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PROCESS ANALYSIS OF THE CV GROUP'S OPERATION

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Abstract

This report will give an explanation of the internal reorganization that has been done because of the necessity to optimize operation in the cooling and ventilation group. The basic structure for the group was defined at the end of 1998. We understood then that change was needed to accommodate the increased workload due to the LHC project. In addition, we face a relatively large turnover of personnel (retirements and some recruitment) with related integration issues to consider. We would also like to implement new approaches in the management of both operations and maintenance. After some running-in problems during the first half of 1999, we realized that much more could be gained with the analysis and the definition and documenting of each single function and generic activity within the group. The authors will explain how this analysis was carried out and give some feedback of the outcome, so far.

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1 INTRODUCTION

The structure of the Cooling and Ventilation (CV) group was redefined at the end of 1998. This reorganization was needed in order to meet requirements related to the LHC project as well as to maintain highest performance in the operation domain. The work conditions are, in addition, changing with some new recruitment to replace many recently retired colleagues. The only possibility found to meet a growing work-load with fewer staff is to carry out an increasing number of tasks with outside industrial support sources. In the middle of 1999, the results were still not meeting our high expectations and a deep analysis of the group's functioning was undertaken.

2 OBJECTIVE OF THE REORGANIZATION

Our aim was to achieve full control and understanding of all activities in the group, especially focused on project organization and operation management.

3 METHOD

3.1 Team building of the working group

The choice was this time to work in a small team, which consisted of the management of the group (group leader and section leaders), with object-oriented support by experts, when needed.

3.2 Clarification of the objectives

To define the context for the analysis, our basic group objectives were carefully identified.

3.3 Trends

The evolution in time and in work-load for the projects and operation were analysed to focus on the consequences for the three main activities.

3.4 Identification and description of the processes

In order to adapt the horizontal structure of the group, a process-oriented approach was chosen. The first phase was to define architecture of all the processes in the CV group. From the users needs (input) until the satisfactory fulfilment (output), we divided the group's horizontal process into two subsequent processes:

- project management (design and construction),
- operation management (operation and maintenance).

Moreover, the support processes for the group's operation were also defined, such as

- budget management,
- group administration,
- computing support for maintenance management.

A simplified architecture for the group's operation is illustrated in Fig. 1, below.

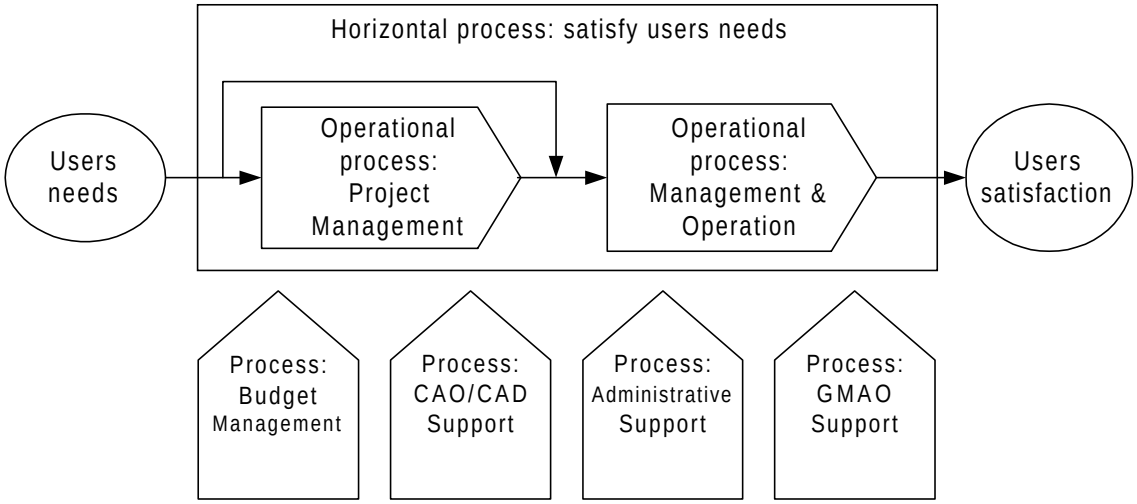

Figure 1: Simplified architecture of the group.

Each process consists of several sub-processes. The way we illustrated these sub-processes is shown in Fig. 2.

