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ST-ATLAS INFRASTRUCTURE COORDINATION

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Abstract

The ST division launched a collaboration programme with the LHC (experiments and machine) management, by appointing the so-called ST coordinators. The role of the coordinator is to smooth out the relationships amongst representatives of the infrastructure groups, not exclusively within the ST division. This role is nevertheless bound to change as the project unfolds into its different phases. For the time being though, the coordinator's task is to centralize all requests for information from, and provide support to, the collaboration. In the case of ATLAS, the first months of this collaboration have already given some good results, which will be reported in this and future papers. The present paper is to be understood as a progress report summarizing the main items which have been dealt with up to now.

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1 INTRODUCTION

The collaboration between ST and ATLAS responds to a need, felt on both sides, to concentrate all the contacts with the infrastructure groups in just one correspondent person. A paradoxical situation exists at present, where the coordination of the ST business is done by means of the EST division ATLAS coordinator.

For this reason, ATLAS has requested the ST division leader to appoint a coordinator, who will take care of the channelling of information to and from ATLAS. It is indisputable that the ST division want to provide information to the users in a consistent manner. The fact of appointing one person for this task, although presenting many beneficial aspects for all the groups involved, may be seen by some as an attempt to monopolize or filter the contacts with the client. Nothing could be further from the truth. The role of the coordinator is, if anything, intended to simplify the relationship with the client without taking the credit for the work done by every group.

The group's representatives are encouraged to discuss directly with the client any problem which may arise, although the coordinator must be kept informed at all times of the outcome of the discussions which may have taken place.

The ST-coordinator structure has been running since mid summer 1998, and its usefulness can be illustrated with some results already! The rest of this paper is devoted to reporting the progress of this collaboration, focusing on three aspects:

- the elaboration of the infrastructure schedule for ATLAS' Technical Design Report (TDR), as well as the publication of the infrastructure section of the TDR proper;
- the day-to-day (informal) and the formal coordination work; and
- the future expansion of the role of the coordinator during the works phase.

2 INFRASTRUCTURE SCHEDULE AND PUBLICATION OF THE TDR

2.1 General schedule

Two different levels of detail exist in the schedule, which correspond to the two different 'clients' concerned.

First there is the general installation schedule, which is dealt with by the LHC team. The purpose of this schedule is, for the time being, to identify the different work packages and their responsible persons.

The second client is ATLAS, who are preparing their own general schedule, centred on the UX cavern. This schedule comprises several sub-schedules, the first of which is the general infrastructure. ATLAS' main concern is the installation of the detector. For this reason the level of detail is greater in this schedule, aimed at determining the earliest possible installation start date. The delivery date of the UX15 cavern has been assumed to be that of completion of the cavern, and not that of completion of the SX1 building. However, this assumption entails further delay in the delivery of those buildings which are in the critical path in the contractor's schedule. Further analysis of the whole schedule will be necessary before arriving at a final solution that satisfies everyone.

Both 'versions' of the infrastructure installation schedule mentioned above are based upon a draft version, containing the ST and EST activities as requested by the technical coordination, which was prepared early in autumn 1998, and which has already been of some

use to pinpoint a number of problems. Some of these problems, which will need to be addressed soon, are the following:

- the installation of at least one of the cranes in SX1, which needs to be advanced in time to allow lowering the heavy elements into the UX15;
- the temporary release (of less than four months) foreseen for the PX15 is too short, and will need to be extended (up to seven months) to accommodate all the works needed in the shaft prior to the completion of the surface building SX1;

the delivery dates for the lifts (not fixed yet) can be inferred from this schedule.

2.2 ATLAS' Technical Design Report (TDR)

The TDR is a document meant to reflect the advancement in the design of the detector. It is intented for the document to be issued on a yearly basis, to provide in the future a means to follow the evolution in the design up to the construction phase.

As for the schedule, there is a chapter devoted to the infrastructure comprising the civil engineering, cooling and ventilation, electric distribution, ancillary equipment, safety equipment and the access control lot. The so-called external services are also described in a chapter of their own. This chapter comprises those services directly related to the detector but not under the responsibility of the collaboration, like the cryogenics, the gas distribution, the power converters and the cooling plants for the detector.

