Draft Minutes of the 47th ATLAS Resources Review Board Meeting  
CERN, Geneva, 29th October 2018

Documents can be found in the RRB indico pages; accessible via the LHC-RRB home page [http://cern.ch/committees/LHCRRB](http://cern.ch/committees/LHCRRB). The attendance list is attached at the end of this document.

E. Elsen, Director for Research and Computing welcomed delegates to the meeting. The minutes of the last ATLAS RRB meeting, CERN-RRB-2018-066, were approved.

**Status of the experiment: Results, Offline and Phase-II.** K. Jakobs, Spokesperson

Summary:
The ATLAS experiment has shown an excellent data taking performance in 2018 (\(\sim 62 \text{ fb}^{-1}\) of pp-data were accumulated with high efficiency and data quality).

**ATLAS continues to produce high-quality physics results**
- Observation of \(t\bar{t}H\) and \(VH\) production, and \(H \rightarrow \text{bb}\) decays;
  - Fermionic couplings established in Run 2 (together with \(H \rightarrow \tau\tau\) decays);
- Electroweak vector boson scattering process observed in \(WW\) and \(WZ\) production;
- Important precision measurements on \(m_W\), \(m_{\text{top}}\) and \(\sin^2 \theta_W\);
- Exploration of higher mass ranges and parameter regions for specific models in searches for new particles.

**Phase-II Upgrade:**
- TDRs approved (except for timing detector);
- Financing consolidated;
- Preparation of MoUs is well advanced, plan to be ready for signatures in January 2019.

**ATLAS is ready for Phase-II approval**

ATLAS thanks the Funding Agencies for their strong support over the last decades which has been, and continues to be, fundamental to the success of the experiment.

*Summary of the discussion following the presentation:*
Referring to slide 27, M. Coles enquired whether there had been an attempt to descend the work breakdown structure (WBS) to a level containing only single countries to allow their independent management. K. Jakobs replied that the structure of the WBS matrix reflected the nature of the subdetector construction work. Because of the strong interest of participating institutes and the size of certain tasks, the work sometimes needed to be split over multiple countries. E. Elsen added that for the ATLAS ITK the WBS drills down to level 6 since the tracker splits into a Strip and a Pixel detector, but that normally level 5 would be the deepest level.
On the ATLAS money matrix on slide 25, E. Rabinovici remarked that Israel is in the process of moving to green.

Concerning the meaning of the colour blue, F. Dittus explained to M. Fleischer that the size of the blue bars gives the size of the contribution in kCHF, normalized to the largest contribution.

Answering M. Mikuz’ question on CERN’s non-core contribution to ATLAS, K. Jakobs and L. Pontecorvo explained that CERN’s core deliverables imply non-core expenses such as the design and procurement of the CO$_2$ cooling plant for SR1. E. Elsen and F. Gianotti confirmed that CERN contributes 55 MCHF to each of ATLAS and CMS, and that this amount exceeds CERN’s fair share. The way ATLAS and CMS spend this money is different. For CMS, CERN contributes to the hardware for the Tracker and Calorimeter, while non-CERN institutes support the assembly of the respective detector.

Questions related to the MoUs by N. Pastrone (timescale for review), M. J. Borge (content) and M. Fleischer (procedure) generated replies by K. Jakobs, E. Elsen and F. Gianotti, which can be summarized as follows:

- Draft versions of the MoUs will be available by the end of this year for the Funding Agencies. Problematic issues should be discussed with the management of the experiments.
- Since a large effort was invested by experiments, Funding Agencies and Review Committees are asked to adhere to the “Fast Track” TDR approval procedure, the production and signature of the MoUs should follow quickly, allowing the timescale of installation during LS3 to be met.
- The content of the MoUs will differ between ATLAS and CMS in the reporting of the non-core items.

**Status of the experiment: Detector and Phase-I.** L. Pontecorvo, ATLAS Technical Coordinator

Summary:

- ATLAS has recorded ~150 fb$^{-1}$ in Run 2
  - The data taking efficiency and the quality of data have been increasing throughout the years thanks to a few extremely dedicated experts of each system.
- ATLAS starts showing some signs of ageing:
  - Many corrective actions will be taken in LS2 but some issues are intrinsic of the systems and will stay with us at least up to LS3.
- The Phase-I upgrade is close to the installation phase
  - Good progress has been made in all the main projects but the New Small Wheel remains on the critical path and is under the full attention of the ATLAS management.

**Summary of the discussion following the presentation:**

Referring to the fact that full commissioning of the FTK might not be possible by the end of LS2, A. Fischer enquired whether alternative scenarios had been envisaged, following the encouragement of the LHCC to search for them.

K. Jakobs and L. Pontecorvo replied that the comments from the LHCC concerning the FTK have received ATLAS’ attention and that an internal review panel was set up to study what resources are required to finish the commissioning in LS2 and what resources are available. The Collaboration neither sees the need nor does it have the resources to develop alternatives to the FTK.
LHCC Deliberations. T. Wengler, LHCC Scientific Secretary

Summary of the discussion following the presentation:
On a suggestion by A. Medland to add a section to the experiment’s report containing a response to the LHCC recommendations, E. Elsen noted that since the time between the LHCC meeting and the RRB is only one month, the response would not be as profound as it would be for the following LHCC meeting. K. Jakobs confirmed that the LHCC recommendations are taken very seriously by ATLAS and that they are addressed and reported back at the following LHCC meetings. Citing the examples of the FTK (slide 14) and the NSW gas studies (slide 19) he showed that the LHCC concerns are mentioned in the talks and how the collaboration has started to address them.

