



ECFA ECR

Accelerators & Detectors

on behalf of the WG



Prep. meeting on 11.11.

- ~20 people, mostly detector people ?!
- 1h15 discussion

Scope

- Did not discuss, which detector technology is better, somewhat deliberately!
- Did discuss impact of machine choice on the future of the field
- Criticised to some degree the ESU process



Concerns with the BB (chapters 10/11)?

Strategic thoughts

- Strategy discussion/BB does not sufficiently include:
 - 1) Total number of experiments (at IPs and elsewhere) that can run in parallel
 - 2) Compatibility of existing infrastructure with the new machines
- Should a strategy answer questions, maybe in an “if, then” approach?

Content-wise thoughts

- Unclear which detector R&D needed for which future projects
- Little discussion on technology-specific limits/potential of state-of-the-art detectors



Concerns with the BB (chapters 10/11)?

General thoughts

- Is more than one experiment needed for the success of the physics/success of a proposal? (“nice to have” vs. “really needed”, c.f. astro-particle/cosmology experiments)
- Can a bold EPPSU in terms of career aspects make a change on the national level?
- Equal footing of the comparisons? See later slide.

Budgetary thoughts

- Running of HL-LHC financially limits construction of 1st generation accelerators
 - > Can we afford developing CLIC and FCC-ee in parallel?
- How diverse a program can we afford to develop until a 1st gen accelerator is running?



Putting emphasis on the BB

- Importance of training
- “Yet the detector and the computing/software communities have been drifting apart, and individuals that can bridge the growing gap are rare. This is a challenge to the community.”
-> highly specialised experiences are common, encourage diversity within one experiment?
- World-wide collaboration becomes essential. Strategic decisions must be taken under a global vision for physics.
- Equal recognition:
Introduce career paths, awards/prizes for all types of specialisation (detector/accelerator R&D, computing, analysis and mixed) at universities and labs, including professorships



Continuation vs diversity in the field

- Diversity on detectors:
 - 1) Diversity can be achieved by both small experiments or upgrade of existing ones
 - 2) Too extreme diversity could also be disadvantageous (c.f. CMOS for ATLAS 5th layer)
- Diversity in accelerator:
 - 1) Diversity can be achieved by both small experiments or upgrade of existing ones
 - 2) Diversity can become difficult in term of personpower/budget when strong R&D on different colliders is followed

-> improved research networks for acc. R&D



Recognition of scientific work

- Recognition in terms of career paths:
ECRs doing only physics analysis can become professors
ECRs doing only detector dev. or only accelerator dev. or only computing have a very hard time to even get a staff position
- Technical qualification task is (often) not the same as 'real' detector R&D
-> Encourage QT to become real bridge towards involvement in detector R&D

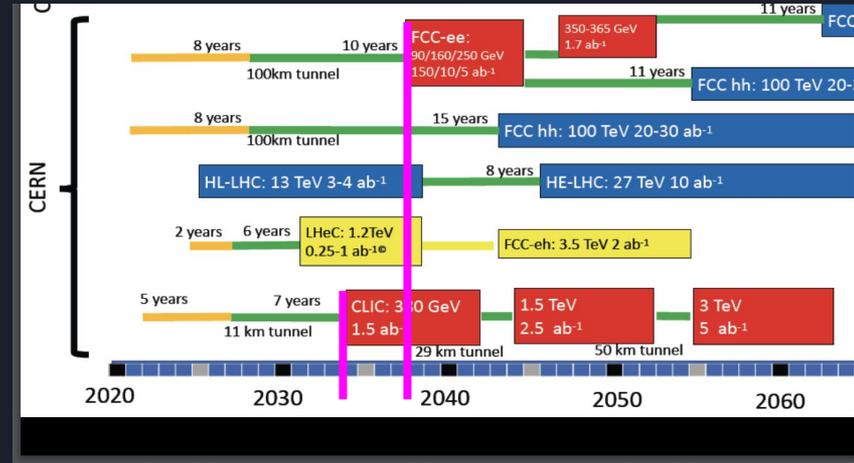


Social aspects

- If we limit ourselves to a 100km ring, the risk of a large gap with no running collider is immanent
 - > cannot keep experts for when they are needed
- Having kids should not put a burden on the career prospects
 - > The opposite is a reality.
- Reconciliation of family and a scientific career (this time for real!)
 - 1) Not only after successful job application
 - 2) Also during application process
- Less mobile with kids, less trips to CERN, lesser of a chance for career?

Equal footing?

Concerns have been raised, if the numbers to compare various projects allow for a fair comparison:



- In terms of precision physics:
Is the uncertainty on the uncertainty larger than the difference in the scenarios?

- In terms of money/time line:

E.g. CLIC civil engineering costs 1300 MCHF / 11 km = 120 MCHF / km ± ???

E.g. FCC-ee civil engineering costs 5400 MCHF / 100km = 54 MCHF / km ± ???

E.g. start of CLIC-380 2034 ± ???

E.g. start of FCC-ee: 2038 ± ???

Realistic vs.
optimistic
scenarios ?

What is included?
Uncertainties?



Some (provocative?) statements on machines

1 - strongly disagree, 3 - indifferent, 5 - strongly agree

- 1) The next collider to be built anywhere in the world should be an e+e-.
- 2) The next collider to be built in Europe should be an e+e-.

- 3) The next collider in Europe should be FCC-ee.
- 4) The next collider in Europe should be FCC-hh.
- 5) The next collider in Europe should be CLIC-380.
- 6) The next collider in Europe should be a muon-collider.

- 7) An FCC should be realised at CERN.
- 8) The ILC should be realised in Japan.
- 9) The CLIC should be realised at CERN.



Some (provocative?) statements on career factors

1 - strongly disagree, 3 - indifferent, 5 - strongly agree

- 1) For physicists doing analysis/phenomenology and R&D:
 - a) My involvement in R&D has diminished my career prospects
- 2) For physicists doing only analysis/phenomenology:
 - a) I intend/plan to get involved in R&D (1= no, 5 = yes)
 - b) An involvement in R&D will worsen (1) / strengthen (5) my career prospects
- 3) For physicists doing only R&D:
 - a) I intend/plan to get involved in analysis/phenomenology (1= no, 5 = yes)
 - b) An involvement in analysis/pheno will worsen (1) / strengthen (5) my career prospects



Some (provocative?) statements on social factors

1 - strongly disagree, 3 - indifferent, 5 - strongly agree

- 1) I am a parent as of now. (1 no, 5 yes)
- 2) If yes: I fell having kids has diminished my career prospects.
- 3) If no: I fell having kids will diminish my career prospects.
- 4) My life is too uncertain to have kids at the moment.



Summary

- (Self-)organisation of ECR should have started earlier
- Expressed concerns with EPPSU, comparisons made to some extent questionable
- A strategy should rather answer questions than pose questions
“What happens if Japan decides to build the ILC?” then
- Very much appreciate the support for equal recognition of expertise
- Unclear if comparisons are made on equal footing. Concern is, that it is not.