ESTABLISHING A PROJECT MANAGEMENT OFFICE FOR THE LARGE SCALE MULTI PROJECT FAIR

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Abstract

The Facility for Antiproton and Ion Research (FAIR) is a large scale multi project comprising 10 subprojects in the field of accelerators (pLINAC, SIS100, SuperFRS, p-bar Separator, Collector Ring, High Energy Storage Ring), experiments (CBM, APPA, NUSTAR, PANDA) and civil construction. This contribution describes an integrated approach how a controlling type project management office (PMO) was established, meeting the overall requirements for project steering and specific requirements of the subprojects and international partners involved. Major responsibilities of the PMO are project planning, integrated reporting, cost and budget control, risk management, in-kind coordination & procurement, quality assurance and configuration management & documentation. Core processes, roles and responsibilities, methodology and interfaces internally and towards the project pillars are presented.

FRAMEWORK CONDITIONS

Initiated by a set of recommendations that have been disclosed by an external review committee in 2015, the FAIR Council and the common FAIR and GSI management hereinafter developed an action plan, including a profound realignment of the organizational project structure. One major task within these realignment activities was a complete organizational merger of the existing project offices of FAIR and GSI on site [1]. Content wise our bodies (e.g. FAIR Council and advisory committees) requested and integrated project schedule, covering civil construction, accelerators and experiments as a resource loaded multi project scheme [2] and a complete revamp of the risk management as an effective tool for project steering by our project team and for controlling purposes, meeting the requirements of our bodies [3]. Moreover the new project management office (PMO) has to support and enable the project management team with a common terminology and effective, forward looking methodology, processes and tools.

On premises two project management teams at FAIR GmbH and GSI GmbH with partly complementary and partly overlapping areas of responsibility had to be organizationally merged as one common PMO for the FAIR project, structured in a new group setup and realigned regarding the roles and responsibilities. Major challenges have been the integration of PMO teams and the sustainable integration of the PMO into the entire project team.

PROCESS OF CHANGE

The necessity of change was widely accepted within the teams but the individual perception of possible opportunities and threads has been rather divers.

In order to develop a joint perspective of the PMO structure, first a common knowledge base had to be worked out. During preparation phase the knowledge transfer started within several interviews of successful large scale projects (e.g. LHC, X-FEL, W-7X, LCLS-II). With a focus on their success factors and lessons learned, we have compiled a database of PMOs as example cases, which have already been successfully established at other labs.

The change workshops started with a strength, weaknesses, opportunities and threads analysis (SWOT) of each of the example cases within open space format, so team members contributed to whichever potential setup they felt comfortable with. Results have been presented in a following plenary session and been rated according to the given score by the participants.

Top rated solution was a central PMO as a staff department on subproject level within a fully projectized organisational structure of ~400 employees within the FAIR project division on site [1]. PMO strategy and characteristic was decided to be controlling-type with a basic support role but non-directive. However the rollout of new methodologies and tools require a substantial directive approach of the PMO as well.

In a second step, the selected general solution has been further developed and detailed down to the group level by assigning core tasks, responsibilities and describing interfaces. Starting from the former setup of tasks and people, changes where only made, when needed as an evolutionary approach. All team members have been assigned according to their qualification and actual activity description. All results of this major step in the process of change have been summarized in a decision proposal to the board of directors and the co-determination bodies (e.g. works council) for consultation.

As final step of the described organizational process, all derived individual personal measures are being implemented, followed by team building workshops and HR development measures (e.g. manager training, specific trainings), whenever required. This is an ongoing process.

The PMO is by definition a temporary organization and needs primarily to run during the project phase. While currently the FAIR project is in the planning and procurement phase with rather fundamental support required, it will change with the ramp up of the civil construction

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Figure 1: Organizational structure of the FAIR project management office as decided by management in June 2016. This chart is a specific further break down of the FAIR and GSI overall organizational chart [1].

phase, followed by the installation and commissioning phases with an overlap to early operation of some of the machines that will require different PMO support and focus. Thus, further adoptions will be required according to the emerging project phases. That will be a part of the organizational development towards regular operation of the facility.

ROLES AND RESPONSIBILITIES

With the given framework conditions and underlying process of change, the adopted PMO strategy, roles and responsibilities have been derived, see Figure 1. Consistency and completeness of the assigned roles and responsibilities have been cross checked with specialist counselling and literature study [4-5] in several workshops.

Representation and Anchoring of the PMO

The head of the PMO belongs to the project management team (PMT), represents the entity and laterally communicates with subproject leaders on an equal footing. Being an information platform and key interface, the office allows all PMO team members to work and cooperate on subject matter in flat hierarchy. Internally the PMO prepares and runs the weekly PMT meeting, focusing on operative decisions and actions. Once per month it provides reports and templates for the project progress meeting, reporting to the management with a focus on status, required actions and decisions the management needs to get involved with. Externally the PMO reports via the board of directors on a regular basis to the national and international shareholders.

In the following section, all groups are listed with their major tasks and competences, see Figure 1.