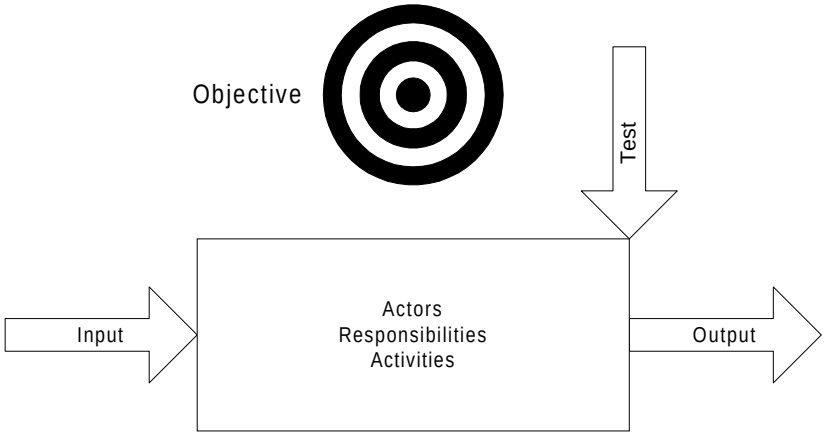

Figure 2: Illustration of the sub-processes in the group.

3.5 Definition of the functions

The functions of the main actors in the group were defined based on all information documented in the sub-processes. Each function contains the following:

- the rôle (based on the objectives set in the sub-processes),
- the responsibilities,
- the activities,
- the main relations,
- the required competence.

3.6 Analyse the work-load of the actors in the CV group

An inventory was made in order to determine the real availability of the actors, and the various work-loads, especially those outside the group's mandate, e.g.

- activities in the context of the experiments,
- participation in different working groups,
- other non-CV assignments.

3.7 Adequacy of the actors in their function

The required competence, as well as the availability of the actor in the group, was in each case carefully discussed and taken into account before the function was attributed.

3.8 Definition of means for co-ordination and follow-up

In order to follow up and co-ordinate all activities in the group the following weekly meetings were defined:

- meeting with the management of the group (group leader and section leaders);
- section meetings (Design, Works, Operation);
- project review meeting (management of the group and all project leaders).

3.9 Action plan for the new organization

The implementation of the new organization was done according to the following main steps:

- approval from the division leader,
- private discussion with all persons concerned by a change in their function,
- general information to all group members (30.09.1999),
- implementation within each section,
- implementation in projects,
- implementation in all group support functions,
- implementation of means for co-ordination and follow-up,
- follow-up, corrections and improvements.

4 RESULTS

The reorganization did clarify the horizontal functioning of the group, especially concerning the processes related to project management.

The responsibility within the hierarchy of the group has been well defined, notably in the design area. The rôle of the CERN personnel towards industrial-support contract staff has been defined with more precision. The last major part is a fully operational work structure, which is now well under way.

Globally, the new functions have been well received. Admittedly, we did have to break down (and get hurt by) some barriers; but our determination was very strong to apply what we believed was right.

The clarification of the functions did take away a certain ambiguity in the rôle of each one. This was particularly welcomed by those who had a 'free electron' position or whose function had a rather too 'fuzzy' definition.

One of the more delicate aspects was the negotiation with those who changed function and/or section.

The method we chose was as simple as we could make it. A small working group did permit an efficient work progress and consensus on the main points was reached without too much disagreement. However, had a greater number of people been involved in the working group, the implementation (by participation) might have been more direct.

To summarize, the actions undertaken have contributed to clarifying who does what in the group. The effort needs, however, to continue, so that operational procedures can be consolidated over all our activities, and possibly, new performance-related measurement tools be developed.

5 CONCLUSIONS

In the matter of organization there is no such thing as ‘one best way’. The process approach we applied in the reorganization work discussed in this report proved to be useful and well adapted for the operation of our group, in particular for the project organization.

The authors are convinced that the group has gained something that we will reappraise during the rough construction time (LHC) ahead. Our feeling is also that most group members find comfort in the precision we have given their function.

The work which has been explained was, although retrospectively seen as a line of logical decisions while in progress, a brain- (and heart-) aching experience for the working group as well as some other participants within the group. All merit gratitude for their concerted effort and commitment in the implementation.

We are optimistic that results in the form of better performance, in several areas of our group’s operation will soon be displayed, together with the best reward we could wish for, i.e. the respect and the good working spirit among our colleagues in the CV group.