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Monitoring and quality control of cabling activities during the LHC LS1

The development of a reliable monitoring system was a key element in the successful consolidation and upgrade of the cabling infrastructure of the CERN accelerator complex. The work undertaken consisted of a large number of installations, distributed over a wide area and carried out to a tight schedule, sometimes in highly radioactive environment, requiring precise and efficient monitoring of all aspects of the activities.

Dedicated tools were used to measure project performance. The work supervisors used an in-house developed tool, GESMAR, to introduce the information for each pulled cable, connections of cable ends and assembly tests on a regular basis. Offline analysis and the cross check of the collected data then allowed detection of potential activity issues like planning delays, resources constraints or failures to comply with the approved working procedures.

Automatic reports on project performance were then extracted and used as indicators. A comparison of forecasts with actual outcomes was produced weekly combining activity duration, overall project cost, resource availability and absorbed radiation dose.

The reports supported the overall project management process and the implementation of changes, as well as individual project managers overseeing the work execution and quality requirements of the delivered installations. The example of the PS Booster cabling activity proved the effectiveness of the developed monitoring system; in fact, during the cabling installation, the monitoring system predicted that the radiation dose absorbed by the workers would exceed the safety limit, alerting management and allowing a pre-emptive adjustment to the method used.

This paper discusses the implementation and use of the monitoring system during the two years of the long shutdown, focusing on improvements delivered in project management and providing practical examples of applications.

Primary author: MEROLI, Stefano (CERN)

Presenter: MEROLI, Stefano (CERN)

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