Group Project Planning (PPL)

- Owner of the project planning process
- Setting the topology & portfolio of plans
- Setting targets for milestones
- Supporting planning of budget and personnel within the resource loaded schedule
- Server based scenario simulation
- Training how to apply tools & methodology

Group Reporting and Tools (RTO)

- Owner of the project steering process as integral project steering process

- Providing internal reports to the project team, project leader and board of directors
- Providing external reports to our shareholders, especially the German ministry for education and research
- Funding legislation compliance
- Setting standards and framework for all PMO reports
- Running the project meetings PMT/PPM
- Analyzing status data, developing decision proposals
- Development and rollout of tools

Group Cost & Budget Control (CBC)

- Owner of the project budget process
- Provision of all cost related project reports
- Target control actual comparison of cost to available budget
- Interface towards controlling dept. cash in/cash out
- Cost scenarios and strategies
- User support for SAP-PS

Group In-Kind Office & Procurement (IOP)

- Owner of the in-kind process
- Liaison office for the in-kind partners
- Identification of procurement packages
- Follow-up of specifications
- Preparing contracts
- Interface to procurement dept.
- Strategic proposals
- Cost-book (shares)
- Tool Cockpit (scope)

Group Risk & Opportunity Management (ROM)

- Owner of the project risk management process
- Setting assessment standards and tools
- Deriving a project risk register
- Running analysis on the risks assessed
- Follow up of measures
- Controlling functionality and 4-eye principle
- Risk report to the share-holders and the management

Group Quality Assurance (QUA)

- Owner of the project quality assurance process
- Status tracking with quality gates
- Controlling functionality and 4-eye principle
- Follow-up and review of inspection plans
- Management of testing equipment
- Evaluation of suppliers
- Technological consulting

- Review of Q-docs
- QA reporting

Group Configuration Management & Documentation (CMD)

- Owner of the project config. management process
- Development of the component DB
- Identification of device types
- Correlation between functional locations
- Machinery labeling
- Owner of the change process regarding engineering and project driven changes
- Document management
- CDB DM support

Temporary Project Group Product Lifecycle Management

- Implementation of a Product Lifecycle Management system in a stage gate process
- Research, evaluation and piloting phase will start within the project group
- Rollout of software after successful pilot phase on site, beginning with the project division

MAJOR ACHIEVEMENTS

The following important project milestones could be achieved, sorted by groups to provide a better overview.

Group Project Planning was in the very focus of all the advisory committees and shareholders and in summer 2016 had to establish a task force 'Integrated Master Schedule' in order to overcome the challenge with following millstones achieved:

- Integrated project master schedule & project baseline
- Resource workshop to balance overload
- Rollout of the planning process & progress control

Group Reporting and tools is the only group that was completely rebuilt with the integration tasks that did not exist in the former setup. Following milestones achieved:

- Integrated reports on subproject level
- Tools for progress tracking and resource balancing
- Proposal for a harmonized external reporting

Group Cost and Budget Control extended their field of action to the entire project that became possible with the organizational merger of two companies (FAIR and GSI). They could achieve the following milestones:

- Integrated cost and budget reporting with project wide methodology for (EXP, ACC, FAIR Site & Buildings)
- Complete cost evaluation via MS-Project
- Ad-hoc reports for management

Group In-kind office and procurement as well extended their field of action from FAIR only producing and taking the components to FAIR and GSI with delivering of components and the later operation. Milestones achieved:

- Important collaboration and in-kind contracts closed
- Integration of the full scope list into the tools for scope and share management

- Procurement packages updated and completed

Group Risk and Opportunity Management was the second focal point of our advisory committees and shareholders with the mandate to revamp everything, the following progress was achieved:

- Restart of the FAIR risk management in new methodology
- Assessment on work package and supplier level
- Risk register built up
- Second FAIR risk report issued and provided

Group Quality Assurance had to adapt the increasing production issues in the current project phase and stabilized their role and concepts with the following progress:

- QA support of major components e.g. SIS100 dipoles
- Project wide training of quality gates and processes
- Qualification and data base for testing equipment
- Q-classes defined to prioritize QA workload

Group Configuration Management transferred all construction experts to FAIR site and buildings and refocused on their core activities with the following achievements:

- Major milestones in structuring of component data
- Handing over cable planning DB to FSB
- Rollout of CDB for several WPs
- Improved DM structure

Project Group Product Lifecycle Management had to handle fluctuation of resources and carried efforts in communication and fundamental concept work with the result:

- Finalization of the research and evaluation phase with the decision to run the pilot project on SAP PLM software.

CONCLUSION & OUTLOOK

Although the entire project organization underwent a substantial reorganization, PMO adapted to the situation quite impressive with a remarkable number of important project milestones has been achieved and positively recognized. Key elements have always been cooperation, honest communication with colleagues being eager to make it happen.

For the future the FAIR PMO needs to get tuned on subject matter to stabilize and improve processes, straighten up the methodologies and tools applied for an improved efficiency. But it also needs to refocus on the team development as well for a productive trustworthy working environment. 'People is key' and required development measures are mandatory for the future success.

ACKNOWLEDGEMENT

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