



Project management in a fully matrixed organisation

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SCOPE

- Projects at ESO
- Aspects of the matrix structure
- Implementation at ESO
- Conclusions – Discussion topics



The mission of ESO

- *Enable major scientific discoveries by **constructing** and operating powerful observational facilities that are beyond the capabilities of individual Member States and*
- *Foster astronomical cooperation within its Member States.*

ESO's mission is accomplished mostly through project-related work



The Projects at ESO

- **Astronomical Observatories (large infrastructures)**
 - design and construction
 - 10 years/ 1 Billion
 - alone or in partnership
 - **Astronomical Instruments**
 - complex optical-mechanical, electrical, systems
 - Several years/Several Millions
 - Mostly in partnership with other Institutes
 - **Upgrade existing facilities (HW and SW)**
 - **Technology dev.: detectors, RF receivers, Electronics, SW**
- Wide variety of engineering disciplines involved:
Civil, Electrical, Mechanics, Optics, Software, etc...

Currently: 1 Observatory (E-ELT) + ~25 Instruments +...



ESO Structure

ESO is structured in 5 Directorates:

- ADMINISTRATION: HR, Finance, Contract and Procurement...
- ENGINEERING: technical competence
- OPERATIONS: facilities management
- PROGRAMMES: projects development
- SCIENCE: definition of strategies and projects (requirements)

Projects (grouped in programmes) are:

- Promoted (mostly) by SCIENCE
- Managed within PROGRAMMES
- Executed within ENGINEERING



Why the matrix

- Until the recent past roles not well defined: technical staff distributed and project management taking place in several areas
- Hybrid or incomplete matrix structure suitable for a limited amount of undertakings or a relatively small Organization, providing the highest flexibility
- Shortcomings emerged with the increasing number of projects, facilities to operate and amount of staff: large number of ad-hoc arrangements, some level of discomfort within the staff, difficulty of planning, unbalanced distribution of effort, unsatisfactorily projects coverage



Why the matrix

Philosophy: separate staff management from project management

Advantages

- Best usage of resources: “everybody busy on something”, all projects staffed
- Flexibility: project-people assignment easily adapted to best fit projects and staff interests
- Development and share of key competences

Disadvantages

- Overhead
- Dual command structure
- Requires good coordination Line/Project managers (discussions...)

Risks

Staff motivation: “body shopping” perception, lack of project ownership

Fragmentation: projects/people unnecessarily “chopped”



Critical aspects of the matrix

Allocation of resources - competition

Competition for resources is not a matrix's consequence, rather a consequence of the strategic decision of undertaking concurrent projects. The matrix approach aims at optimizing the resources, however it requires a strong managerial leadership and clear guidelines, for instance on priorities.

Staff management: hiring, appraisal, development, training

These aspects are normally under the responsibility of the functional manager, but are tightly related with the project(s): strong coordination by means of policies, based on exchange of information, mutual trust, and good will is essential



The reorganizations process at ESO

Started in early 2013, four phases planned

- **Phase 1:** definition of the objectives
- **Phase 2:** inter-Directorate staff reassignment:
- **Phase 3:** Directorates internal re-organization:
- **Phase 4:** consolidation, review, adjustments

Currently in Phase 3

Staff and middle management involved as much as possible in all phases



Phase 1-process establishment

- 3-day coached workshop involving the whole management
- Planning of the following phases
- Configured as a “Project”
- Allocation of resources
- Process stirred by interdisciplinary Core Team
- Process monitored by Advisory Team



Phase 2-actual implementation

- Management plan
- Substantial staff movements:
 - Most of the technical staff moved into DoE
 - Most of the project managers moved into DoP
- Definition of the policies:
 - Resource allocation (policy, software tool)
 - Performance Management and Professional Development
 - Training



Phase 3 -complete the re-structure

- Internal re-organization of Engineering Directorate departments
 - To best suit the matrix structure making the key competences available to projects
 - Identify the critical core competences
- Internal reorganization of Programme Directorate
 - Creation of the Project Management Department
 - Unify Project Management processes and procedures

