Summary of AAP Review

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DESY

April 21, 2009
TILC'09

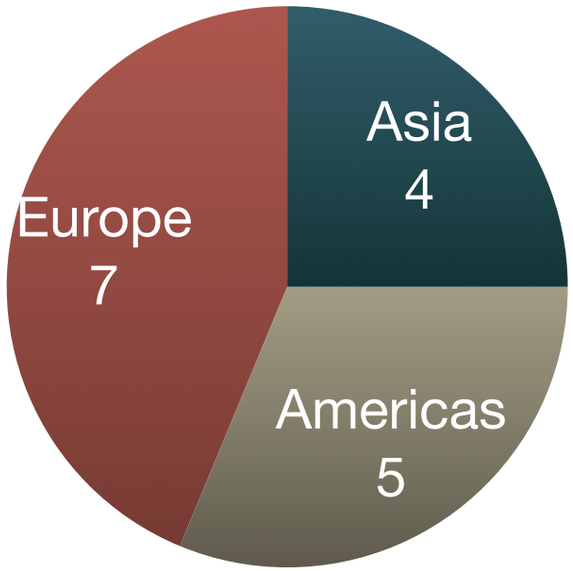
Role of AAP

- Internal Review Body
  - of technical matters
  - reporting to director
- Support the project
  - examine the technical progress
  - reflect on management structures

AAP considered this an experiment; explore and adapt till the answer is there

AAP Reviewers

- Regular Members
  - C Damerell
  - J Dorfan
  - E Elsen
  - T Himel
  - M Kuriki
  - O Napoly (*)
  - K Oide
  - H Padamsee
  - T Raubenheimer
  - D Schulte
  - W Willis



- External Members
  - N Holtkamp (*)
  - L Rossi (*)
  - T Tajima
  - M Uesaka
  - F Zimmermann

(*) apologies received

- F Lehner served as the scientific secretary for this meeting

Basis for review

- Followed the goals of the TDP
  - thematic priorities
  - timelines

overriding goal:
readiness of the ILC
in 2012

ILC Research and Development Plan for the Technical Design Phase

Release 3

February 2009

ILC Global Design Effort

Director: Barry Barish

Prepared by the Technical Design Phase Project Management

Project Managers: Marc Ross
Nick Walker
Akira Yamamoto

Key Topics

- Project management
- electron cloud
- superconducting RF
- Civil facilities and siting
- Test Facilities
  - ATF
  - FLASH

and for completeness

- accelerator systems
- sources
- damping ring
- BDS etc.

Preparation

- **e-cloud**
  - ***Will e-clouds impose an operation limitation for the ILC?***
    - Is the theoretical understanding sound?
    - What are the uncertainties in extrapolation for the ILC?
    - What are the mitigation techniques?
    - Which aspects of the theory and of the mitigation techniques have been tested experimentally and independently in positron and proton rings?
    - Damping ring test facilities
      - CesrTA
        - e-cloud
        - impedance limitations
      - PEP II
      - KEK B
        - high curent operation
        - future options
      - DaΦne
  - Is there a DR design for the ILC for safe operation wrt e-cloud?
    - What is the design and how has it been verified?
    - What are the remaining uncertainties and how are they covered in the design proposal?
    - What are the side effects: impedance, acceptance, emittance, bunch, etc…
  - What is the operation margin?
    - bunch charge
    - shorter bunches
    - smaller rings

typical example:
look at high level
context

experimental
input

risks

margin

Example of a Review Day

19.04.2009

8:30	1:00	Executive Session	
9:30	0:10	Introduction	*A Yamamoto*
9:40	0:35	R&D to improve the gradient	*L Lilje*
10:15	0:15	Decision process	*A Yamamoto*
10:30	0:30	Break	
11:00	0:30	Cavity integration	*H Hayano*
11:30	0:30	Cryomodule	*N Ohuchi*
12:00	0:20	Role of Plug compatibility	*J Kerby*
12:20	0:10	Cryogenics	*T Peterson*
12:30	1:30	Working Lunch	
14:00	0:20	HLRF	*S Fukuda*
14:20	0:20	MLI beam dynamics and quadrupoles	*C Adolphsen*
14:40	0:20	STF at KEK	*H Hayano*
15:00	0:20	NMF at FNAL	*M Champion*
15:20	0:10	Summary and Discussion	
15:30	0:30	Break	
16:00	1:00	ATF2	*A Seryi*
17:00	2:00	Executive Session	
19:00		End	

First impressions

- positive interaction with the experts
  - openly shared their concerns and challenges
  - recurring topic
    - generic accelerator R&D
    - ILC directed engineering and development (baseline and design integration)
- Closeout with B Barish yesterday

Report will go "public"

- Observation of anomalous behaviour…
- Evidence for uncorrelated activity…
- Discovery of giant cost savings…

still working on title

Report will go "public"

Report on the
AAP Review at TILC'09

April 17-21, 2009, Tsukuba, Japan
Overview

document to be released for the PAC review May 9-10, 2009

Conclusion

- Thorough review thanks to
  - close collaboration with the project managers beforehand
  - tremendous effort of all experts to collect and present material
  - tireless effort of the reviewers
    and in particular of the external reviewers who had to absorb a tremendous amount of information in a short time