In addition, the purpose of the RRB meetings is to discuss and clarify issues like these, E. Elsen added.

Financial Matters. G. Cavallo, Finance and Administrative Processes Department

G. Cavallo presented the financial situation as of 26 October 2018, the report covering the situation until the end of August 2018.

Summary of the discussion following the presentation: F. Dittus explained that the positive balance of 6.5 MCHF of the Construction Common Fund, as observed by M. Fleischer, is destined to the shielding and the mechanical structure of the NSW (3 MCHF). This is not covered by the MoU because it was stated in the TDR that this would be covered by the Common Fund. The remaining amount serves as contingency money for the NSW. Once all Phase-I projects are completed, a proposal will be made on adequate usage, for example to inject it into the Phase-II Common Fund.

Budgets. F. Dittus, ATLAS Resources Coordinator

The RRB was asked to:
- Approve the requested 2019 M&O-A and M&O-B budgets, and their sharing by Funding Agency;
- Take note of the progress in the ATLAS Phase-I Upgrade projects, and the CORE deliverables projected to be realized in 2018 and 2019;
- To approve the sharing by Funding Agency of the Phase-II Common Fund budget, as documented in CERN-RRB-2018-079.

M&O Scrutiny Group Report. F. Simon, Scrutiny Group Chairperson

The Scrutiny Group recommends the approval of the requests to ensure that ATLAS can continue to operate successfully.

Summary. E. Elsen

The RRB approved the M&O A&B budget requests for 2019 and took note of the progress in the Phase-I Upgrade projects. The RRB approved the sharing by Funding Agency of the Phase-II Upgrade as documented in CERN-RRB-2018-079.

There being no further business, E. Elsen thanked the Funding Agencies and closed the meeting. The proposed dates for the next RRB are 15-17 April 2019.

Reported by: E. van Herwijnen
Present:

M.T. Dova (Universidad Nacional de La Plata, Argentina)
A Benoit (NSERC, Canada)
P. Krieger (University of Toronto, Canada)
O. Novak (Ministry of Education, Youth and Sports, Prague, Czech Republic)
A. Kupčo (Institute of Physics AS CR, Czech Republic)
P. Hansen (Niels Bohr Institute, Denmark)
G. Hamel de Monchenault (CEA/IRFU, France)
P. Verdier, L. Serin (CNRS/IN2P3, France)
A. Fischer, M. Gast (BMBF, Germany)
M. Fleischer (DESY, Germany)
H. Mahlke (BMBF/PT-DESY, Germany)
S. Bethke (MPI, Germany)
V. Buescher (Johannes Gutenberg Universitaet Mainz, Germany)
C. Fountas (University of Ioannina, Greece)
G. Tsipolitis (National Technical University of Athens, Greece)
E. Rabinovici (Hebrew University, Israel)
N. Pastrone (INFN, Italy)
M. Cobal (University of Udine, Italy)
K. Hanagaki (KEK, Japan)
R. Chijiiwa (Permanent Mission of Japan, Geneva)
S. Asai (University of Tokyo, Japan)
R. Cherkaoui El Mousr (Representing CNRST, Morocco)
S. Bentvelsen (NIKHEF, Netherlands)
F. Ould-Saada (University of Oslo, Norway)
D. Drewniak (Ministry of Science and Higher Education, Poland)
A. Fazacas (Institute of Atomic Physics, Romania)
C. Alexa (IFIN-HH, Romania)
M. Romanovskiy (Ministry of Science and Higher Education, Russian Federation)
V. Savrin, G. Kozlov (JINR, Russia)
Z. Hlaváčiková (Ministry of Education, Science, Research and Sports, Slovak Republic)
P. Strizenec (Slovak Academy of Sciences, Slovakia)
M. Mikuz (University of Ljubljana/Jozef Stefan Institute, Slovenia)
D. Adams (Department of Science and Technology, Pretoria, South Africa)
B. Singh (National Research Foundation, South Africa)
V. Spannenberg (iThemba Labs, South Africa)
M. Garcia Borge (CSIC, Spain)
M. Bosman (IFAE, Barcelona, Spain)
N. Ottoson (Swedish Research Council, Sweden)
B. Lund-Jensen (KTH Stockholm, Sweden)
G. Iacobucci (University of Geneva, Switzerland)
S.M. Wang (Academia Sinica, Taipei)
H. Kiziltoprak, (TOBB, representing TAEK, Turkey)
G. Blair, A. Medland, (STFC, United Kingdom)
C. Buttar (University of Glasgow, United Kingdom)
N. Konstantinidis (University College London, United Kingdom)
S. McMahon (Rutherford Appleton Laboratory, United Kingdom)
M. Coles, S. Gonzalez (National Science Foundation, United States of America)
A. Patwa, S. Rolli, M. Procario (Department of Energy, United States of America)
S. Rajagopalan, J. Kotcher (Brookhaven National Laboratory, United States of America)
J. Cochran (Iowa State University, United States of America)
M. Tuts (Columbia University, United States of America)
A. Markovitz (Observer, Fermilab, United States of America)

ATLAS: F. Dittus, A. Hoecker, K. Jakobs, M. Klein, L. Pontecorvo, I. Wingerter


Resources Scrutiny Group: F. Simon

Excused: G. Taylor (University of Melbourne, Australia), M. Türler (Swiss National Science Foundation, Switzerland)