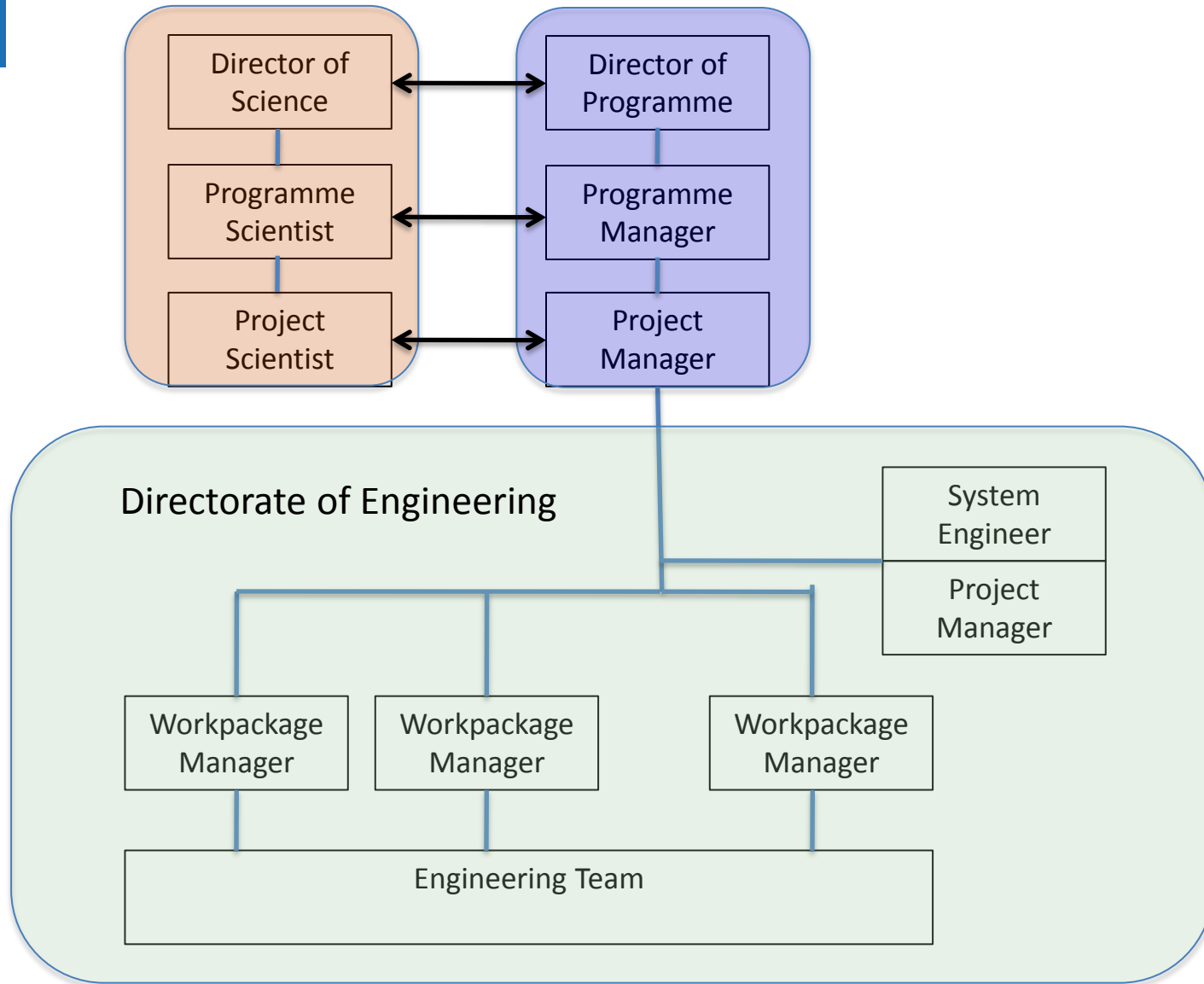


Phase 4 - consolidation

- Evaluate results
 - By objective metrics (to be defined...)
 - By subjective feedback
- Devise margins and establish a process for continuous improvement



