHC*“

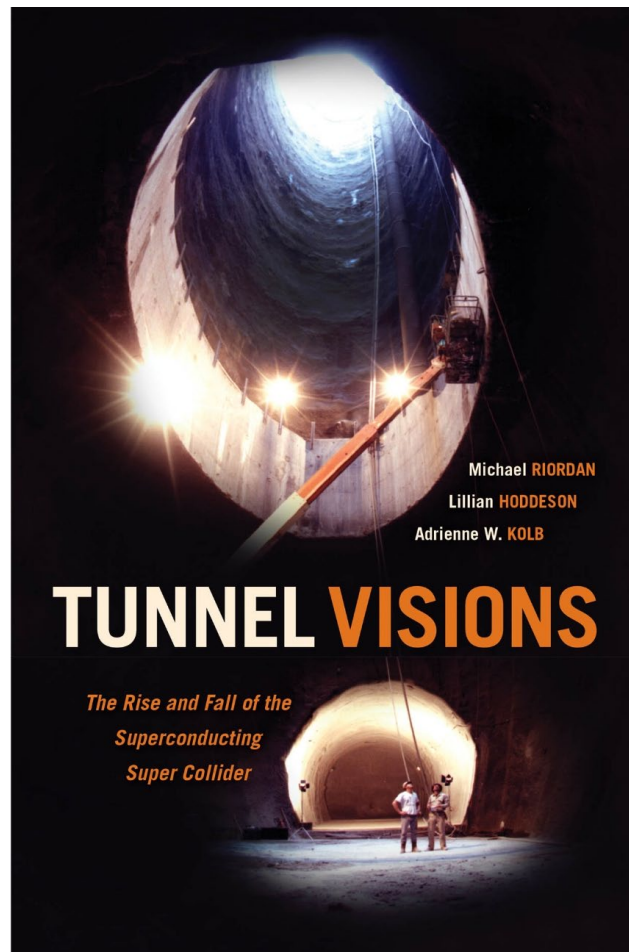
→ Primary goal might be: finish HL-LHC work and start physics

→ Watch for the Chinese decision on CEPC first



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Outlook



Source:
Tunnel Visions
The Rise and Fall of the Superconducting Super Collider
Michael Riordan, Lillian Hoddeson, and Adrienne W. Kolb



Thank you for your attention

Eckart Lilienthal

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