

Fast Interaction Trigger – FIT

Project Organization

The project is coordinated by the Project Leader (PL). PL is assisted by two Deputy Project Leaders: one representing T0+ (DPL-T) and the other representing V0+ (DPL-V). This specialization is necessary as the bulk of the work on the design, prototyping and production of the T0+ and V0+ is done in two different and distant locations with a specific funding and organizational arrangements. T0+ will be manufactured in Russia while V0+, in Mexico. It is therefore both natural and necessary that DPL-T will be from Russia and DPL-V, from Mexico.

One of the most challenging issues for FIT is the front-end and fast electronics, trigger generation, digitization, and readout. It is therefore mandatory that the Technical Coordinator for FIT (TC) has the necessary competence in that field. As the design and manufacturing of the fast electronics will be done in Russia, it is expected that TC would be from there as well. PL, DPL-T, DPL-V, and TC are members of ALICE Technical Board to assure coherence with the rest of the ALICE experiment and to guarantee prompt information exchange.

Major financial and technical decisions will be taken by the Institute Board consisting of the representatives of the participating organizations listed in Table 0-1: Institutes participating in the FIT project. PL, DPL-T, DPL-V, and TC are ex-officio members of IB. FIT responsibilities and tasks are grouped into Work Packages (WP) as illustrated on Figure 0-1: Organization chart of the FIT project.

Table 0-1: Institutes participating in the FIT project

Country	City	Institute
Denmark	Copenhagen	Niels Bohr Institute, University of Copenhagen
Finland	Jyväskylä	Helsinki Institute of Physics (HIP) and University of Jyväskylä
Mexico	Mexico City	Centro de Investigación y de Estudios Avanzados del IPN
Mexico	Mexico City	Instituto de Física, UNAM
Mexico	Puebla	Universidad Autónoma de Puebla
Mexico	Culiacán Sinaloa	Univerisidad Autonoma de Sinaloa
Peru	Lima	Pontificia Universidad Católica de Perú
Russia	Moscow	Institute for Nuclear Research
Russia	Moscow	Moscow Engineering Physics Institute
Russia	Moscow	Russian Research Centre Kurchatov Institute
United States	Chicago	Chicago State University

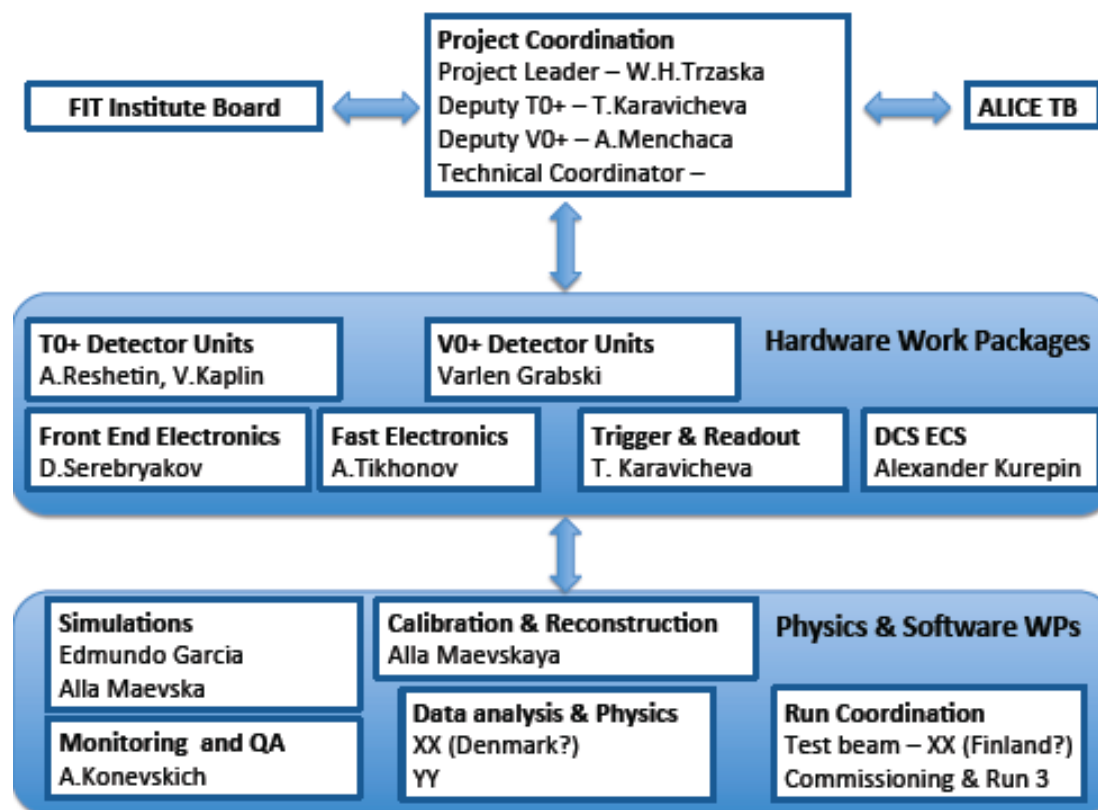


Figure 0-1: Organization chart of the FIT project

Budget explanation and justification

This chapter addresses important design choices and their possible impact on the project cost and schedule.

MCP-PMT sensors

The only commercially available sensors that fulfill upgrade requirements for T0+ are MCP-PMT. The main restriction eliminating for instance the use of PMTs is the lack of space on the C-side, between FMT and the Front Absorber. There are currently three producers of MCP-PMTs: Hamamatsu from Japan, Photonis USA, and BINP from Novosibirsk in Russia. According to our recent (June 2013) market survey, the most suitable module for the trigger upgrade is XP85012 Planacon from Photonis. However, it is expected that within two years Hamamatsu will come with the compatible product providing an alternative for FIT and possibly reducing the market price. This would have a noticeable impact on the cost, as MCP-PMT sensors are the most expensive part of T0+ upgrade.

Electronics

As shown on Figure 0-1: Organization chart of the FIT project, there are four Work Packages responsible for the design, prototyping, production, and M&O of the electronics: Front End Electronics (FEE), Fast Electronics (FE), Trigger &

Readout (T&R), and DCS ECS (Detector Control System and Experiment Control System). The electronics for FIT follows closely the concept that has been designed and proven to work well for the T0 detector. There are also the same research institutes working on the upgrade. This gives us confidence that the job will be done well and according to the schedule. In fact a lot of the work has already started as part of the preparations of T0 for the Run 2. The main difference