

Work Package 3

Text taken from "description of work" (Annex 1 of the proposal)

The implementation phase of the present ATLAS LHC experiment, as carried out by the Collaborating Institutes, was based on:

- Letter of Intent (LoI) followed later by Technical Design Reports;
- Cost Books for the proposed construction, assembly and installation work, based on an agreed overall schedule;
- Memorandum of Understanding (MoU) for the experiment, through which the specific work and deliverables for each Funding Agency (FA) were defined;
- Payment in a Common Fund allowing the construction of major experimental infrastructures, which were beyond the funding capabilities of single institutes.

The process of getting these documents and commitments agreed was cumbersome as the collaboration rules were being defined in parallel. The main aim of this WP is to set up a structure to address these issues in a co-ordinated way for the ATLAS upgrade, S-ATLAS. The major coordination issues at the preparatory stage for S-ATLAS are:

- A. the preparation of the management/organization/scientific structures needed to plan, cost and implement the experiment upgrades; including the preparation of agreements defining the sharing of responsibilities among the participating institutes and FAs
- B. the technical planning and coordination tools needed to allow the changes to be efficiently and safely implemented in large complicated existing experimental facilities

The first task includes the organization of scientific exchange and dissemination of information to the potential participants in R&D activities targeted towards future SLHC implementation; this includes exchange of information between the experiments and the accelerator experts.

The ATLAS detector-system serves some 2000 users from 160 institutes. The experiment will need major changes in the forward region layout, the central tracking detectors, the read-electronics and the data acquisition systems for SLHC. These changes will cost around 130 M€ in materials and could include up to half the number of institutes and personnel that were involved in developing the current systems. Once approved, the timescales for constructing the new parts and installing them are estimated to be approximately 5 years..

Objectives

- - Establish the formal structures needed for the ATLAS upgrade construction project, and through Technical Documentation, Cost and Schedule planning, establish an initial MoU for the Upgrade Construction.
- - Establish a Project Office to address the critical technical integration and coordination issues of the new detectors, and the technical and managerial tools needed for the project planning and follow up.

Description of work

Task 3.1 Coordination and project structures

Establish a managerial structure (called Upgrade Management Board - UMB) taking responsibility for setting up the formal framework for the experiment construction consortium, including the preparatory phase. This structure will take responsibility for the preparation of Cost Books, Reviewing Processes, and Collaboration Agreements. The upgrade management structure shall have a mandate that includes the definition and implementation of:

- hierarchical structures
- participation rules
- financial rules
- formal interface to the global SLHC organization
- sub-project structures
- setting-up of Cost Books for the implementation phase
- internal scientific reviewing and approval procedures
- scientific exchange and dissemination of information (WEB information, workshops, etc)

The UMB interacts with the Upgrade Collaboration Board, a body that will involve all major stakeholders in the experiment upgrade project. The UMB, supported by the Project Office, described in task 2, will play a major role in moving from the R&D phase, to the formulation of Construction projects and establishing the sharing of responsibilities for experiment construction among FAs and institutes. CERN has an overall responsibility for this task but FOM-NIKHEF, STFC, and UNIGE will take important roles within the Upgrade Management Board, including the Reviewing process and Cost book preparation.

Task 3.2 Project Office

The Project Office ensures a consistent information structure related to the technical infrastructures and tools of the upgrade experiment. It is central in the definition of installation scenarios and scheduling. While individual laboratories or groups of laboratories perform R&D activities on individual detectors and components, the Project Office checks the compatibility of the R&D projects with the global technical framework. One of the principal tasks of the Project Office is to ensure in a wide sense that there is a consistent information structure for the upgrade projects, taking into account the present technical infrastructure. This information structure covers technical WEB interfaces, databases, drawing and CAD documentation, technical documentation and configuration control, with the aim of making controlled, well documented, safe and consistent changes to the experiments. Installation scenarios and scheduling are also included in its tasks. Such general technical issues need to be resolved convincingly in the preparatory phase to be able to launch realistic plans for constructing the final detector elements, and to allow the participating institutes and FAs to make meaningful contributions to individual parts of the complete experiment assembly. CERN carries the majority of the responsibility for this task, while FOM-NIKHEF, STFC and UNIGE take main responsibilities related to R&D project coordination, documentation and setting up adequate management tools for the projects.