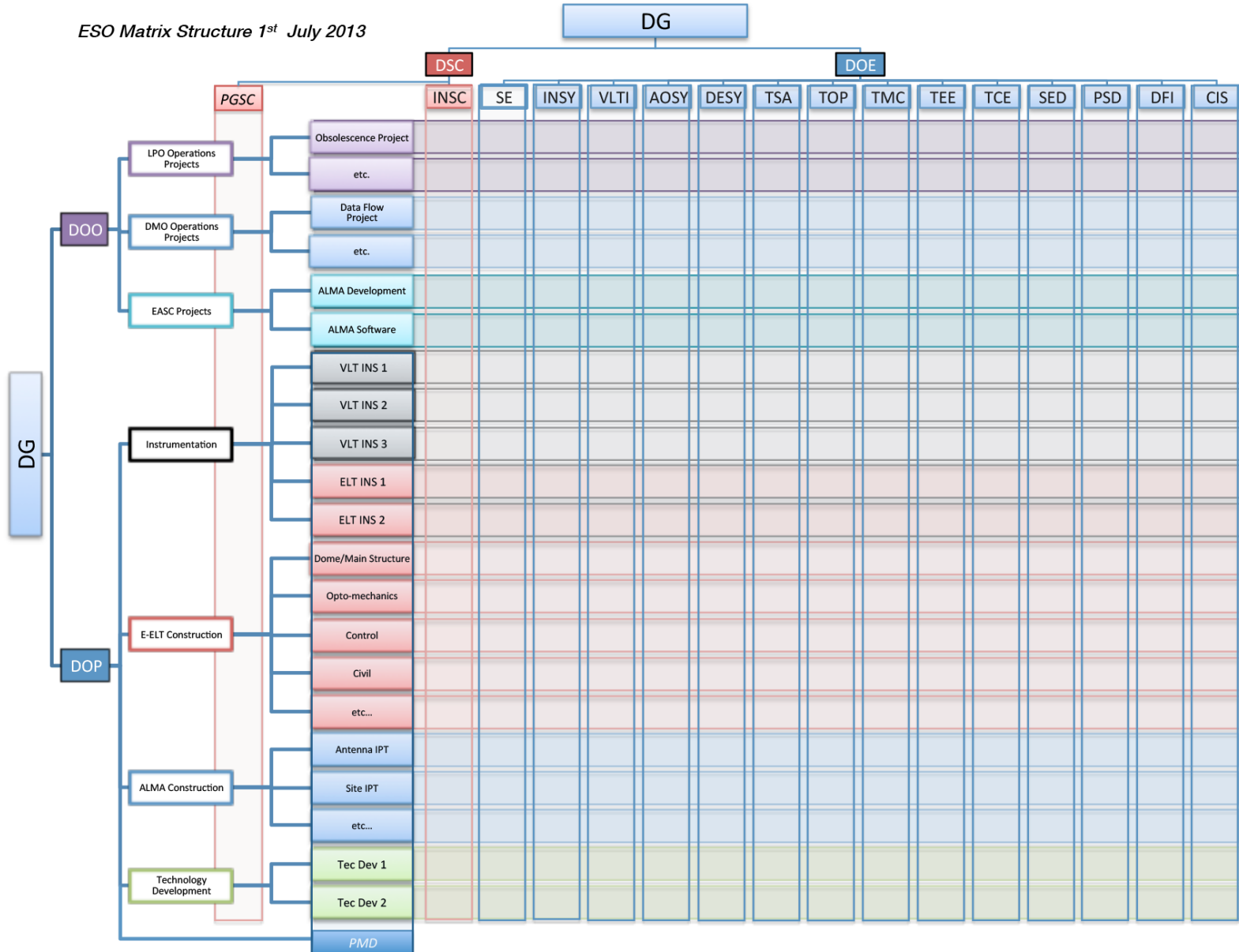
The Project management at ESO





ESO Matrix

ESO Matrix Structure 1st July 2013





How much successful at ESO?

A metrics for an objective evaluation is still matter of discussion at ESO. The subjective perception varies, but in average the change is being well digested by the staff, although key matters are still pending (restructure of Directorate of Engineering).

“...the tendency toward hopelessly complicated and ultimately unworkable structures reaches its ultimate expression in the formal matrix organization structure which regularly degenerates into anarchy and rapidly becomes bureaucratic and non-creative.”

Stated some authors back in 1982, however today the Matrix structure in its various flavors is still widely used...



Conclusions

The new matrix structure at ESO is strongly project-oriented, though with some flexibility (projects outside DoP allowed)

- Since the early decades of the last century several theories on best organization structures appeared and faded away
- Industrial experience is only partially portable to scientific organizations
- No perfect solution exists: tension being the back side of optimization
- Suitable procedures are necessary, however the success (or failure) relies on:

Effective interaction between Organizational Units and especially people at all levels