3 FORMAL INFORMAL COORDINATION

Most of the coordination work is done on an informal basis, mainly outside the official coordination meetings. The job consists of handling and channelling the requests for information or services from the infrastructure groups, typically in the form of specialized studies (like those of the cooling systems for subdetectors) or the preparation work for setting up tests rigs in different buildings. The latter involves the search for drawings of buildings in CERN's databases, occasionally the calculation of admissible loads on the concrete slabs and the availability of primary cooling mains nearby. The former sort of request can be better illustrated in another paper presented also at the second ST workshop [1], in the LHC2 session, and will not be discussed here.

The formal aspects of coordination are covered in the many meetings which are regularly held for the purpose of coordination. Of these meetings, the most important ones are the ATLAS Cooling Coordination Committee, the EST Infrastructure Coordination and even the LHC technical committee (TCC) or the ST technical committee (STTC) meetings.

4 FUTURE ROLE OF THE COORDINATOR

What has been said here applies to the present state of things. It comprises mainly the design phase of the project, which will soon be over. Nevertheless there is much to do in the works phase (which has already started for groups like CE), that for most infrastructure groups is still a few years away. Even for the present case, some situations which have already arisen prove that it is a very difficult task to coordinate a number of groups (inside and outside the ST division) without a clear mandate. Otherwise, all the shortcuts and

bypasses which exist (furthermore since the role of the coordinator has been created long after the project started) weaken the position of the coordinator to the point of making it difficult even to report the advancement of the project.

The division and the collaboration need to define whether the role of the coordinator will evolve towards a work coordinator, and under what circumstances this will be done. If this is not done soon, the role of the coordinator will lose significance, and eventually become unnecessary, as he[1] will be in no position to give any service to the experiments.

The author can see two extreme possible evolutions of the role, which will hopefully set the boundaries when the final decision on the matter is made.

First, there is the 'no-mandate' method of coordination, in which the ST coordinator needs to gain every inch by himself, by establishing a network of personal links among the different role players. In this case the coordinator has no hierarchical position, and has little or no participation in the decision-making (or at least approval) process. The author sees this as a no-win situation for the coordinator, who needs to resort continuously to his own 'communication network' to keep himself up to date on the advancement of the project. A catchphrase comes to the author's mind: "*you cannot always depend on the kindness of strangers*". Nobody will argue that a coordinator who fails to keep pace with the rest of his fellow participants is of very little help to the project.

Conversely, there is the hierarchical method of coordination, in which the role is clearly defined, and given by a hierarchy which is common to all those involved in the project. The authority of the coordinator's and what all the participants in the project owe him must be clear in everybody's mind. On this basis, and provided there is an important personal investment on the coordinator's side, he can always help lead the project towards the desired goal, and have a significant and positive role.

It is said that the middle path is the right one. The ST division must now decide which way, in between these two extreme views, is the appropriate for the means and goals of the division.

5 OBSERVATIONS

There is a very important issue to the role of the coordinator, and that is the need to keep him updated on every question which involves different groups if the task is to succeed (that is the definition of coordination itself!). Unfortunately this is not always the case, which sometimes makes the coordinator prone to look in detail into the aspects which regard his own group. As an example, this author has to confess that when checking the reservations on the civil engineering drawings, since the needs for the electricity, gas, etc. passageways are not known to him, the only reservations which have been checked are those requested by CV. There is clearly an effort to be made on all sides. The important thing to stress here is that all sides have much to gain if this structure is used properly.

[1] Although the masculine forms *he, his, him, himself* are used, the coordinator could be female.

6 CONCLUSIONS

After only a few months of existence, the role of coordinator has already given very promising results. There is a long way to go though and adjustments will have to be made in the future if the role of the coordinator is to come of age.

References

[1] K. Foraz – *The support role of the cooling and ventilation group towards the experiments*, Presented at the Second ST Workshop, Chamonix, France, 1998.